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Why are the rich getting richer while the poor stay poor?

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> "Everybody knows the fight was fixed
> The poor stay poor, the rich get rich
> That's how it goes
> Everybody knows" (Leonard Cohen).

Introduction

Thomas Piketty's (2014) striking best-seller with his largely researched and data-based debunking of the post-war optimism and the so-called Kuznets Curve[1] pointing to a supposedly automatic reduction of inequality in the advanced industrial nations, as well as the growing wealth-inequality in both mature and developing countries, has brought the discussions about wealth-distribution again to the forefront in economics. And not just in academia, but for the public at large and the media, now that the divide between the so-called 99% and 1% of the world's population keeps growing.

In this paper, I aim to build on Piketty's findings and particularly on identifying one and probably the main factors contributing to this increasing income gap between rich and poor. While Piketty's answer that the rate of return on capital has historically exceeded the rate of return on income and output is sustained by the impressive amount of data he considers, it nevertheless does not shed sufficient light on why it is so. Particularly, there are two aspects which I believe are important to consider and to deepen while talking about wealth-distribution and how people in our contemporary world acquire wealth in the first place.

On one hand, Piketty and others take a very broad definition of capital and by doing so – as well for methodological and practical difficulties – he does not clearly distinguish between various kinds of capital income like rent, financial profits, dividends, royalties and other capital gains in his statistical analysis. Particularly, as will be argued here, Piketty's book does not shed a light on a crucial distinction between capital gains derived from productive capital investments from those resulting from purely speculative gains. It does not distinguish between incomes deriving from producing different and new wealth from those resulting from the mere increase in prices of properties like land, real estate, artwork, antiquities, collectables, stocks and other financial instruments and goods. By not distinguishing between these different sources of capital income, Piketty does not sufficiently highlight the role of monetary inflation resulting from the steady increase in the money supply as an increasingly important factor leading to the growing income gap between the "have and the have-not", the growing poor and the enriching rich and super-rich of the world population.

[1] This question is largely discussed in Piketty's book. While Kuznets hypothesized that industrializing nations experience a rise and subsequent decline in economic inequality, following a supposedly "Bell-shaped curve", particularly after the 1970s a steady increase in inequality could be observed both in newly industrializing as well as in advanced industrial societies, as shown by numerous studies and data.

As will be argued, a great part – and increasingly so – of the capital gains result from an inflationary increase in the monetary value of given financial assets and not from productive employment of capital, generating both capital-income and new wealth on its wake. Thus, we overlook the effect of the different kinds of capital both in fostering or not overall economic activity and the effect of that which has been termed "financialisation" on the wealth-inequalities in our contemporary world. "A pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production", as defined by Greta Krippner following Arrighi (Arrighi 1994; Krippner 2005, p. 174).

While in the case of capital invested in productive and commercial activities we may observe a larger appropriation of newly created wealth by some in proportion to that gained by others, but still growing wealth for all in global terms; a completely different picture emerges when we look at the speculative financial gains obtained from buying and selling financial assets at a profit. Here, no new wealth is created and thus, at the aggregate level, we have a net transfer of the existing wealth to those who managed to effectively obtain speculative gains from their capital at the expenses of those who don't and who do not possess speculatively invested savings.

A second aspect which is not considered by Piketty and by economists at large even when talking about "wealth distribution" issues has to do with the very definition of wealth and what we are talking about in the first place. Adam Smith, when inaugurating modern economics with his *An Inquiry into the origins and causes of the Wealth of Nations*, already defined "wealth" in terms of use-values, as related to a way of "being" and which manifests itself by consuming and having access to the right satisfiers (Max-Neef et al., 1989), rather than related to "having", acquiring and accumulating exchange-values as such. It has to do with the way we define, experience and satiate our needs, not with the amount of money we possess.[2] As Smith stated (1937[1776], p. 30), "every man is rich or poor according to the degree in which he can afford to enjoy the necessaries, conveniences, and amusements of human life." This leads him and those economists who followed him, including Neoclassic and Marxist economists as well, to consider *wealth* as such in terms of use-values and not in terms of exchange-values, as Aristotle (1999, pp. 14-15) already had done more than two millennia before.

Notwithstanding, modern economists – starting with Smith himself, right after defining "wealth" in use-value terms – by focusing on the quantitative and the market-related dimension of the economic process, ended-up considering wealth in purely chrematistic, monetary terms, ignoring both its physical and its culturally and psychologically subjective dimension. This is important once, while productive capital may be defined as related to producing "new" and/or more use-values in the existing real-world economy, speculative capital merely relates to the monetary dimension of the economic process, to a relative increase in the exchange-value of given financial assets. While the former results from productive use of capital, the latter results only from a change in the exchange-value of some goods relative to others, thus altering the purchasing power of some at the expenses of others.

[2] This question is developed more in depth in my recently published book (Stahel, 2020, chapter 3.10, pp. 510-542) in which the question of needs is addressed more in depth, how they are defined in our modern world and how they are central to the very definition of development, wealth, sustainability and indeed economic theory.

Money and capital in the 20th century

As already Aristotle (1999, p. 14) noticed,

> "a shoe is used for wear and is used for exchange; both are uses of the shoe. He who gives a shoe in exchange for money or food to him who wants one, does indeed use the shoe as a shoe, but this is not its proper or primary purpose, for a shoe is not made to be an object of barter."

Historically in all human society, at a given moment, some use-values – from shells to salt, stones or metals – would be used as coins, that is something which is accepted in exchange to be used on another future exchange down the line. Thus, the use-value of commodity money is no longer its primary, but his secondary use, namely to serve as exchange-value instead. It may still be used for its primary purpose, but as long as there are an agreement and trust in its use as a means for exchange being accepted by buyers and sellers, it becomes money. Part of the salt received as a salary may eventually be used for cooking, another part used as money to acquire the vegetables to be cooked. As were cigarettes during war-times or in prisons used as money or used to be smoked.

But to understand the broader effects of this use of certain goods or services as exchange-value instead of its primary use, we may still follow Aristotle (Ibid., p. 15):

> "once the use of coin had been discovered, out of the barter of necessary articles arose the art of wealth-getting, namely retail trade; which was at first probably a simple matter, but became more complicated as soon as men learned by experience whence and by what exchanges the greatest profit might be made."

From here, as Aristotle concluded and Marx put at the centre of his definition of capital, two kinds of exchanges emerged: buying for selling (hopefully at a profit) or buying for consuming, having sold to acquire the needed money to buy that which is needed to try to satisfy a felt need.[3] In the latter, money is just a means for exchange, placed between two different use-values, while in the former it becomes an end in itself, being used for its secondary purpose and aimed at an increase in exchange-values.

By introducing money as an intermediate link between two different commodities ($C_1 – M – C_2$) facilitating an exchange between two different use-values, you also open the doors for putting a commodity as an intermediate link between two exchange-values, the aim being to increase your capital ($M_1 – C – M_2$ aiming to get $M_2 > M_1$). Thus, what the Greek called

[3] Formally Marx portrayed the first one as $M_1 – C – M_2$ aiming to get $M_2 > M_1$ (money here being used to buy a commodity which is later to be resold at a profit), while in the latter we have $C_1 – M – C_2$ (here a commodity is sold in order to earn the money needed to acquire another, different commodity with it). In the first case, the aim is quantitative, the intervening quality of the commodity not being of the essence, being just a mean-to-an-end, while in the second case it is the qualitative difference between the commodity possessed at the beginning of the circuit with respect to the one acquired at the end which is of the essence. Exchanging something you need less in order to acquire something you desire more. In both cases, the intermediating link is just a means-to-an-end. It could as well be removed, as it happens for financial capital when you have interest-bearing money (exchanging present money for a future higher quantity, $M_1 – M_2$, where $M_2 > M_1$) or direct barter for the second case, whereby a given quantity of a certain good or service is given in exchange for other, different, goods and/or services, thus acquiring different use-values ($C_1 – C_2$, where $C_1 \neq C_2$). See Marx, Karl (1867/2015). *Capital - A Critique of Political Economy* - Volume I. Moscow: Progress Publishers, chapters 2 and 3, pp. 60-77.

chrematistics and Aristotle defined as “the art of acquisition” was born. Acquiring different use-values by exchanging C_1 for C_2 to satisfy your consumption needs or acquiring more money, that which Aristotle termed “the art of getting rich” by accumulating more exchange-values. In both cases, there is a flux whereby money and commodities become part of a commercial flux, become capital. $M_0 – C_1 – M_1 – C_2 – M_2 – C_3 – M_3$…

As to capital, we may also differentiate alternative forms whereby someone aims to enrich himself accumulating more capital. As commercial capital, money is being used to buy commodities at a given time and space aiming to sell them at a different time and space at a profit. In terms of the intrinsic use-value of that which is being bought and sold, nothing has changed. But by changing the spatial-temporal context of the commodity, new use-values for the consumer are created, the merchant earning his profits from providing this service as an intermediate link between production and consumption. Providing the dislocation of a commodity from one spatial-temporal context to another. Alternatively, capital can assume a productive character by acquiring certain goods and services in the form of resources and production factors, combining and transforming them into new goods and services to be sold at a profit. Thus, be it in the agriculture and other primary sectors aiming to transform nature through human labour, be it in industry or the service sector, new wealth is being produced by combining and transforming existing use-values to produce different use-values to be sold aiming at a profit as well. In both cases, capital is used productively creating new use-values and/or spatial-temporal contexts in which these use-values are realized and manifest their value.

But, there is a third and increasingly important way whereby money can manifest itself, namely as speculative financial capital. Here no changes in the use-value of commodities are attempted, but directly a growth in the exchange-value by exchanging money for hopefully more money, time intervening between the act of giving/lending the money at the beginning of the process and receiving it back added to interest or a financial profit at the end of it. The time-lapse intervening may be as short as those intervening in high-frequency trading or as long as those intervening between some speculative acquisition and selling of great masterworks and real estate. In all these cases, assets are bought not for their primary use (stamps for sending letters, artworks to be admired or grains in future markets to be consumed), but for their exchange-value, as money. Here the commodity is bought not because of its primary use, but as in the example given by Aristotle, for its secondary use, namely as money. Every time capital circulates not as commercial or as industrial capital, creating new use-values in its wake, but is invested hopefully earning more money at a later time, we have money beget more money, ongoing growth and accumulation of exchange-values which is not accompanied by the creation of new wealth in use-value terms. Hoping to gain from the differences in the monetary value at the beginning and the end of the process. M_1-M_2-M_3-M_4… Hopefully $M_4 > M_1$.

From here we can see that whenever something is acquired not because of its use-value to be consumed by a final consumer, to be transformed by the merchant connecting producers and consumers or by the producer producing new use-values; but is acquired as a speculative investment aimed to be resold or recovered at a profit later, it becomes money. It is financialized. Money’s use-value being that it is accepted and works as an exchange-value. From that perspective, we can see that money may be classified in terms of its degree of liquidity, that is, how easy and fast a good or service can be converted into a medium for exchange. Some forms of money having immediate liquidity – thus a high use-value as money – others not being as readily accepted and/or having to be reconverted into high-

liquidity money first, possessing a lower use-value as money as such. Thus, during wartime, cigarettes often became a form of high liquidity currency as they were a ready means of exchange, even by non-smokers, being as they were widely used and accepted by the community as means for exchange. Nowadays, fiat money issued by central banks has immediate liquidity where they are legal tender or within social contexts in which they are trusted and accepted (like many places outside the US where the US-dollar is accepted for payments nonetheless). The same for electronic money, as the accounting procedure whereby numbers on one account are transferred to another account, being accepted as proof of payment and, nowadays due to information technologies, happen on a global scale almost immediately worldwide.

Once the system is trusted, demand banking accounts are thus of immediate liquidity and count as money: people may withdraw them physically, draw checks on them or use their debit or credit cards to pay the bills. They may even be allowed to draw above their holdings, getting automatic credit from their bank, thus further expanding their liquidity and thus the existing monetary basis. As always, it's use-value as an exchange-value being a matter of trust. Money is accepted in exchange for something else as long as there is the belief that someone else down the line will accept it too in exchange for something else. Notwithstanding, this so-called M1 (that is money with immediate liquidity – paper money – M0 – and demand banking accounts used through payment cards or electronic means) represent just a small part of so-called "global money" today. With the existence of digital money, even physical printed and coined money is just a small proportion of the existing money supply. Indeed, nowadays only around 3-10% of M1 is printed. The rest is just made-up of zeros and ones, virtual electronic money, digital money being created without actually having a physical existence by our public and commercial banking system. It's existence simply being stated by an accounting procedure by the banks. That is also the realm in which, as we will see later, potential infinite growth can happen.

M2, which includes saving accounts and time deposits which can readily be converted into M1, have still high liquidity, while M3 is made-up by further financial assets like funds, with less immediate potential to be used or converted into currencies. Finally, there are physical assets and investments which may spread from jewels and artwork to real estate or even the rights of modern football players. These are all domains in which the "art of getting rich" can be exercised in a potentially infinite way, with higher or lower liquidity. Being valued in chrematistic terms and having been acquired not because of their use-value to be consumed or to be productively transformed, but simply because of their potential exchange-value down the line, they too are all different manifestations of money, that is, the capacity to be used in exchanges for something else. Jewels and gold used in wartime in exchange for food, escape or hiding; an urban apartment given in payment for a countryside estate. Whenever something is acquired not for its primary use-value, but because of its exchange-value, we are using it as money. Be it as a reserve of exchange-value (aiming to preserve our acquisition power), be it speculatively, aiming to increase our chrematistic acquisition capacity. But while financial wealth is potentially infinite, use-values or the so-called real wealth is limited. While there are no limits to the money which may be accumulated in form of zeros and ones in its digital form, there are certainly limits to its physical manifestation and the real wealth which can be obtained for it.

Here it may be important to include the first reflection: nowadays, when talking about "wealth", we look at the number of accumulated exchange-values. Not in terms of real-wealth, use-values. Thus, we overlook the fact that life and wellbeing are relational, they are emergent

realities, not something primarily related to accumulated monetary possessions. What if, let's say, all allegedly existing US-Dollars were to be converted into actual goods and services instead of being kept circulating in the financial markets or as reserves of the different central banks? If the combined financial assets held in US-Dollar denomination were to be used to buy consumer goods and services, we would see that the supposed existing financial wealth of countries and individuals is not matched by the equivalent wealth in existing use-values. The ongoing growth in financial wealth not being matched by the growth in real wealth. Bill Gates, ranked by the Forbes magazine as the second "richest" men in the world, can be taken here as an example. His chrematistic fortune, valued at more than US$ 98 billion,[4] still managed to grow during the Covid-19 pandemic as did the fortunes of other big fortunes, despite the global downturn in the output of goods and services. In physical terms, even if kept in the highest denomination US$ 100,00 bills, his accumulated financial wealth would weight approximately 98 thousand tons and stacked, one on top of the other, would be roughly 9800 km high. Fortunately for him and his fellow billionaires, his wealth consisting mainly of financial assets, there is no need for any large size industrial undertaking just to handle it. Considering that the greatest part of Bill Gates wealth is held by Cascade Investment, a holding and investment company whose investments in stocks of various companies continuously fluctuates according to their market valuations, we can see that Bill Gates' still growing wealth consists mostly of trading values coded by zeros and ones and reflected on the trader's screens. Money begets more money, just changing in its form and liquidity during the process. Growth and any reductions in this wealth can even be followed online on Forbes web-page.[5] Thus, if Aristotle (1999, p. 15) could argue, pointing to the example of King Midas, that gold cannot be a pure measure of wealth once it cannot be eaten, less substance will be found by Bill Gates trying to feed on the bulk of his wealth.

But, and this is the important point, even if Bill Gates made just a 5% per year return on his current wealth (historically he has been doing much better than that, in "good years" more than twice) he would be earning US$ 4.9 billion a year, more than US$ 13.4 million a day, nearly US$ 560 thousand every hour, more than US$ 9 thousand every minute. US$ 155.26 at the ticking of every second, day and night, seven days a week. Just letting his financial investment's monetary value grow. Thus, money begets money and, for the super-rich, on a speed they cannot possibly spend.[6]

Considering that the bulk of his earnings derive from their financial investments, not only are we witnessing a potentially infinite growth process, but one that is not derived from direct productive behaviour and thus is not adding any new real wealth to the world. Not even the coins and bills to count it. Just the result of money begetting more money while changing its skin from one form of exchange-value to another. High liquidity money rapidly being speculatively invested and often converting other assets into money, financial assets, on its wake. Bill Gates, having retired from Microsoft, no longer earns his money by managing and

[4] As for today, the 29th July 2020. https://www.forbes.com/billionaires/. Potential physical measures of wealth provided by considering single bills weighting 1 gr and being around 0,1mm thick.
[5] These rankings are presented online on the "Today's winners and losers" (https://www.forbes.com/billionaires/list/#version:realtime). That is, a permanent chrematistic race where the only aim is the race itself…
[6] At the time I was writing these lines, 8 February 2020, I just could see that, according to Forbes daily update, Jeff Bezos, currently the world's richest man, earned US$ 1,6 billions just in the last trading day. 16 tonnes should he wish to carry his gains in US$ 100 dollar bills back home, https://www.forbes.com/real-time-billionaires/#1612c9d83d78. These are just some examples to show how disconnected our current chrematistic behaviour has become from the real world, some people earning amounts of money which we can hardly imagine and which they cannot possibly spend or even handle in their physical form.

productively investing his money in Microsoft as he did in the early days, but simply by speculatively buying and selling assets in the financial markets instead. Anything that can be acquired not for its primary purpose, but may be exchanged for more money down the line. Notwithstanding, as money, Bill Gate's and others' financial assets do represent a claim on goods and services in the real economy. As long as they're accepted as money – thus retaining their use-value as exchange-values – they represent Bill Gates purchasing power which, as we all know, represents a real power in our modern market economy in which all kinds of use-values may be acquired in the different markets. Money has, thus, become a self-sustaining and self-reproducing source of power within our contemporary world, just as cancer-cells reproduce autonomously and self-referentially within organisms. It grows in the self-reinforcing financial bubbles and occasionally metastases to other parts of the economic organism. The profits of successful financial speculations being reinvested in other speculative acquisitions, further deepening the financialization of the economy.

How the poor stay poor and the rich get richer

This leads us to look in more detail how the "art of acquisition" is nowadays pursued once first fiat money dissociating exchange-values from use-values and then digital money overcoming the last barriers to growth created a new financial context whereby human's economic development happens. Once the money is dissociated from any actual use-value becoming pure, abstract exchange-value instead, money is worth just what someone is willing to give in exchange for it, neither more nor less. One US-Dollar being worth one US-dollar, one British pound being just that: one British pound. Nothing else. By dissociating money from any real-world commodity or event, both money and prices can grow in nominal terms without limits. US$ 39.7 million in 1987 (adjusted according to inflation to 2019 money, around US$ 89.3 million) was the amount of money accepted in exchange for the painting, *Vase with Fifteen Sunflowers,* by Van Gogh.[7] The same money would be worth the combined life production of most living artists as well as their use-value possessions should they be willing to sell it all in a lot. It is certainly far more than Van Gogh ever possessed, having only sold one of his paintings during his life for 400 francs, around US$ 2000 in today's money. Leonardo da Vinci's *Salvatore Mundi* was recently acquired for US$ 450.3 million. Or, said otherwise, its chrematistic value is considered to be worth more than US$ 450 millions by the buyer (once we include fees and taxes). The same painting was sold for a mere £45 in an auction in London in 1958. Back then, it was attributed to one of Leonardo's students and not deemed worth more than that by the potential buyers. It was still sold for just US$ 10,000 in an auction in 2005 when it was not yet accepted as an original. Some years later, after being attributed to Leonardo, it was speculatively bought by a Swiss businessman for US$ 80 million who sold it for another US$ 127.5 million to the Russian oligarch Dmitry E. Rybolovlev, whose family trust has now sold it for a record price. Although the growth in exchange-value terms has been enormous, greatly adding to the financial wealth of those who acquired it along the way, nothing or little changed in use-value terms, except for to whom the painting has been attributed. It is still the same painting and, having been bought for speculative reasons, it will

[7] The auction on which this painting was acquired by Meiji Yasuda Life Insurance Company, part of the Mitsubishi UFJ Financial Group (MUFG) tripled the previous record paid for a painting and inaugurated a new era on speculative acquisition of modern paintings. Since then not just have five other paintings by Van Gogh been sold at higher market prices, but many others as well. Recently, in 2015, paintings by Willem de Koonig (*Interchange*) and Paul Gauguin (*When Will You Marry?*) have been privately sold at values which are supposed to have crossed the US$ 300 million barriers (the exact value has not been disclosed). A list of these paintings can be found online in https://en.wikipedia.org/wiki/List_of_most_expensive_paintings.

mostly if not permanently be kept in a secret safe up until the next auction. That is, negating its primary use-value, which derives from being seen and admired. Increasingly, artwork becoming money as well, its use-value being its potential exchange-value down the line instead.

These examples just show how investing speculatively in assets, monetizing them, can be a source of enormous profits and certainly a fundamental strategy in the chrematistic "art of getting rich". But not just in the stratospheric realms in which some artwork is nowadays speculated with, everywhere we can see how nowadays speculative financial capitals expand looking for other opportunities to grow. To the point that nowadays, financial capitals' self-nurtured chrematistic growth logic, has increasingly taken the upper-hand over the industrial one. Wealthy individuals earning more from the rise in the nominal value of their speculative financial assets than they earn from their industrial assets. Just as Bill Gates and other super-rich do. Even productive corporations like Apple (and others), or governments like Norway or China, have created financial arms whereby their surplus cash is invested speculatively in financial assets. Some even indebting themselves to leverage financial speculation instead of expanding their productive activities. Thus, the huge government Sovereign Wealth Funds who invest in real and financial assets worldwide are all growing not because the governments are saving more public money from taxes and/or lower expenditures, but because the monetary value of their invested financial assets is rising. As an example, what could be called "Apple Capital" had US$ 262bn of assets, US$ 108bn of debt, and had traded US$ 1.6trn of securities between 2011-2017. It had thus, in some measures, roughly half the size of Goldman Sachs. But it still dwarfs in front of Norway's Government Pension Fund with over US$ 1.18trn in assets, the United Arab Emirates whose four main funds have a combined value of over US$ 1,29trn in assets or China, whose four main funds have a combined value of over US$ 1,55trn.[8] Once all these private and public capitals are speculatively invested in financial assets, the combined value of these financial and monetized assets rise. As does the chrematistic wealth of those speculating on them. At the same time, it is a self-reinforcing process. The more people invest in given speculative financial assets, the more their price rises and thus not just the wealth in monetary terms to be reinvested in other speculative financial assets increases, but more investors are attracted to speculatively buy these assets who are being "profitable". From blockchain currency to fancy-named hedge funds, currencies, futures markets or real-estate in trendy neighbourhoods of global cities, everywhere investors flock-in raising the prices and thus the profits of those already inside the bubble to even higher levels.

It is no coincidence either that increasingly "financial gurus" and new internet platforms try to attract small and medium investors to build their income strategies not on producing or supporting the production of new use-values, but on becoming financial speculators themselves. It is there, nowadays, where increasingly people earn their money. Not from producing new use-values, but from the growth of the monetary value of their financial assets. Once Sovereign Funds, the so-called super-rich and big corporations have become big investors in the global financial arenas, not just new commodities become financialized, being bought for their exchange-values instead as for their primary use-value, but the overall value of the financial side of the economy grows in a growing process of financialization of the

[8] See "Apple Capital LLC – Apple should shrink its financial arm before it goes bananas." In *Schumpeter - The Economist*, 28 October 2017. For the Sovereign Wealth Funds estimate based on internet information available December 29th July 2019. An actual list is given at https://www.swfinstitute.org/fund-rankings and https://en.wikipedia.org/wiki/List_of_countries_by_sovereign_wealth_funds.

economy. With the increased use of quantitative easing monetary policies after the 2008 financial crisis, with central banks directly buying government bonds and/or other financial assets, public money and investments have become even more important means for boosting the profits of private speculative financial investments benefiting from the rise in stock-markets and the value of financial assets. At the same time, by investing public money in the financial markets, they do align the interests of public and private investors as financial speculators alike.

Another indirect way whereby public and private speculative interests get aligned results from the fact that high-ranking public servants and particularly power-holding politicians are or may become themselves wealthy people speculatively investing their savings as well in the financial assets. Loosing from their down-fall and gaining from their expansion and growth. Besides, there are the famous revolving doors for which Goldman Sachs is particularly known for. In any case, once no new wealth in use-value terms is being created by the simple rise in the market value of financial or financialized assets, these financial gains represent a net transfer of wealth to the already rich who manage to have invested savings from those who don't. As do the payment by governments of interests on their debt: public money is spent to pay interests to financial investors at the detriment of other public expenses who could be spent to provide public goods and services. The recent decision by the leaders of the European Union to create European bonds issued by the European Commission for a € 750bn Covid-19 rescue package represents, thus, another way whereby public money at least partially ends-up in the pockets of financial speculators once interests start to be paid on them and at the end of the line, a good part of this money ends-up circulating in the financial speculative circles rather than in the real-world, use-values producing economy.

As long as financial gains are reinvested on buying other financial assets or financialized commodities like real estate or even grains, minerals and all kind of future-markets in which assets are bought not because of their primary use-value but as exchange-values instead, what we may observe are inflationary pressures driving-up the prices of these assets and thus the monetary wealth of its possessors. At the same time, each time these possessors convert their potential monetary wealth in actual purchases of goods and services for their consumption, as use-value instead, inflationary pressures are transferred to the "real economy", thus reducing the real wealth of all. The rise in prices of financialized assets like housing in London, Paris or Barcelona, the gentrification of metropolitan areas in which increasingly only the better-off can afford to live, are all just some further examples of how the rising property prices in these areas represent a growth in the financial wealth of investment groups and private investors alike, while at the same time they reduce the wealth of those who need to pay higher mortgages or rents to live in them.

The inflationary pressures of growing financialization and the self-reinforcing growth in financial wealth manifests itself as well in the steady rise in prices of luxury goods and exclusive services once the rich and super-rich aim to state their prestige and status through sumptuous consumption. If not becoming sugar daddies or sugar mommies, thus acquiring companionship and/or sexual favours from the less-better off, sometimes at exorbitant costs. In all these cases, wealth disparity both in exchange-value and in use-value terms increases by the growing financialization of the economy. From that perspective, the growth of financial markets, particularly after the 1970s and accelerating with the series of deregulations of financial markets in the 1980s, the huge increase in the stock market valuation of the new technology giants of the world, the proliferation of hedge-funds and online trading, etc., were all-powerful ways whereby wealth inequalities have been growing not just because the rate of

return on capital has been higher than the rate of return on income and labour as shown by Piketty, but particularly because the rate of return in the financial and financialized markets has been even higher than the return in the so-called real economy, the production and distribution of goods and services. With the development of financial engineering from the 1970s onwards and all the later developments in the dynamics of the financial markets, it has increasingly been more profitable to produce new financial assets or to financialize given goods by speculatively acquiring them for their potentially growing exchange-value instead as for their use-value. Bitcoins and other cryptocurrencies may serve as an example: they are nowadays mostly acquired not as alternative currencies for commodity exchanges, but as speculative financial assets.

And here governments and public agencies more than promoting better income redistribution have willingly or unwittingly been active promoters of the growing financial profits and wealth inequality worldwide. As Michael Snyder noted,

> "for years, financial markets have been behaving in ways that seem to defy any rational explanation, but once you understand the role that central banks have been playing everything begins to make sense. In the aftermath of the great financial crisis of 2008, global central banks began to buy stocks, bonds and other financial assets in very large quantities and they haven't stopped since. In fact (…) global central banks are on pace to buy 3.6 **trillion** dollars' worth of stocks and bonds this year alone. At this point, the Swiss National Bank owns more publicly-traded shares of Facebook than Mark Zuckerberg does, and the Bank of Japan is now a top-five owner in 81 large Japanese firms. These global central banks are shamelessly pumping up global stock markets (…).
>
> The Swiss National Bank is one of the biggest offenders. During just the first three months of this year, it bought 17 billion dollars' worth of U.S. stocks, and that brought the overall total that the Swiss National Bank is currently holding to more than $80 billion. Have you ever wondered why shares of Apple just seem to keep going up and up and up? Well, the Swiss National Bank bought almost 4 million shares of Apple during the months of January, February and March."[9]

Thereby, once Governments and Central Banks themselves invest in financial assets, politics and chrematistics become even more intertwined. Certainly, governments such as the Norwegian and the Swiss are expected to profitably invest their surplus reserves, hopefully getting profits from their speculative acquisitions, while their losses would mean a squandering of public money. But by doing so they increase the financial bubbles by adding more demand to the existing speculative financial assets, thus increasing the wealth of the rich and super-rich and all those investors who happen to speculate in these markets as well. With the quantitative easing policies, this has been brought to a higher level, directly injecting more money into the financial markets, boosting the financial bubbles without adding any real wealth to the existing one. Money flowing increasingly rapidly towards where the opportunities for financial gain are sensed. They do, in their wake, help to rise companies, whole industries

[9] Snyder, Michael (June 7, 2017). *Central Banks Now Own Stocks And Bonds Worth Trillions – And They Could Crash The Markets By Selling Them*. Quoting Brian, Bob (April 21, 2017). *BAML: The "$1 trillion flow that conquers all"* explains everything happening in markets.

and countries as long as the rising purchasing power of investors creates new economic opportunities in some sectors. But, they do as well leave them in distress and possibly broken once they move out.

Said otherwise or the role of money, politics, technology and inflation

We can easily understand these dynamics if we look back at the old quantity theory of money (QTM) which states that the general price level of goods and services is directly proportional to the amount of money in circulation, or money supply. Already proposed by Copernicus and known since the renaissance, it tries to understand the fluctuation of market prices as a function of the existing circulating money and, at its root, it only states an accounting equivalence: goods and services can only be bought and sold in the markets to the extent of the available money to do so. Thus, it's ramifications and limits can be best understood if we simply look at an accounting equivalence between $MV \equiv PQ$ stating that the amount of money (M) multiplied by the velocity it circulates in the economy (V) is equal to the number of goods and services acquired (Q) multiplied by their prices (P). As long as there is no direct barter or credit sale, it is just a logical and needed accounting equivalence: the amount of realized market transactions given at one side of the equation being equivalent to the amount of existing money multiplied by the time it has been used during a given period at the other. Just to give a simple example, if there are five US$20 bills (M=100) and, in a given period each one is used twice in a transaction (V=2), 20 goods or services (Q=20) worth each one US$10 (P=10) could have been transacted during that period. 100*2=10*20. Or 40 at the price of US$ 5 each. Or any other combination whereby the amount of used money equals the monetary value of what has been sold. At the aggregate level, there has to be a direct relationship between the existing circulating money, the velocity it circulates (and thus, the times the same money can perform a purchase) and the number of goods and services that have been bought and sold at given prices. Any change at one side of the equation has to be matched by an equal change at the other side of it: $\sum M_{1\text{-}n} * V_{1\text{-}n} = \sum P_{1\text{-}n} * Q_{1\text{-}n}$

Historically, all these variables have been steadily growing (although with occasional decreases at certain times). But they did so at different paces and rhythms. The output of produced and traded goods and services (Q) has been growing at least since the industrial revolution. But it is after the Second World War that their growth has accelerated and even more so with the deepening of the economic globalization process after the 1980s, later the fall of the Berlin Wall and the Soviet regime, China's turn to greater market-economy and the economic growth of the 1990s and early 21st Century.

Nonetheless, it is at the monetary side of the equation that the growth has been more accelerated. In the modern era in the West, the gold and silver of the Americas brought huge inflationary pressure in the early colonial times when we had commodity money and the increase in gold and silver greatly boosted M. In the 19th century, the use of deposit-certificates as money, the growth of commercial banking and the creation of the first central banks issuing paper-money allowed to further increase the money supply once daring and cash-hungry regimes, as well as private banks and companies, eventually would issue notes and bank certificates beyond the existing reserves, although a gold-standard was still formally being observed. Notwithstanding, globally the maintenance of the gold-standard and commodity money meant an effective brake on the expansion of the monetary base, linked as it was to the existing gold reserves. Afterwards, the First and the Second World War efforts, the crisis of the 1930s and the reconstruction efforts of different governments, meant that

cash-needing governments issued money beyond their existing gold reserves and by the end of World War II, the USA was the only country in the world to still hold to the gold standard, possessing around 75% of the monetary gold reserves in the world.

After Bretton Woods and the USA's successful attempt to convert the US$ Dollar into the global world currency, the USA's monetary policies became central in determining the global money supply. From this perspective, the huge amount of American military and commercial aid, the Marshall plan, the spread of American transnational companies around the world, the increasing trade deficits of the USA, etc., all of them being financed and supported by the US$ Dollar, were all means whereby the global monetary base has been expanding. It meant a huge outflow of US$ Dollars to the rest of the world. Under the Bretton Woods agreement, central banks could exchange dollar holdings into gold at the official exchange rate of $35 per ounce. It meant a potential break to the expansion of global US$ Dollars, M. Notwithstanding, the increasing outflow of US-Dollars eventually led to mistrust and imbalances of the system. That is what happened when, particularly France under President Charles de Gaulle reduced its dollar reserves, exchanging them for gold at the official exchange rate, casting doubts on the willingness of the US to let its gold reserve dwindle while holding to the gold standard. Added to the fiscal strain of federal expenditures for the Vietnam War and persistent balance of payments deficits by the US, it all led U.S. President Richard Nixon to end international convertibility of the U.S. dollar to gold on August 15, 1971. Although initially presented as a temporary movement, it ended-up marking the effective end to the gold-standard and, from then on, it meant that all currencies in the world, including the US$ Dollar which had become the world currency, had become fiat money, pure exchange-value dissociated from any real wealth. A dollar is worth a dollar, nothing else. It's only use-value being it being accepted and trusted as an exchange-value. It allowed, thus, to effectively detach the growth in money supply (M) from any real-economy event (Q).

From then on, the global money supply could grow at will. And so it did. The oil shock of the 1970s and the steep rise in prices were accompanied by a growth in the monetary supply, as were the growth in output of these decades. America importing increasing amounts of oil at rising prices in exchange of what became known as the petrodollars which started to flood both commodities and financial markets in the 1970s. At the same time, the development of information technologies increasing the velocity of circulation of money (V) and, from the middle of the 1970s the development of financial engineering and the growth of finances, meant that this huge increase in the monetary base was increasingly being channelled not just to the acquisition of use-values in the real economy, but to be speculatively invested in the growing financial markets. As we saw, as long as the increase in the available money due to both the increase of M and V was not matched by an increase in the production of use-values (Q), it had to be matched by an increase in prices, that is inflation. And that is precisely what happened then.

But here, we have to distinguish two kinds of inflationary pressures, with hugely different effects on income distribution. If there is more available money to purchase goods and services, this will have to be matched by an equal increase in the market transactions of goods and services. Either because their supply increases, either because they are sold at higher prices. If we are talking about consumer goods and services, that is, use-values acquired by consumers to try to satisfy their perceived needs, the rise in prices means a decrease in wealth and a decrease of the purchasing power of consumers once they acquire less than before for the same money. The same happens if traders have to pay more for the goods or services they trade or industrialists have to spend more money to get the same

production factors as before to produce. Inflationary pressure effectively meaning a decrease in wealth for those who purchase at higher prices engaged in the so-called real side of the economy.

The opposite happens when we speak of financial speculative money: it is precisely a rise in prices of financial assets which is sought for. If someone buys a London flat, a collectable Oldsmobile, stamps, a master's painting or stocks not for their use-values, but as means-to-an-end, because of their hope for higher exchange-value down the line, it is precisely this inflationary pressure, the rise in its monetary price which is hoped for. It means not a decrease, but an increase in wealth to the owner of these financial or financialized assets. For money and all kind of financial assets, whose use-value is given by its value as a mean for exchange, the higher its price, the higher the use-value derived from it. And this is precisely what can be observed even taking a preliminary, superficial look at what is happening in our contemporary world, although more empirical and quantitative assessments would have to be done to assess the extent and depth of this phenomenon. Of course, a more precise quantitative assessment of this process poses huge and partially unsurmountable methodological and practical difficulties to be undertaken (Krippner, 2005). Not least because many of the goods and services bought to be used are indistinguishable from those bought as a financial asset, for their exchange-value instead. How to differentiate in the national statistics between real estate bought by families who wish to live there from the ones bought to invest someone's savings by hedge-funds? Or properties bought looking both to its present use-value and its potential higher exchange-value in the future? Rare stamps and master paintings bought to be admired and/or the pleasure of collecting, from those bought for purely speculative reasons? Even to distinguish the acquisition of bitcoins to pursue anonymous transactions from those made to speculate on their future value? Good approximations may be done and the global scale and trend may be imagined by observing the different financial dynamics in our present world. But a complete and detailed picture, although interesting to have, is hard if not impossible to obtain.

But, anyway, the trend seems to be clear and the important point to retain here is this dichotomy between the opposite effects the growing monetary base has on the wealth of different groups of people. Inflationary pressures increasing the wealth of financial speculators and decreasing the wealth of those consumers and producers engaged in the real-world economy. And this is an important if not growingly central aspect of the growing income and wealth disparities in our contemporary world. Not least because the expansion of the monetary basis (M) and the speed money is circulating (V) is still generating inflationary pressures both in the financial and the consumer markets.

Expanding financial markets, both through increasingly monetizing different assets which are bought for speculation and through the growth of the existing ones, means that those who manage to participate in this growth accumulate increasing amounts of money, which gives them the same claims on real wealth (that is, acquisition of different use-values) as those who earned their money from their labour, entrepreneurship or any other means. *Pecunia non olet* ("money does not stink") the emperor Vespasian is said to have said pointing to the fact that money does not reveal its origins. Nor do we perceive that nowadays increasingly the wealth of individuals and even companies and countries is the result not of labour and production, but from the inflationary growth in prices of financial or financialised assets. The greater the proportion of the financial side of the chrematistic economy concerning the real side, use-value producing one, the greater is the proportion of the claims on the real wealth of those who earned their money from their "money begetting more money", *vis-à-vis* those who

earned their money acting on the so-called real side of the economy. Inflationary pressures increasing wealth of financial speculators in the financial markets while decreasing the wealth of consumers in the real economy.

Conclusion: the rich are getting richer while the poor stay poor…

As said, money may be channelled towards two completely different kinds of markets and following two completely different aims: as consumer or productive investment money, it may serve to acquire use-values to be consumed. Be it for final consumption or be it productively to produce or commercialize other use-values, generating more wealth on its wake. At the other hand, it may simply be used speculatively, acquiring financial assets for their exchange-value and potential future selling at an even higher exchange-value, without directly creating any new real wealth. The first is what consumers, entrepreneurs, labourers and people, in general, do in the "real economy". The latter is what people who already possess more money than they need or require for their daily living use to do with their savings, speculating with exchange-values to earn even more money. Some professionals even borrowing money to speculate with it hoping to earn higher rates than the interests paid on the borrowed money. Thus, it may be no surprise that increasingly we may find internet self-termed financial gurus trying to teach and convince others to earn their living and even fortunes not from labouring, but comfortably from their homes by speculating in financial markets.

From what has been observed, we can see how income disparity has become a self-reinforcing process. The deeper the financialization of the economy becomes, the more people earn their money speculatively from the inflationary growth of the exchange-value of financial assets, from money begetting more money, while other's have to pay interests, dividends and mortgages on their credit money, as well as higher prices for the goods and services they acquire once inflationary pressures manifest themselves in the real economy. Those who already had more than they need or require for their daily living speculatively investing their savings in the financial markets, earning and accumulating more money which, once reinvested in the financial markets, drives the value of the financial assets even higher.

This is reinforced by many different factors. All of them channelling more speculative money towards the financial markets. Highly indebted governments resorting to money printing or simply formally independent central banks aiming to keep interest rates low or pursuing quantitative easing policies. An increasing share of rich and super-rich who have huge amounts of reserves to be speculatively invested, added to sovereign funds and private companies engaging in the profitable world of financial speculation as well. Then, there is an ongoing change in the way modern big corporations are managed. Increasingly, the very objective of modern big corporation's management is not to better produce use-values, but to increase the stock-market value of the company. Top-executives being paid or rewarded with shares of the company they manage (often being obliged to keep these shares for a certain time by contract), increasingly see their monetary interests aligned with those other stockholders of the company. Thus, with an incentive to increase the monetary share value of the company more than pursuing its goal of supplying goods and services which, themselves, become just a mean to an end. The financial logic overcoming productive logic. This is even more accentuated with the new unicorns and internet start-ups who try by all means to attract speculative investors, increasing their market-shares at all costs and particularly trying to create a hype around them, although often at huge operational losses. Thus, a "successful

management" nowadays means to get the highest share-value for shares you possess rather than performing in the real economy.

Like elsewhere, management is as well subjected to what Guy Debord termed the *society of the spectacle* (Debord, 1995[1967/], p. 16, thesis number 17): not just has *being* been replaced by *having*, but *having* has been replaced by *appearing*. As was said, the value of money is entirely a matter of trust: money is worth the trust the receiver may have of being able to use it for an exchange further down the line. In the case of speculatively bought financial assets, the trust it may be exchanged for a higher exchange-value later, which is only possible as long as people have trust on its value as a means for exchange or at least believe others to have. Thus, it is managing to appear to be successful and thus appear to be the next speculative hype which is asked to attract the growing speculative financial capital looking for opportunities to grow further.

There are certainly other reasons why income disparity is increasing in our modern capitalist world. Nor is social inequality a modern invent. Elites in class societies have always developed institutionalized ways as well as social practices aiming to ensure and possible expand their privileges. From ancient cast systems to medieval feudal structures and practices; from the privileges and wealth of soviet Nomenclature to today's oligarchs having a grip on the state; from public servants and politicians around the world abusing their office for personal gain to Wall Street brokers' insider trading practice. As Leopold Kohr (1957) argued, once there are scale imbalances and some may think that they may abuse their power without suffering the consequences of doing so, abuse and social violence eventually follows. And here too we have a self-reinforcing process: the higher the imbalance, the higher the potential for abuse to happen. Until the growth goes beyond a sustainable threshold and one pole eventually explodes or collapses. Much has been revealed about the abuses in the financial markets after the 1980s and later once we had the big crack-down in 2008. From Madoff to the opaque financial engineering, junk-mortgages, insider trading, revolving-doors between the public sector and trading companies like Goldman Sachs, the huge rescue packages paid for with public money to rescue those famously labelled as "to big to fail"…

But the point is that, beyond these clear abuses, the very way our economic structures and our present monetary policies and practices are designed, creates structural imbalances which increase the polarization and wealth imbalances between those who already have more than they need and those who struggle to make ends meet. Without any personal abuse or wrongdoing, just following the rules of the game. Some living from their money begetting more money, while others have to count their cents or live on interest-bearing credit. Some inheriting huge financial wealth which is easily turned into more by simply investing it in the financial markets, while others have their futures mortgaged. But this has become so entrenched in our modern economy and the way or governments and monetary policies function, that we do not even seem to be aware that increasingly not just new wealth is being unequally distributed among the members of the societies, but the existing one is being transferred from those who have less to those who already have too much and who continuously increase their purchasing power by having their money begetting more and more money. At the same time, positive stock-markets' performance is portrayed and seen by all as a sign of a healthy economy, the stock-market valuation of companies being seen as their real value… Everywhere, confounding the real economy with its monetary side and not perceiving that when the stock markets inflate faster than the real economy is growing, wealth is being transferred to those who own these financial assets from those who don't.

Simple policies like huge taxes on financial profits or the monetary valuation of assets, thus discouraging its speculative acquisition, are not even talked about. But how would it be if anyone who makes a profit by simply selling at a higher price the same he bought previously at a lower one (be they real estate, collectable items, cryptocurrencies, stocks…) had to give up a great part if not full of his profits in taxes? Shareowners getting their profits from paid-out dividends resulting from the company's real economy operations and not from the simply speculative growth of the monetary value of its shares? It would certainly lead people to acquire goods and services for their primary use-value, for that what they were meant to be, instead of speculating and buying them for their potential exchange-value down the line. Renouncing to the profits made from money begetting more money means that people and companies would have to focus on the real economy instead of the casino economy into which increasingly our economies are being transformed. Money again being used as a means for exchange and measure instead as for begetting more money, self-referentially growing and expanding in a cancer-like process which increasingly damages the health not just of our economy, but our social, political and we may say cultural organism. Altering our values and ways of being and relating.

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Machina-economicus or homo-complexicus: Artificial intelligence and the future of economics?

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Abstract
Artificial Intelligence has become ubiquitous in all manner of human activity, especially in the era of widespread digitization and enormous data collection and manipulation. It has penetrated many realms of science presenting significant challenges to tried and true methods, especially the primary processes of theory building. One realm where AI's inroads are conspicuously haphazard is economics, much of this stemming from embedded ideological commitments. These predilections make it exceptionally difficult for the mainstream discipline to fully embrace the greater implications of AI found in the study of the economy as a complex adaptive system. This situation further poses a number of additional societal threats as AI ushers in an unprecedented and extremely ill-guided industrial transformation.

The global financial crisis that began in earnest in 2008 (and is yet to be resolved) prompted significant challenges to the theory and methods of mainstream or orthodox (also known as Neoclassical and/or Neoliberal) economics. Even distinguished orthodox economists, Paul Krugman (2009) Joseph Stiglitz (2017), and Paul Romer (2020) have joined with the crescendo of obscure, yet profound, voices, such as: "institutionalist" (e.g. Hodgson, 2004), "heterodox" (e.g. Keen, 2001; and E. Smith, 2010), and "ecological" (e.g. Constanza, et al., 1997; and Fullbrook and Morgan, 2019), as well as Marxist economists.

One especially promising alternative to mainstream economics grew out of work in nonlinear dynamics and systems theory (see, Daneke, 1999), and has been enhanced by huge advances in computational capabilities. This approach, under the catch-all rubric of Complexity Studies, has many variegated and partial offshoots both mathematical and metaphorical. Plus, use of its computational tools is no guarantee of theoretical coherence. Some qualitative applications are especially robust and some quantitative pieces linger too close the event horizons of neoclassical black holes. Nonetheless, at its core, complexity is a completely unique worldview (see, Arthur 2013) with far reaching implications for how economies are studied and policies derived. As one might expect, mainstream economics, has been extremely reluctant to accept these implications and has only tangentially toyed with the isolated elements of the complexity approach. As in the past (e.g. game theory, behavioral economics, etc.), mainstreamers merely graft-on certain tools and concepts without altering their archaic foundations or their ideological commitments. This highly selective retention is made more problematic by recent developments in Artificial Intelligence (AI) and BIG DATA.

AI is primarily about the use of computer algorithms to augment and/or replace human judgements. AI applications have expanded of late given the massive explosions of data collection and manipulation by the mammoth internet monopolies (e.g. Google, Facebook,

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Amazon, Baidu, WeChat, etc.) and government agencies. This Big Data era poses a number of its own threats in an economy already riddled with dysfunctions, and has compounded fears about AI. Some apprehensions are overblown and some remain under appreciated. AI is unlikely to bring the science fiction terror, in which killer robots become sentient and end humanity, but it does harbor the potential for dramatic immiseration. One of the vastly underestimated by-products of AI expansion is that it will further retard the development of economic theory and practice, and indirectly exacerbate social upheaval.

A very brief history of AI

While artificial intelligence has yet to come to full fruition, it has been in the works for eons. Historical foundations would have to include: Gottfried Leibniz' tome *On the Combinatorial Arts* in 1666, the posthumous publishing of Thomas Bayes' paper on statistical inference in 1763 and George Boolean's work in the algebra of difference equations in 1854. There is also McCulloch and Pitts simplified logic of neurons (which would become "neural networks") in 1943, among many others. My list of personal heroes includes the preternatural polymaths: John von Neumann (1903-57) for game theory and cellular automata, Claude Shannon (1916-2001) for communications theory, the Shannon Cipher, and an early chess computer, and John Henry Holland (1929-2015) for nerve-net testing, genetic algorithms, evolutionary adaptation, and emergent processes and properties. However, modern historical views generally focus as much, if not more, upon computation devices rather than upon the big epistemological picture. Its iconic figures usually include: Charles Babbage, Konrad Zuse, Howard Aiken, Alan Turing, Stuart Russell, and Marvin Minsky as well as John McCarthy. Obviously, the art and science of computation actually goes back much further. The ancient Babylonians used an elaborate abacus like device and Muslim scientists built a functioning astrological clock in the early 13th century. Yet, Babbage's steam powered "difference engine" (built in the early 1800s) is probably the first thing we would recognize as a computer. Perhaps one of the best-known founders of AI, is the ill-fated British genius, Alan Turing (1919-54). He and his colleagues at Bletchley Park built a computer for quickly deciphering the German Enigma code, and probably turned the course of the war. Turing went on to spearhead modern algorithmic studies (see, Turing 1950). His career was cut short by his conviction for homosexuality and suicide. He lives on via his theories of AI (e.g. the "Turing Test" for successful machine imitation), a popular theatrical bio pic (*The Imitation Game*), and his visage recently placed on the fifty-pound note. It might have been more appropriate to put his face on a global crypto-currency.

In the popular imagination, as well as that of some current AI practitioners, a more abbreviated historical analysis is given priority. Moreover, as the pace of development quickens, certain threshold events rather than personalities color the timeline, much like "killer apps" which characterize recent technological innovation generally. Hence, winning at Grand National level chess, Jeopardy, or Go, often overshadows much of the science. Monumental advances in language and image acquisition seem mundane in comparison. Moreover, success of certain realms has led to a narrowing of emphasis.

Much of what we view as AI is merely Machine Learning and mostly in the form of "Deep Learning" (or DL, note, LeCun, et al., 2015). DL is an enhancement of basic ML representing a return of "neural networks", the re-development of "back propagation" from control theory, and the introduction "generative adversarial networks" or GANs (note, Goodfellow, et al., 2014). The deep part merely refers to layers of neural nets, and not necessarily profundity.

Furthermore, the neural notion is merely a crude caricature, and does not presume much in the way detailed knowledge of how human neurons actually work. Certain aspects of DL remain hotly contested; for example, many a hard-core statistician question the routine trick of "data splitting" which essentially allows the same data to be utilized for hypothesis generation and verification (not to mention the causality conundrum). With all the convoluted connections of DL, prediction often completely outstrips explanation. Real decisions normally demand detailed back mapping and logical demonstrations. More critically, DL tends to harbor deeply embedded societal biases.

Machine (especially Deep) learning has obviously made great strides, yet at present it a very myopic view of AI. In fact, in some circles, the term AI is reserved for all those things they have yet to accomplish. Despite its limitations, ML is the now the tail that wags the AI dog. Obviously, commercial and/or militaristic pressures push the bulk of AI research into the most lucrative arenas. The Machine Learning focus traces its origins to a two-month workshop held at Dartmouth in the summer of 1956. It was organized by the now legendary AI pioneer, John McCarthy and included a who's-who of seminal researchers, including: Holland, Minsky, and Shannon, as well as other diverse luminaries such as Ross Ashby, Herbert Simon, John Nash, Nat Rochester, and Oliver Selfridge.

A different McCarthyism

In 1959 McCarthy published his *Programs for Common Sense* which set forth the agenda for much of what we now understand to be AI. In one stroke he not only signaled the ascension of formal algorithmic over biological approaches to intelligence generally, but by defining it as "common sense" he sets the stage for research to proceed without necessarily worrying about how humans are actually thought. Apparently common sense need not be that common. It is noteworthy that AI originally had deep roots in psychology and biology (via the neuro and cognitive sciences), but these efforts are now dwarfed by the computer sciences. McCarthy's machine manifesto set out the parameters of what he felt would be more meaningful research for years to come. Essentially it argues for objective reality, natural language, non-monotonic logic (abductive vs. deductive reasoning), as well as machine discovery as a valid science (see, McCarthy 1990). In 1964, Daniel Bobrow's MIT Ph.D. Dissertation, *A Natural Language Input for Computer Problem Solving*, reconfirmed this primary path to progress.

By the mid-1960s computer scientists came to dominate the enterprise. In 1965, Joseph Weinzenbaum developed ELIZA (natural language processor), while Edward Feigenbaum and his Stanford colleagues were developing the first Expert Systems (distilling the knowledge of numerous highly experienced individual in a particular field). In 1966, other Stanford AI Center scholars introduced Shakey, the first general propose robot for DARPA (Defense Advanced Research Projects Administration) with state-of-the-art natural language and computer vision. It was also capable of analyzing and sub-dividing commands. In 1968, Stanford's, Terry Winograd created a natural language, SHRDLU, in route toward computers having their own semantic memory. In 1969, Harvard's Arthur Bryson and Yu-Chi Ho further refined the methods of back-propagation via "multi-stage dynamic optimization". Backprop in neural networks, now aided by forwardprop, forms the basis of deeper learning. The algorithmic avalanche would await, however, the arrival of substantially larger supplies of data still a decade or more away.

In the meantime, Minsky and Papert published their, *Perceptrons*: *An Introduction to Computational Geometry,* in 1969, demonstrating the limits of several elements of machine

learning, and nearly single-handedly unleashed a protracted AI Winter. Further cold water was poured on by James Lighthill's report to the British Science Board in 1973. During this initial dark age, medical and military interests kept heat upon the back-burner. Strides continued in robotics and classifier systems, proceeding on a slow, but deliberate pace. In the early 1970s a team at the Stanford Medical School developed MYCIN a nascent backward learning expert system for isolating severe bacterial infections such as meningitis, along with several other diagnostics programs. Solid improvements in object/facial recognition and natural language also gradually emerged and the pace increased. In 1979, The "Stanford Cart", a very early autonomous vehicle, that only took 5 hours to self-navigate a room full of obstacles. By the end of the 1980s probabilistic and uncertainty containments tools grew by leaps and bounds, including IBM's Statistical Approach to Language Translation and Bell Labs hand-written zip code reader.

Following the bang of the 1980s, Academic AI began the 1990s with a whimper. When Melanie Mitchel, a leading figure in complexity theory and methods, was completing her Ph.D. in Computer Science at the University of Michigan under Doug Hofstadter (of *Gödel, Escher, Bach* fame), she was advised not to include AI on her resume. Minsky and Papert (1987) published an extended edition of their perceptron work and re-wet their blanket by contending that too much of the enterprise was bogged down in reinventing others wheels. The return of AI Winter was subdued somewhat, however, by certain high-profile stunts as well as a cavalcade of medical and military applications. Yet significant breakthroughs proceeded in fits and starts. By 1995 Richard Wallace brought forth the chatbot ALICE, which introduced data sampling from the internet. In 1996, German / Swiss researchers, Hochreiter and Schmidhuber, developed "long short-term memory" (LSTM)" a new class of recurrent neural networks that significantly improved hand-writing and speech recognition. This yeoman work was overshadowed by the victory of Deep Blue, IBMs dedicated chess computer, over world champion Garry Kasparov in 1997. Not to mention Furby the robot pet in 1998, as well as Kizmet the human emotion simulator and Honda's ASIMO, the robot waiter, in 2000.

The reign of the big data

A massive watershed moment for machine learning came with the arrival of the BIG DATA era. Plainly, the empire of data storage and manipulation was not built in a day. Large scale data collection dates back to antiquity, and modern data storage and analysis probably began in England in the mid-1600s. John Graunt (1620-1674) founder of demography, collected mortality statistics to track the course of the bubonic plague. Statistical analysis for the sake of business advantage took off following the US Civil War. However, it was the 1890 census, that prompted an enterprising young clerk, Herman Hollerith to develop the key punched card. They were much like those that filled boxes kept in my car while writing my dissertation back in the early 1970s. Hollerith, of course, went on to start a firm which evolved into IBM. In the 1930s IBM would develop an innovative census system for Nazi Germany to catalogue and collect its various "undesirables" and hence promote the Holocaust. Following WWII, business and government intelligence systems burgeoned, and in the 1960s the US built the first huge data center for the storage of nearly 750,000,000 tax returns. In 1970 IBM mathematician, Edgar Codd, introduced the "relational database", which allowed novices to conduct searches.

It was not until the arrival of the personal computer epoch and the "world wide web" (or Internet) in the 1980s, followed by the development of search engines and social networks platforms in the 1990s, that Big Data became its own asset class. By the time, Doug Laney

coined his 3Vs (volume, velocity, and variety) approach to info tech investments in 2001, all three aspects of data collection were exploding in all directions. Microsoft CEO, Eric Schmidt, observed that more data was created and stored every two days than in all of human history up to 2003. The National Security Agency's million square foot data farm near Bluffdale, Utah ("the Bumblehive") is on the order of exabytes (some suspect zettabytes), and as Edward Snowden tried to tell us the NAS routinely collects and analyses nearly all our phone calls and emails. Beyond the burgeoning surveillance state, data has taken on a life of its own.

Digitization and agglomeration across multiple domains engendered a powerful new business model from the flotsam and jetsam of the "Dot Com" crash. A small handful of internet platforms were allowed to monopolize new mechanism of data collection, processing, and monetization. Corporations of all shapes and sizes lined up for metaphorical miles for expensive access to segmented consumer profiles and marketing strategies. Data became a vital commodity, nearly on a par with oil. This inherent value brought with it an onslaught of AI activity. Multi-layered neural nets with sensory data training, rather than imposed classifiers, caught on like a house afire. By the end of the first decade of the new millennium, processors were running around everywhere largely "unsupervised" (self-learning). In 2009, Rajat Raina and his colleagues at Stanford published their *Large Scale Deep Unsupervised Learning Using Graphics Processors*, explaining how multicore CPUs would be soon overwhelmed. That same year Google secretly initiated its self-diving car project, later called Waymo. In 2010, an international competition in image recognition was established at Princeton, and new applications expanded for such things as Convolutional Neural Nets (CNNs). Beyond basic problem solving, AI began to take on the mythical mantle of giving meaning, as well as remuneration, to these mountains of undifferentiated data.

More importantly, the Big Data era became the harbinger of a completely new model of science, a MODELESS MODEL, if you will. One might think that science was always about data, but the mining and reprocessing of galactic levels of data with learning tools, may be fundamentally altering scientific theorizing. As Wired Magazine Senior Editor, Chris Anderson (2008) observed "the data deluge makes the scientific method obsolete". He imagines a future where algorithms reveal heretofore unimagined scientific knowledge, with the push of button. Furthermore, he contends that "petabytes allow us say correlation is enough" and thus "we can stop looking for models (p.4)". By contrast, Complexity Scientist, Fulvio Mazzocchi (2015) concludes that "Big Data actually enhances the testing of hypothesis and experimentation, rather than replaces them (p 1)". Be this as it may, AI applied research seems to favor abduction over conventional induction or even deduction. As with the *Pirates of the Caribbean*, AI may soon prove that "the code" of science "is more what you might call guidelines than actual rules". The continued success of AI in many scientific realms appears to be the poof of the pudding. But this short-hand science may yet come back to haunt us.

As impressive as AI progress have been in the Big Data epoch, the promise of complete isomorphism with human intelligence has remained an ever-receding horizon. Several scholars and practitioners forecasted another winter in the second decade of the 2000s. Yet, more PR stunts combined with new military and marketing applications as well as geopolitical tensions to more or less sustain the enterprise at a fevered pitch. In 2011, IBM's Watson, a natural language search engine, defeated the all-time Jeopardy (general knowledge TV game show) champion. In 2012 Google researchers applied a neural net to 10 million unlabeled YouTube videos, and among other things found we have strong attraction to cats. In 2014 Google acquired the British firm DeepMind, and in 2016 its reinforced learning program, AlphaGo, defeated a global champion at Go (the Chinese abstract strategy board game). For

the Chinese government this was their "sputnik movement", accelerating the AI investment race. For the US, the Chinese AI project was a further threat to their dwindling imperial hegemony. For my money, nevertheless, the more impressive victory was the Carnegie Mellon team that combined learning algorithms with game theoretic randomization strategies to detect bluffing in "heads up" (two player) no-limit Texas Hold'em poker. These clever exhibitions as well as other more significant contributions, however, often obscure looming AI/big data dilemmas.

Human displacement proceeds apace

Another research "winter" aside, the subliminal blitzkrieg upon our daily lives proceeds at a breakneck pace. The various toy and top-secret applications of the previous decades are now being dwarfed by immense inroads into so many diverse and previously unattainable domains. The contributions AI, even its limited ML/DL form, is completely undeniable. While perhaps more than a bit of hyperbolic, Google CEO's (Sundar Pichai) claim that AI will be more important "than the discovery of fire or electricity". The powerful medical diagnostics (especially using radiological and biopsy data) are already well established and new treatments are also emerging on a regular basis. For instance, Jonathan Stokes and his colleagues at MIT and Harvard used a version of DL called "graph net" to discover novel compounds to combat superbugs (antibiotic resistant strains). Other ML devices used to statistically amplify weak signals can be modified to isolate multiple objects and their convoluted trajectories via "numeric integration". Such programs have exposed a number of additional asteroids and comets converging upon Earth's orbital keyholes in the next 100 years or so. For example, Spanish engineering student, Gema Parreño. recently applied Google's TensorFlow tool toward tracking "near earth objects", in response to a NASA challenge. Her program, Deep Asteroid, can identify changes in shape, color, and the chemical composition, as well as trajectory. ML/DL will undoubtedly produce even more magical extensions of human capabilities in the immediate future.

Nonetheless, we remain, for the foreseeable future, a far cry from the SINGULARITY of Artificial General Intelligence (AGI), or "Strong AI", as promised by the likes of Ray Kurzweil (2005; also note, Domingos, 2015). Some industry experts (see, Wolski, 2020) already contend that when it comes to AGI, "deep learning is a dead end". It is worth noting, however, that when we eventually do achieve complete replication, the pace will quicken exponentially. The divergence from the isomorph with human capabilities will be pretty much moot as machine intelligence speeds away. From the very moment of the singularity, machines, by the very nature of their learning mechanisms, will continue to double human intelligence again and again on a daily basis. Along the way, however, practitioners of machine learning might lose track of some of vital the understandings and enhancements that they originally promised. If they have already lost interest in arriving at a full understanding of the human mind and the meaning of consciousness, they might also inadvertently obliterate many ethical and legal considerations in their haste to monetize "superintelligence".

The Pew Center (Anderson et al., 2018) which describes itself as a "fact tank", rather than think tank, conducted a survey of nearly a thousand AI pioneers, business leaders, and policy-makers, and almost to a person (particularly positive appraisers) identified a number of negative prospects. In addition to privacy and imbedded algorithmic biases, the destruction of "human agency" was paramount. Given macroeconomic mismanagement and political disintegration, individuals in developed nations have never felt such a sense of loss of control over their lives, and most experts agree that widespread use of AI will make matters much

worse. Toxic levels of anomie and alienation could have immense societal consequences. While the experts have diagnosed the loss of norms, personal efficacy, and human capital, treatments are in short supply, and often only placebos. Just as the lack of AGI progress has bred a sort of institutional ignorance as well as arrogance, much hand wringing about social implications have produced a bundle of make-believe solutions. Lack of understanding of the social ecology of AI tends to play down its central, yet subliminal theme. On its current institutional trajectory, AI is not so about enhancing human intelligence as it about insisting that humans become more like machines themselves, and re-order their lives to become more compliant cogs in the bigger machine. Once algorithms know us better than we know ourselves, many an on-going effort to interject legal and ethical concerns might fall by the wayside.

Philosophical imperatives and political mechanism from a bygone era (from basic morality to voting and from legal to regulatory systems) might matter little in the future. Most the university programs and centers to integrate human concerns into the AI enterprise will show themselves as mostly window dressing. Plus, the choice of leading AI scholars to head up these new programs is a bit problematic. For example, the leader of Stanford's efforts is legendary AI researcher, Fei-Fei Lee. She is an earnestly concerned citizen, yet in a recent public discussion at the Humanities Center (Harari & Lee, 2019) she candidly expresses her personal conundrum; that after much of her life spent in developing AI, she finds it hard to believe that it will cause undue societal "upheaval". Professors of moral philosophy might not be much better at imagining the depths of our dystopic future, however. Plus, academics of all stripes (even political scientists) may have little conception of the extent to which our institutional ecology has already been altered to protect the Big Data dynasties (note, Cohen, 2019). In several domains (e.g. oil, finance, pharma, etc.), our current regulatory apparatus is much like the Jim Crow South, when so many local sheriffs were members of the KKK. Moreover, technologies, especially those characterized as vital engines the new economy, have become the pinnacle of sacred cows, even among would-be reformers. All the while, continuing battles with firms like Facebook, over such things as "behavioral distortions" and "algorithmic incitements" tend to confirm that the much-prized neoliberal "self-regulation" has extreme deficiencies.

While new professional standards might provide a useful ancillary approach, the panoply of new institutes and "human centered AI" courses are unlikely to put more than a small dent. We still seem to think that the mere mention of terms like ethics and social responsibility hold some sort of magic. Unfortunately, these normative claims, even when translated into legislation, will make glacial progress, at best, when pitted against institutions so sheltered by law and sanctioned by economic dogma. In a world where humans can be so easily hacked and oligarchy is extolled, those we seek to regulate are more likely to regulate us.

The algorithms themselves might be preprogrammed to search for socially viable solutions, however. For example, they could be simply "supervised" to search for "Rawlsian" (Rawls, 1971; and note, Joseph, et. al. 2016) solutions (i.e. which benefit the least advantaged party first). But I would not hold my breath awaiting widespread implementation of ethics engines in our radically divisive societies. Software engineers have sought for a while now to develop "artificial moral agents" (AMAs) which arrive at ethical directives mostly on their own (note, Anderson & Anderson, 2007). However, a recent appraisal (Cervantes, et. al. 2020) concluded

> "that there is a long way to go, from a technical perspective, before this type of artificial agent can replace human judgement in difficult, surprising, or ambiguous moral situations" (p. 501).

In the meantime, forces will intensify for completely unbridled artificial applications.

The AI arms race and the inordinate power of the Military Security Complex will produce huge pressures to forego basic societal constraints. Moreover, mainstream economists are likely to inject their own ideological biases regarding the limited responsibilities of corporate personhood. They might even be called upon to reinforce AI's embedded behavioral theories, to the effect that humans have no "free will" and hence are not entitled to any of their already diminished dignity. Such a destruction of human agency (for the masses at least) might prevail despite our best efforts at putting humans back into the intelligence equation. In the wake of all the financial mayhem of recent years, AI, both as in industry and in specific applications, might also accelerate the processes of dispossession.

Algorithm and blues

As devastating as declining agency might be, it pales in comparison to more totalitarian undercurrents of AI. Loss of privacy and constant surveillance aside, AI's capacity for customized indoctrination would make any would-be Joseph Goebbels absolutely ecstatic. Having drained us of our basic humanity, they can refill us with hate and fear. We have seen burgeoning black shirts for decades now, but AI gives festering fascism much more powerful tools of societal subjugation. The Cambridge Analytica Case has already illustrated the potential for altering elections with algorithms that segment populations, amplify misinformation, and magnify dread, Meanwhile, we already have social networks that left to their own devices fuel fanaticism while concealing armies troll bots (foreign & domestic). Microsoft researcher and Founding co-director of NYU's AI Now Institute, Kate Crawford (2017), expresses these concerns as follows:

> "Just as we are seeing a step function increase in the spread of AI, something else is happening: the rise of ultra-nationalism, rightwing authoritarianism and fascism. All of these movements have shared characteristics, including the desire to centralize power, track populations, demonize outsiders and claim authority and neutrality without being accountable. Machine intelligence can be a powerful part of the power playbook" (p 2).

Dirk Helbing and an auguste team, including Bruno Frey (Helbing, et. al. 2017) speculated about the fate of democracy in the era of Big Data and AI, in the pages of Scientific American, and were not what one might call optimistic. Plus, Oxford researcher, Vyacheslav Polonsky, told global elites at Davos, "how artificial intelligence silently took over democracy", as if they did not already know.

AI, both for good and evil, is pretty much fully baked into our societies in the near term. While extremely valuable cautionary appraisals abound, the machine learning juggernaut appears invincible. While it moves in fits and starts, its stride is lengthening. One of the best (and most accessible to the lay person) of these flashing construction zone signs is provided by Melanie Mitchell (2019). By way of her profound prudence and prodigious pedagogy, she clearly explains why AI is not quite ready for prime time. Beyond its hyperbole and hackability, having

strayed away from the quest for the "core of cognition", it will continue to butt its head against the "barrier of meaning". But these deficiencies may only minutely delay the spread of new applications. One particular set of applications, by the economics profession, remains up for grabs, given the slow pace of progress (or digress). Therefore, it is upon this particular rampart we should make our stand.

The wayward rise of machina-economicus

The nexus of mainstream (or neoclassical) economic theory is "homo-economicus" (or economic person). It is a super being who dwells in a fairy tale land with complete information and is obligated to act hedonistically (maximizing their individual utility at the margin). Neoclassic economists merely stamp out this little cookie person, and then chuck out all the inconvenient dough, including: altruism, reciprocation, and "moral sentiments" (as Adam Smith suggested in his virtually unknown first volume), not to mention behavioral proclivities and a modicum of concern for the natural environment. Their poor little cookie person has been bludgeoned to crumbs on empirical as well as philosophical grounds for decades (see, Fleming, 2017), and yet its specter lives on. Many ideas and actions of the mainstream have been widely condemned and disconfirmed, yet they persist, suggesting an inordinate level of scientific lassitude.

Some of the more potentially troubling aspects mainstream economics could receive a renewed lease on life, via selective applications of Artificial Intelligence. This is particularly relevant if it is merely used to shore up faulty theories regarding the dog-eat-dog nature of our society. MACHINA-EONOMICUS could be even more impenetrable and strengthen the illusion that the prevailing ideology is unassailable logic. Just when it began to look like the beleaguered cookie person was finally going to yield to the often befuddled (yet authentic) sense of our common humanity, s/he is being refurbished with even more mechanical workings. As AI further penetrates the *raison d'état* of the clandestine political economy, neoliberalism might be a reinvigorated.

What was to become a patch work of contradictory notions we now call "mainstream" or "orthodox" economics began during the industrial revolution with the highly selective extraction of a few classical ideas (e.g. the "invisible hand", "comparative advantage", "the barter myth", the efficacy of inequality, and the sanctity of accumulation). It did not acquire its mathematical veneer until the Victorian Era (1830s to the early 1900s), via the work of William Stanley Jevons, Leon Walras, and Carl Menger and their Marginal Revolution (e.g. individual utility, diminishing returns, general equilibrium, etc.). What famed American non-orthodox (institutional & evolutionary) economist, Thorstein Veblen, would label "Neoclassical", adopted the Newtonian mechanical worldview. Prominent economic historian, Phillip Mirowski (1989) describes how neoclassical formulas were simply lifted, whole cloth, from outdated physics textbooks, and hence lacked an awareness of thermodynamics (e.g. entropy), or any dynamics for that matter. Their notions of a static equilibrium left them stranded on a cold, dead planet, yet their insistence on perpetual growth and increased consumption, magically endowed it with infinite resources (or technical substitutes). In another prescient book, Mirowski (2002) contends that mainstream economics has also been hell-bent on becoming a "cyborg science" well before the advent of AI. In the process Mirowski chronicles how elements of economics have remained close to the machinations of the Military Industrial Complex (e.g. the Rand Corporation) since the days when operation researchers worked alongside the code breakers and other progenitors of AI, during WWII. As the cold war

proceeded, much the prevailing ideology of mainstream economics was also honed, beginning with a small group that met in a Swiss village in 1947.

What is so intriguing about the influence of the Mont Pelerin Society (or Pelerins for short), is that their hidden political pronouncements (now known as neoliberalism) became so easily interwoven with neoclassical methods, which specifically excluded political concerns. Some conflate the radical libertarianism and "market fundamentalism" of neoliberalism with neoclassical theory in economics, but they are not same. The complete capture of economics by a cult of ideologies did not emerge with a vengeance until the 1970s, after a few decades of lavish corporate funding of dedicated think tanks, foundations, and entire university departments, as well as law and business schools. The fake Nobel prizes (actually the Riksbank Prize) that economists award themselves at the same time as the authentic science and peace prizes did not begin until 1969, with a significant number going to Pelerin purists in perpetuity. With the elections of Ronald Reagan in the US and Margaret Thatcher in the UK, neoliberalism arrived at the pinnacles of power, and has maintained its hold, irrespective of political party. The durability of its power is also found in the lifetime appointment of neoliberal judges (Baby Borks), particularly to the US Supreme Court.

Neoliberalism was surreptitiously welded into neoclassicism in order to sustain certain policy prerogatives, and pass them off as scientific truths. Its various ideological contradictions were submerged in a new methodological morass as its global project expanded. Microeconomics tools and concepts became muddled with macroeconomic imperatives (via "efficient markets" "rational expectations", etc.). By early 80s, Milton Friedman (the 2nd Pelerin president) and his colleagues at Chicago with dominated macro options altogether. The only fiscal policies became austerity and tax cutting for the rich, manpower policies focused on rabid union busting, and monetary policy was reduced to constructing a perpetual motion Ponzi scheme force-fed by independent central banks. The financialization ethos displaced all other managerial directives (see, Daneke & Sager, 2015), and clouded risk appraisals. The following frenzy of fraud was rendered unforeseeable and inexplicable by neoclassical / neoliberal models that had made the burgeoning credit economy exogenous. An unaccountable "Shadow" banking industry (hedge. private equity & sovereign wealth funds, and insurance, mortgage, & venture firms) exploded in the void. Speculative excess was backstopped by the printing press (e.g. QE), and deadly derivatives (e.g. credit default swaps) sprang from extremely ill-conceived algorithms (e.g. The Gaussian Copula). Fictitious wealth mushroomed to several times the GDP of the planet. Essentially, the faux entrepreneurial religiosity of neoliberalism when combined with falsely professed neutrality of neoclassicism has made mainstream economics an elaborate smokescreen for kleptocracy.

Just imagine how much better an apologia for the status quo might be presented via the deus-ex-machina of AI. The unearned power of mainstream economics could be made even more potent by a radical new version of scientism. One can only hope that extreme instability which accompanies the rise of the AI Economy (e.g. dramatically accelerating redundancies) will call into question the viability of their parasitic ideologies. We can see, however, why mainstream economics is more likely to embrace the narrow set of AI tools and concepts. The possibilities of methodical refortification for deep seeded ideological biases would just be too enticing. They could merely substitute simple machine models for actual agents and institutions, and create the illusion they have arrived at some sort of preordained nirvana. In the process, they could continue to reject vastly more relevant simulations (e.g. resiliency, emergence, institutional co-evolution, adaption, etc.).

The road not taken, yet

It is essential to point out at this juncture that AI was originally introduced into economics as challenge to myopic neoclassical and neoliberal doctrine (note: Holland & Miller, 1991; Daneke, 1999; Arthur, 2013; Elsner, et al., 2015), and hence the mainstream has been extremely slow to respond. When colleagues and I at the University of Michigan were calling for an "artificial reality check for economists" back in the 1970s, I do not think we were expecting that machina-economicus would be the sole result. Advocates of what is now called COMPLEXITY ECONOMICS or in the less ambitious offshoot Agent-based Economics, obviously had something very different in mind. As one early complex systems economist and UCLA professor, Axel Leijonhufvud (of *Life Among the Econ* fame) once put it, neoclassical theory involves "very smart people in incredibly simple situations", while the real-world entails, "very simple people in incredibly complex situations".

The study of complex systems adaptive has origins in of nonlinear dynamics and statistical mechanics, such as Rene Thom's work in instability and morphogenesis (Catastrophe Theory) and Illya Prigogine's pathbreaking work in "dissipative structures" and "order out of turbulence" (Chaos Theory) among others. It is noteworthy that chaos research was the actually quest for order (or reordering processes), and complexity was search for simple rules (that drive heretofore intractable phenomena). As Niels Bohr once said of the early challenges to the Newtonian mechanical worldview in physics, "we now seek tiny islands of order in a sea of chaos". Harbingers of complex systems insights can be also be found among those in the Systems Theory (General and/or Living systems) movement, heralded by Ludwig Bertalanffy. Nor should we neglect to mention original transdisciplinary field of cybernetics (from the Greek, "the art of the steersman"; see, Wiener, 1961) that also served in the foundations of computer science and AI. Following upon impressive breakthroughs in physics, chemistry, and biology (note, Capra 1997 for an accessible overview), a small handful of social scientists began to contend that the emerging science of complex systems should be amply applied to economics, if it were actually still seeking to be scientific (for an excellent review, see Helbing & Kirman, 2014).

The complexity approach pretty much turns neoclassical economics on its head. First of all, it confronts the notion of equilibrium (particularly the General Theory) originally set forth by Walras, as well as certain aspects of John Nash's "strategic equilibrium" via game theory). According to complexity theory, economic systems are essentially in disequilibrium and thus often buffeted by nonlinear dynamics. This stands in stark contrast to linear and static results of neoclassical methods. Even when markets appear to spontaneously "self-organize", it is their systemic and "emergent" processes and properties where one should focus. Moreover, unlike standard economic regression models, chaos/complexity tools (e.g. Lyapunov exponents) can comb through the discarded randomness for the faint signals of divergent trajectories.

From complexity point of view, the economy is much like the Earth with a thin crust of stability, over a turbulent core that often dramatically impacts the surface. Economists would be much better served to understand the unstable ground upon on which they stand, especially in light of recent financial turmoil. Moreover, complexity accepts a good deal of flux in the very institutions that economists take for granted (e.g. fragilities enforced by history, culture, and power differentials). As the one of the fathers of the Santa Fe approach, Brian Arthur (2013) elaborates:

> "Where equilibrium economics emphasizes order, determinacy, deduction, and stasis, complexity economics emphasizes contingency, indeterminacy, sense-making, and openness to change…This view, in other words, gives us a world closer to that of political economy than to neoclassical theory, a world that is organic, evolutionary, and historically-contingent" (pp. 1-2).

On the rare occasion that "exogenous shocks" or any of all the other interesting ingredients excluded from mainstream models are referenced, they merely assumed the system will quickly restabilize in accordance with a Gaussian distribution (like a bell curve). As complexity studies often show, even in absence of strong or systemic perturbations, deviations in time series often present "fat tales" suggesting some sort of "power law" distribution. But one might ask, what if bubbles and crashes are the norm, and stability is the aberration? What if the economy is not a fine turned machine, but a rather a messy and constantly evolving system, often experiencing the rapidly cascading effects of "strange" or chaotic attractors as well as "limits cycles"? British scholars have already begun to raise these issues in anticipation of the next global financial crisis (Haldane & May, 2010).

Evolution and agency revisited

Over 120 years ago, the grandfather of Institutional Economics, Thurston Veblen (1898) asked his colleagues "why economics is not an evolutionary science?" It still remains an open question today. Reasons probably include that for the sake of scientism, economists have come to believe they must remain as constant as the Northern Star. Time itself often stood still for the sake of mathematical representation. Over the years, increasingly bizarre machinations emerged in economics, in name of formal elegance. Consider for example the crazy notion of path independency (which results in dictum that history does not matter). The mainstream so dearly needed for messy matters to converge to a single equilibrium that they merely assumed that most untoward events were transitory and even differing initial conditions were irrelevant. They proceeded to maintain this collective ignorance even the face of obvious network effects. When Brian Arthur first introduced his studies on "increasing returns" to a panel across the bay (Berkeley), he was told "that if they did exist, economists would have to outlaw them."

More important, perhaps, than their lack of evolutionary and institutional awareness, is their stultifying characterizations of human agency. Complex systems seek to encompass a wide spectrum of agents, well beyond those resulting from "information asymmetries", and allows for a smorgasbord of motives including: behavioral biases, altruism, reciprocity, old fashioned morality, etc. Mainstreamers mainly reject this notion believing that these transrational elements, that they label "anomalies", are irrelevant since "other regarding" or merely stupid agents will always be overwhelmed by cold blooded cookie persons. This notion remains despite studies which show how these purely economic (i.e. greedy) agents are themselves often side-lined in the aggregate (see, Frey and Gallus, 2014). Plus, the continuous co-evolution of divergent individuals and their institutions can periodically produce dramatic results that defy rationality completely. The rise and amalgamation of the Pelerins might well be a case in point.

Complexity economics also seeks to model multiple-levels of "interconnectivity" between diverse agents and changing preference maps. In complex systems the unit of analysis shifts ever so slightly toward the interaction between individuals, their institutions, and the evolving economy; A "three-body problem", if you will. This endeavor might be characterized as

HOMO-COMPLEXICUS, for lack of a better term. It has always been curious to me how mainstreamers maintain that the autonomous individual is their unit of analysis, since they care so little about real individuals and their actual psychology, not to mention sociology. Plus, their agents are never really "free to choose" anything that contradicts their super-mechanistic economic models. The mainstream has agents without agency. Real agents participate in a number of wildly interactive or systemic choices. At any given point in time, we might be unaware of many of the institutional forces impinging upon prerogatives, but we are periodically awoken to some. Rather than having us exist in an economically induced coma, complexity studies assume we can reflect upon and occasionally actively explore rule changes that enhance rather than suppress our choice parameters. Moreover, we might even awaken to a larger role in our own evolution with choices that facilitate more resilient and sustainable systems.

An authentically "agent-based" economics does not apply top down principles, deductively derived from dogma. Rather, it grows systems, literally from the ground up. As Brookings Institute Scholars Joshua Epstein and Rob Axtell (1996) explain:

> "[W]e give agents rules of behavior and spin the system forward in time and see what macroscopic social structures emerge…we part company with certain members of the individualist camp insofar as we believe that the collective structure, or institutions that emerge have feedback effects in the agent population, altering the behavior of individuals" (p. 16-17).

At the fundamental level, complexity models reverse, yet revitalize, the idea of agency. In complex systems, agents not only arrive with a bundle of mixed individual motives, but adapt and learn by way of their cooperative (as well as competitive) experiences. If we were only self-interested, short-term, personal utility maximizers, then we would probably have gone extinct long ago. And, if we remain in the grip of our neoclassical/neoliberal delusions we might yet make it.

Unlike our currently anti-social and anti-democratic economics, complex systems thrive on inclusion. Early complexity pioneer, John Casti (1994) observed that many, if not most, orthodox inquiries, with their draconian economic strictures, merely assume "simple systems" where only a small number of firms or very few oligarchs determine the outcomes. He cites "political dictatorships, privately owned corporations and the Catholic Church, with their low interaction between the lines of command and a centralized authority". Complex systems, on the other hand, assume a "diffusion of authority" and hence are ultimately more robust. He points out that,

> "...in actuality the power is spread over a decentralized structure. Actions of a number of units then combine to generate the actual system behavior. Typical examples of these kinds of systems include democratic governments, labor unions and universities. Such systems tend to be somewhat more resilient and stable than centralized structures because they are more forgiving of mistakes by any one decision-maker and are more able to absorb unexpected environmental fluctuations" (p. 272).

Complexity Economics is at its core a science of socio-cultural evolution and "emergence". Interactions generate properties that are "greater than the sum of their parts". My Michigan colleague, John Holland, coined the phrase "perpetual novelty" to explain these processes.

His famed "Holland Schema" allowed "fitness landscapes" to be studied in topological configuration. Brian Arthur (2013) contends these processes of unfolding and "formation" should be of great concern to economists. In his own words, formation involves:

> "…how an economy emerges in the first place, and grows and changes structurally over time. This is represented by ideas about innovation, economic development, structural change, and the role of history, institutions, and governance in the economy" (p.17).

In their classic multi-national study, *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, MIT Institutional Economist, Daron Acemoglu, and Harvard Political Scientist, James A. Robertson point out that historically speaking inclusive systems generate greater prosperity.

New wine in old bottles

Mainstream economists, however, are much more likely to adopt a far narrower take on AI. As they tend to seek some sort of inescapable (even if "bounded") rationality, it seems perfectly reasonable that they embrace machine models. One might also expect they would seek to use them to shore up their teetering ideological base. Apparently, they share a common commitment to a bionic cookie person with certain elements of computer science. This is precisely the point that David Parkes and Michael Wellman (2015) make in the prestigious pages of *Science.* They assert that,

> "The field of artificial intelligence (AI) strives to build rational agents capable of perceiving the world around them and taking actions to advance specified goals. Put another way, AI researchers aim to construct a synthetic homo-economicus, the mythical perfectly rational agent of neoclassical economics" (p. 267).

As Parkes and Wellman are engineers, and perhaps unfamiliar the many travails of cookie personage, they might be forgiven for letting the "machina economicus" cat out of the bag, so to speak. It worth reminding you that most of this this discussion revolves around the small subfield in AI known as "machine learning", employing deep (meaning layers of neural nets) techniques, and not necessarily genetic or adaptive algorithms. Parkes and Wellman mention multi-agent systems, yet they seem to believe that ML/DL will provide sufficient training to homogenize rationality as their caricature of economics demand. They clearly believe that neither field needs significant modification. I would suggest that they are definitely a good match, but not necessarily one made in heaven.

Stanford superstar business and computer science professor, and Microsoft advisor, Susan Athey is just as gung-ho as these engineers, but much more meticulous in her efforts to adapt machine learning to the particular needs of econometricians, who are surprisingly rare among the empirically challenged mainstream. Many orthodox economists merely want to use formal proofs and avoid data like the plague. Athey is an especially rare breed. She started at Duke at the age of 16, and matriculated with majors in math and computer science as well as economics. She was the first woman to receive the John Bates Clark Medal (for contributions to econ before 40) in 2007. As their fake Nobel prizes are given as much to co-opt as condone, I'd suspect she will have one of those before much longer. But she might have to share it with an even deeper defender of the faith. Her own faith might be a bit conditional for

an otherwise hard-core econometrician and she also has a Big Data burr under her saddle. Thus, she has issued a number of calls (Athey, 2016; 2019; also note: Athey & Imbens, 2017) for economists to embrace machine learning, especially "supervised ML" as well as "generative adversarial networks (GANs)". In a candid interview at MIT/Sloan (Mason, 2018), she admits to a substantial amount of "push back" from the establishment over the issue of "correlation versus causation" and "prediction versus decision-making". Ergo, she maintains how the blending of machine learning with estimations drawn from conventional counterfactual policy research is her focus for the time being. Meanwhile, of course, AI researchers will continually enhance the isolation of multi-directional correlation in their predictive algorithms. While the old adage that "correlation is not causation" still pertains, machine scientists generally see it as a bit of red herring.

Bayes-ed and confused

I am still a bit ambivalent on this subject myself, but I suspect that it might be more accurate to suggests that economists concern for sanctity of causality in their relatively sparse empirical inquiries is a bit of a canard. I believe that many mainstreamers are really concerned that Bayesian tests imbedded in most machine learning protocols would expose the fairy tale nature of several of their sacred priors. Some cherished pillars like the "efficient markets hypothesis" would not survive a Bayesian bombardment. When applied to AI, Bayesian inference assumes that all priors are merely probabilities that will be continuously reassessed as the machine discovers new "patterns of association." This famed theorem was actually afterthought of the Right Reverend, an amateur statistician and an early defender Darwin, which he never sought to publish. Econometricians have played around with Bayes for decades (see, Lancaster 2004) but with far less vigor than current AI researchers. Meanwhile, mainstreamers appear to have decided to let sleeping dogmas lye. Nonetheless, workarounds abound that combine Bayesian like processes with tools such as decision trees and Monte Carlo simulations as well as other emerging DL tricks. Harvard economists (Mullainathan & Spiess, 2017) have even managed to set aside the prediction versus policy problem for certain machine applications. Adding to the confusion, some computer scientists still defend "relative frequencies" and a small number of mainstream economists (e.g. Nobel Laureate, Chris Sims) argue "why econometrics should always and everywhere be Bayesian" (2007, p.1). Besides, he adds that "Bayesian inference is a way of thinking, not a basket of methods."

My best guess is that more than a measure of legerdemain will be involved in fully substituting the new machine model of science for the antiquated and unrealistic aspirations of mainstream economists. But then they do have most of the brightest kids in the room on their team. From a diabolical perspective, it really serves their ambitions well to hitch their creaky handcart to the AI bandwagon, and various black box applications can hide even more sleight-of-hand. Moreover, I suspect that Athey and others will discover new devices for keeping neoliberal corpses on display. At the very least economists might come to appreciate that meaningful data was once just so damn difficult come by, employing armies of graduate assistants. Hence, as Athey (Mason, 2018) pointed out "they should embrace the benefits of effectively having a robotic research assistant". The dearth of data, of course, was always far less meddlesome than the issue of the poor approximation of actual human aspirations, and collecting and processing of a great deal more misinformation might make matters immensely worse. Once machina-economicus is fully operationalized, we might open a Pandora's Box of much thornier problems.

When algorithms rule the world

One of the more obvious dilemmas is that the Big Data decathlon is the combination of information implantation with extraction. Many of the minions of information monopolies want to train people as much as algorithms. When self-driving cars began to run over people, the first suggestion was more training for pedestrians, and the second was banning humans from the main roads that their taxes built and maintain. AI can be an extremely powerful instrument of social control, and we can imagine that many old guard economists are, when push comes to "nudge", perfectly okay with this prospect mass re-education. As Brian Arthur once observed,

> "economists got away from really questioning how the world works, how decisions actually got made. If something doesn't conform to neoclassical models, then people are not somehow behaving themselves properly. It's like seeing real economic behavior as impurities in a physical system or chemical system that are messing things up" (Kurtzman, 1998, p. 2).

Versions of machine economics could be enlisted to aid in processes of purification. They might provide packaging for the essential super-suds used in the humongous mental carwash, and issue rain checks for those who don't come clean (or quietly). While trust in economists should be less than robust after various recent debacles, the public at large are readily taken in. While the US is an inherently an anti-intellectual enterprise, especially of late, mainstream economists can often convince the rubes that they are somehow both more book-smart and yet more streetwise than say the typical environmental scientist or epidemiologist for that matter. While mostly speaking of the past, before political economy was outlawed in the mainstream, Robert Heilbroner referred to them as *The Worldly Philosophers.* Their theory and methods became increasingly unworldly, yet their influence still continues to climb, mostly by pandering to plutocrats. Replenishing their antiquated and ethereal arsenals with aspects of AI might make their snake oil even more delectable.

Just as mainstream economists are refurbishing their Frankenstein cookie monsters, machine learning developers are providing their own retrograde version of human behavior by resurrecting the rogue psychologist, B.F. Skinner, from nearly three quarters of a century ago. His misguided use of manipulation as explanation as well as learning via "operative conditioning" have now been interwoven into the epistemology and ideology of machine learning. One might have thought that Skinner's (1971) obliviation of human "freedom and dignity" was laid waste by its many critics decades ago. Some of the most devastating blows were leveled by famed MIT activist scholar, Noam Chomsky who was a pioneer of cognitive science as well as linguistics. However, as AI settled upon the machine learning path, it strayed a good bit from its cognitive science origins. In her epic, *The Age of Surveillance Capitalism*, Harvard Business Professor, Shoshana Zuboff (2019) chronicles how Skinner has returned as the patron saint among the Big Data daddies. Afterall, they can't be taking away something we never had. Since they became as rich as Croesus by herding humans like cattle (or batteries in *The Matrix*), it should come as no surprise that they seek legitimizing theories, wherever they can find them. Monetizing "behavioral exhaust", by recombing and re-injecting it like a turbocharged engine, is not enough for the new *Madmen*, they want us to cherish our chains. These same devices can be used to further atomize, alienate and undermine communal values. But worse yet, ML/DL can allow individuals to be herded into the lower cubbyholes of a "new caste system", according to Kissinger Associates VP, Joshua Cooper Ramo (2016). Skinner is being resurrected to prepare us for this "brave new world",

(or his own utopian novel, *Waldon Two*). He thus joins the Palo Alto pantheon of neofeudal heroes which includes: Nietzsche and Ayn Rand, as well as various "neo-reactionary (NRx)" and "Dark Enlightenment" oracles.

The moguls of Silicon Valley and Seattle have found additional solace in encyclopedic and only mildly dystopia writings of Israeli historian, Yuval Noah Harari (of *Sapiens* fame). In his tome, *Homo Dues: A Brief History of Tomorrow* (2017), he predicts that the AI will join forces with genetic engineering to usher in a totally new and more "god-like" species, CRISPR critters as it were. Yet, even these superior beings may not necessarily have "free will", which he contends has always been a dysfunctional myth. Of course, techno-godhood will be reserved for the very few, and the vast majority of us mere homo sapiens will be serfs. AI induced serfdom, however, is still a tiny step above, Harari's "useless class" (i.e. having no meaningful role whatsoever). As AI proceeds pell-mell to displace a huge swath of employment and exacerbate the already grotesque levels of inequality, its own self-congratulatory ideology provides a built-in justification for further dispossession. Much of this intellectual cover may come from the type of economists whom have defended rentiers for decades. Misguided analytics can merely be extended and refocused from the hero worship of Robber Barons to a new techno-idolatry. We already have our ersatz royals with no sense of noblesse oblige, but machina-economicus could give them another layer of insolation. Plus, when machines can code themselves (and us), the paths to nobility (or ignobility) will, as in the past, be very few and far between. Social mobility may mostly be downward.

While this neofeudal dystopia seems remote, we have already witnessed the new emperors of information beginning to dabble in the darker arts of AI. The negative influence upon the electoral process in dwindling democracies is now well documented. More importantly, the specious corralling of cohorts is becoming well developed, and we already have a number of black box algorithms determining our diminishing opportunities. Who gets into which college or gets what loan (at which interest rate), or who goes to jail and for how long is pretty much predetermined by proprietary applications (with code, data, and correlations as trade secrets). Harvard Ph.D. in mathematics and former Wall Street trader, Cathy O'Neil (the famed "math babe") really says it all in the title of her New York Times Best Seller (and National Book Award winner in 2016), *Weapons of Math Destruction: How Big Data Increase Inequality and Threatens Democracy*. In essence, many of us are having our lives completely red-lined before we even get the chance to live them. While perhaps not as blatantly oppressive as the Chinese "social credit" (or increment of association score) system, existing data manipulations, when combined with facial recognition and other algorithmically enhanced surveillance, is a fairly Orwellian possibility. If you have nothing to hide, they can create something for you.

The policy use of partial and problematic predictive algorithms is burgeoning, even in the light of persistent challenges. Researchers at Dartmouth (Dressel and Farid, 2018) demonstrated that complete novices could out predict the infamous COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) algorithm that is deployed by several states in projecting recidivism and making sentencing and parole decisions. Another prodigious study headed up by Princeton sociologists and public affairs scholars, Sara McLanahan, Ian Lundberg, and Matthew Salganick involved a literal army of social and information scientists (PNAS, 2020) over 15 years, with 4,000 families and nearly 13,000 data points, under the title, *Fragile Families and Childhood Wellbeing*. It concluded, in the words of MIT senior AI writer, Karen Hoa (2020), "AI can't predict how a child's life will turn out even with a ton of data". Perhaps AI will prove better at persecution than prediction. Beyond illustrating the

amplification of racial, gender, and class biases, Virginia Eubanks (2017), SUNY Albany Political Scientist, documents how algorithms are being used to further torment the down-trodden via what she calls the "digital poorhouse". Plus, she details that most of these applications are far more expensive than simple programs aimed at enhancing opportunities.

We experienced how mathematicians and physicists employed by Wall Street ("quants"), aided and abetted monumental financial shenanigans and nearly brought down the entire global banking system (and it has yet to really recover). Yet, new algorithmic devices for skirting regulatory measures as well as building increasing exotic in-securities are still proceeding as if the melt down never occurred. The mere presence of our malfunctioning financialized economy adds pressure to further ignore the numerous flies in the ointment of our info-tech salvation. Machine processes, with their labyrinth of inexplicably connections, are difficult to unwind, let alone comprehend, once hastily implemented. AI practitioners, involved in pecuniary projects, have little time or access to opacity problems when black boxes proliferate themselves.

Concluding observations

One can still hope that our continuing financial lunacy and AI associated economic dislocations will finally unleash a Kuhnian "scientific revolution" within mainstream economics. Yet, when it comes to the level of "normal science" to be overcome, we could debate how much there is still there. Unacknowledged ideological elements may have made the mainstream more cult than science, per se. The engrained model eating aspects ML/Big Data, however, might be like the bomb within that sets off the nuclear device, a revolution within a revolution, as it were. My own best guess is we are not quite there yet, we still have a few more shifty paradigms to dislodge before a true paradigm shift is probable. I could be wrong, and hope I am. Some of colleagues in complexity economics try to convince me that we've already won, but then I ask them in which journals they are publishing and how many card-carrying economists they have on their transdisciplinary teams? Conversely, how many non-economists (aside from quants) participate in AI econ projects?

Thus far, as mainstream economists go forth to master and manipulate the artificial, they continue to neglect much real social science. It has long been suggested, as far back as Veblen, that economics should more fully integrate with the other social sciences (history, anthropology, political science and psychology as well as others humanities). Some among the complexity camp contend that this marriage of the minds is near at hand. I once thought so myself, but obviously, I am no longer sure. Mutual respect is seriously lacking, and some of my hardcore colleagues contend that economics is not a social science at all. Back in the 1970s when the National Sciences Foundation was initiating its interdisciplinary research agenda, an inquiry of inquiries gleaned that economists were the least likely to play well with others. And, they have become the increasingly recalcitrant over the years. The mainstream has extended their isolation, along with their ideological adherence, self-appointed supremacy, and growing political and commercial power. Moreover, mainstream economists have managed to make transdisciplinarity a one-way street. Beyond completely overrunning business, law, and public service schools, they have spread their "freakonomics" far and wide (from child rearing to love and marriage, etc., etc., etc.). Veblen would certainly be disturbed to see his *Journal of Political Economy* merely applying economic models to the behavior of politicians (rather than the reverse). This insularity amid intellectual imperialism, suggests that

those wishing to use AI to push economics in the direction of inherently transdisciplinary adaptive systems research have their work cut out for them.

At the ground level, we can fully expect a new phalanx of mainstream shock troops. The on-going cross breeding of economists and computer scientists could produce super-true believers, and they might even end up further darkening long standing scientific and ideological blind spots. The theory bomb of AI could fizzle-out in their incurious hands. In Washington in 1970s, it was relatively easy to spot the overzealous ideologues of the newly initiated joint law and economics programs, and at Stanford in the 1980s, the engineering and economics hybrids, especially those already running stochastic programs for shadow bankers on Sand Hill Road, stood out for their myopia turned glaucomic by inordinate hubris. This more intensely pretentious priesthood is quickly becoming the norm. The new generation of economists is already much heavier on coding and computational tools and much lighter on understanding of their own discipline. It has often been asserted that even the large glob of economics in the typical MBA program functions as "a little bit of knowledge being a dangerous thing". With more AI courses encroaching upon the already limited mainstream curriculum, we will soon have vast armies of newly minted economists who are little more than mindless quants and extremely dangerous.

Rather than giving their blessings to these mangled marriages, engineers should rekindle their own traditions in "sociotechnical systems" (STS). They became somewhat sidetracked early on via the Travistock Institute and "organizational development", workplace design, "industrial democracy" elements (e.g. Emery & Trist, 1965). As vital as these tangents might be, it was by way of more broad-based technology assessments and "social factors" research where STS came into its own (see, Baxter & Summerville, 2010). In particularly, it has generated valuable insights into the barriers and bridges associated the transition to a post carbon economy (e.g. Cherp, et al., 2018; and Büscher, et al., 2018) and sustainability studies generally. STS was instrumental in the early development of AI, and could be called upon again.

Unfortunately, Veblen's contention that engineers (as opposed to business and banking saboteurs), aided by diverse social scholars, form the basis for a well-run economy never came to pass. Plus, top engineering schools are now being overtaken by their programs in "financial engineering", as well as computer science. Hence, we are stuck trying to reform a deeply entrenched and soon to be rejuvenated adversary, pretty much on our own. Homo-complexicus (or complexica if you prefer) might at least serve as a new rallying point. I hope we are up to the task.

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Maybe there never was a unipower

John Benedetto [USA]

Summary
It is widely accepted that the period 1990-2015 was the era of the United States as "unipower," the sole, uncontested Great Power of the world, with global hegemony. The United States certainly appeared like a unipower during the period, with numerous apparent demonstrations of diplomatic and military power. However, this paper posits that the reality was that real U.S. economic capabilities were deteriorating over this period, and thus undermining the bedrock of true U.S. power. Numerous heterodox authors in the late 1980s and 1990s forecast this economic weakening, but were derided and dismissed by the U.S. economics establishment. The heterodox authors' predictions and analysis now appear particularly prescient. The 1990-2015 period should be better understood as the overextension of a Great Power in a more multipolar world, rather than a true, unipower era.

The argument

1. Heterodox economic authors in the 1980s warned that U.S. deindustrialization put at risk U.S. "Great Power" status.
2. The United States had the appearance of being the world's "unipower" from 1990 until 2015 or so.
3. During this period, the reality was that U.S. industrial capabilities were weakening, while the economies of many U.S. trading partners were strengthening, as they ran merchandise trade surpluses with the United States.
4. The U.S. merchandise trade deficit likely also bought a temporary appearance of greater U.S. diplomatic and economic strength, while in reality furthering the underlying decline of U.S. industrial capabilities.

This paper does not argue that the United States could have been a unipower had it pursued different policies. (And this author has no interest in the United States being a unipower.) Instead, it argues that the United States was not the unipower that it appeared, and that the United States bought that appearance at the cost of policies that undermined its own long-term prospects.

Methodology

The argument above requires a broad view. This paper first surveys what it terms "heterodox authors" from the 1980s and early 1990s. It then performs a broad analysis of their predictions, drawing on more recent specific analyses, data, and testimony. The opinions of "mainstream" U.S. economists have often been at odds with the specific analyses, data, and testimony used in this paper. Nonetheless, this paper accepts most of these specific analyses, and so does not revisit and reassess them. Instead, it draws on them to build a larger argument. The paper provides the sources of these analyses so that anyone wishing to pursue them further may do so.

By a country's "power," this paper refers to a country's ability to defend itself and make its own decisions, at a minimum, and its ability to affect the actions of other countries, more expansively. A "Great Power" is able to extend its power outside of its own borders. This paper does not argue that the United States, or any other country, *should* be a Great Power, although it does analyze to what extent the United States has "power" or is a "Great Power."

The conventional view – the United States as 1990-2015 "Unipower"

The conventional view of the world's recent history is that roughly the period 1990-2015 was the period of the United States as the "unipower," "global hegemon," or "hyperpower." During this period, the United States emerged from the Cold War "victorious" and able to exert its influence over the entire world. During this period, no other power was able to credibly challenge Washington on any major issue.

Washington Post columnist Charles Krauthammer summed up the "new reality" as follows:

> "[o]n December 26, 1991, the Soviet Union died and something new was born, something utterly new – a unipolar world dominated by a single superpower unchecked by any rival and with decisive reach in every corner of the globe… We are a commercial republic… with overwhelming global power. A commercial republic that, by pure accident of history, has been designated custodian of the international system."[1]

Put somewhat more crudely (if no less pretentiously), U.S. Secretary of State Madeleine Albright stated that "[i]f we have to use force it is because we are America; we are the indispensable nation. We stand tall and we see further than other countries into the future."[2] And put even more crudely, in 2000, John Bolton told National Public Radio "if I were redoing the Security Council today, I'd have one permanent member because that's the real reflection of the distribution of power in the world." He continued that by that one member, he meant the United States.[3]

Chest-thumping aside, it is certainly understandable why this period is considered the era of U.S. hegemony. On the military side, the United States successfully assembled an international coalition to throw Saddam Hussein's forces out of Kuwait in the First Gulf War. The United States then successfully recovered quickly from the September 11, 2001 attacks, and went on to invade Afghanistan and Iraq (for a second time), although both occupations have been difficult. During the same period, the U.S. military has also been stationed in, and even fought in, many other countries.[4]

On the economic side, U.S. elites have pushed for global "free trade" and investment, policies included in "the Washington consensus,"[5] and have gotten much of what they asked for, including the World Trade Organization and many trade and investment agreements heavily

[1] Krauthammer, Charles. *Democratic Realism.* 2004.
[2] Albright, Madeleine quoted in Zenko, "The Myth," 2014.
[3] Editorial Board, *New York Times*, 2005. At the time of the quotation, Bolton had held national security positions in the Reagan and George H.W. Bush administrations, and later would do so for the George W. Bush and Trump Administrations,
[4] Additionally, U.S. national and international surveillance capabilities expanded dramatically. See McCoy, *In the Shadows*, 2017, pp. 120-129.
[5] Williamson, "What Washington Means by Policy Reform," 1990.

influenced, if not designed, by U.S.-based interests. Meanwhile, U.S. experts touted the United States as the world's most innovative economy, home to numerous "tech" companies that are the alleged world leaders in their fields.

In the early 1990s, the *New York Times* reported that the leaked "Wolfowitz Doctrine," an internal U.S. government memo, urged that the United States be ready to head off any major rising power, i.e., "convincing potential competitors that they need not aspire to a greater role."[6] From the official history, it appears that Wolfowitz' wish came to pass over 1990-2015. Russia struggled with its transition from the USSR, other nations seemed to copy the Washington Consensus economic model, and the United States began having an even wider global military footprint than it did before 1990, with previously-unimagined military bases in Eastern Europe and the Middle East.

The forecasts in 1990 – the heterodox authors

That one would be able tell such a story about 1990-2015 was anything but a foregone conclusion in 1990. In the late 1980s and early 1990s, when the Cold War was still going on and/or not yet clearly over, some U.S. geopolitical analysts expressed concern over the U.S. trade deficit with some Asian nations (especially Japan, Korea, and Taiwan) and to a lesser extent, with Europe. Authors writing in this genre included Lester Thurow, Clyde Prestowitz, Chalmers Johnson, Kevin Phillips, Eamonn Fingleton, Laura D'Andrea Tyson, and Great Power expert Paul Kennedy.

Broadly, these authors warned that the United States was suffering deterioration in its long-run manufacturing capacity, and so they advocated national "competitiveness" policies (such as industrial subsidies or trade protection) designed to bolster U.S. manufacturing industries and connected research.[7] These recommendations flew in the face of the neoclassical economic preference for trade liberalization – even unilateral trade liberalization –- and so this paper will henceforth refer to these authors as "heterodox authors." However, at the time, these heterodox authors were hardly on the sidelines of the policy discussions, and instead were often prominently featured in public debates.

One of the most prominent of these authors was historian Paul Kennedy. On the eve of the fall of the Soviet Union, Kennedy was already considering the possibility that the United States was itself militarily overextended and neglecting the economic base of its power. *The Rise and Fall of the Great Powers* was his classic 1987 work that explained the fall of the 19th-century Great Powers and the emergence of the bipolar powers of the Cold War era. In this work, Kennedy argued that the United States was de facto a Great Power long before 1914, due solely to its great economic strength and industrial capacity. In prior conventional "Great Power" history, the United States was not always regarded as a Great Power before 1914, likely because it did not possess a large military. Nonetheless, behind high tariff walls from

[6] Tyler, "U.S. Strategy Plan Calls for Insuring No Rivals Develop," 1992.
[7] It should be noted that these authors did not necessarily argue that the United States *should* be a global power with any particular agenda, and national "power" could certainly be defined simply as the ability to take care of one's own citizens and defend them, without projecting military power into far corners of the globe. This paper is not advocating any particular use of U.S. power, but rather simply trying to show that U.S. power over the 1990-2015 period may have a fundamentally different nature than is commonly thought, and that numerous now-dismissed authors warned of exactly this possibility.

the time of Lincoln's election, the United States had built the world's largest and most vigorous economy, by far.[8]

For Kennedy, pre-1914 U.S. economic strength gave the United States the power to create and maintain a large military, even if it did not actually have one in 1914. Indeed, Kennedy's analysis implies that the 1914 United States was almost certainly more powerful than some of the so-called "Great Powers" of 1914, including Austria-Hungary and the Ottoman Empire, and maybe even the British Empire.[9] For Austria-Hungary and the Ottoman Empire, the appearance of great military strength hid hollowed-out economies that made them, in reality, much weaker than conventionally thought, while the small U.S. military in 1914 hid its enormous economic might.

Kennedy's broad point remains an effective analytical framework.[10] Ultimately, true status as a Great Power (or even simply a power) requires an economic base. Military and diplomatic power can be symptoms of economic power. But Kennedy's history shows that military and diplomatic power can also be only veneers for a country that is actually much weaker on an economic basis.[11] And Kennedy's analysis shows how such countries without a strong economic base will ultimately lose their military and diplomatic power.

Kennedy only later touched on trade and manufacturing issues, but other heterodox authors addressed those issues directly. Lester Thurow's classic *Head to Head* warned, while the Cold War was just ending, that the United States' true geopolitical rivals in the near future would be Europe and Japan, albeit on an economic, not military, basis. Like Kennedy, Thurow described a country's military power as depending on its economic power, and forecast that the first half of the 21st century would see major economies competing with each other to acquire key industries. He predicted that this competition would not be, as free traders argued, "win-win," but rather competition in which some countries would win, and others lose. Moreover, he described the United States as needing to make the largest changes to adapt to the rest of the world,[12] rather than being the global economic role model. He based his analysis on (1) the general importance of capturing key industries, and (2) the growing

[8] Kennedy, *Rise and Fall of the Great Powers*, 1987, pp. 242-249. The tariff information comes from Benedetto, "Trade surpluses," (2014) although Kennedy also notes that international trade was a very small share of the U.S. economy in the period before World War I.
[9] Kennedy, *Rise and Fall of the Great Powers*, pp. 11-12, 216-219, and 242-249. It is important to note that the United States did not simply arrive at its Great Power economy because other countries were wrecked after World War II. First, as Kennedy points out, the United States was an economic Great Power long before even World War I. Second, even the United States' success after World War II cannot be attributed to the rest of the world being devastated by the war, as there is no mechanism for this to have happened; except for a short period from 1947-1952, the United States did not run large trade surpluses with the world before or after World War II. The United States was a high tariff nation from its inception, and especially after the election of Abraham Lincoln in 1860, that is, during its first period of great economic growth. See Benedetto, "Trade surpluses," 2016.
[10] For example, see Thirlwell, "The Return," 2010, p. 7.
[11] Kennedy's concern when writing *Rise and Fall of the Great Powers* seems to have been that a country that overextends itself militarily, or spends too much of its economic energy on its military, can undercut the very basis of its power. This paper starts from this jumping off point, but turns more to manufacturing and international trade, and their effect on a country's economic health. However, Kennedy does not necessarily discuss international trade in the same way as this paper will. Similarly, Chalmers Johnson also wrote extensively on how excessive military spending crowded out other types of economic activity for the United States, weakening the United States in the long run. For example, see Johnson, "How to Sink America," 2008. By 2002, Kennedy no longer believed the United States needed to be concerned about imperial overstretch, and had become a firm believer in the United States as an unprecedented hegemonic power. See Kennedy, quoted in McCoy, *In the Shadows*, 2017, p. 42.
[12] See Thurow, *Head to Head*, 1993, pp.16-17, 20-21, and 30-31.

economic and technological strength of both Japan and a Germany-centric Europe, and their ongoing trade surpluses with the United States.

The heterodox authors described manufacturing in particular as important to maintaining a country's wealth. Thurow and D'Andrea Tyson often focused on the importance of strategic industries to national wealth and power, and how such industries did not simply emerge from laissez-faire policies but required government involvement. Thurow described "unfettered Anglo-Saxon capitalism" as suffering numerous failures, including the loss of strategic industries to other capitalist countries with governments that were more involved in supporting their industries. D'Andrea Tyson described advantages in high-tech industries as created by governments, not "endowed by nature," and advocated that, at a minimum, countries need to engage in "defensive" trade policies to ensure that domestic industries are not destroyed by other countries' policies. In particular, she described other countries' policies as ultimately undermining the living standards of the United States, if the United States did not counter them.[13]

Other heterodox authors focused on how a broad manufacturing industry supports a country's national unity and vigor by fostering a large and prosperous middle and working class. Kevin Phillips described how manufacturing was connected to the growth of large and prosperous middle classes during the growth of 15th–16th-century Spain, 17th–18th-century Holland, and 19th–20th-century England as powers. He then further described how in each of those countries, increased financialization and an elite disregard for manufacturing led to a decrease in middle class living standards and then a subsequent and linked decrease in each country's national power.[14] Eamonn Fingleton described manufacturing as supplying well-paying jobs to less-educated workers, because it is more difficult for countries to enter industries than economists believe. He described how "creativity," de-linked from actual production, is often overestimated in terms of its ability to produce jobs and wealth for countries.[15] Thurow and Fingleton also described instances (even in the 1980s and 1990s) in which European and Japanese technology had already surpassed U.S. capabilities.[16]

Thus, in the early 1990s, the literature of the heterodox authors had laid out the case that (1) economic strength, and in particular manufacturing/research capabilities and/or a broad middle class, were important to a country's national power, (2) economic strength required trade policies and subsidies that flew in the face of conventional economic wisdom, and (3) the United States was falling behind, not leading, other prominent economies in the world on an economic basis.

The economists strike back

In the years since, *Head-to-Head* (and other works by the heterodox authors) were turned into an object of mockery for modern U.S. economic commentators. One of the most prominent opponents of the heterodox authors was economist Paul Krugman. In the 1990s, Krugman

[13] D'Andrea Tyson, *Who's Bashing Whom?* pp. 6-26, among others. Edwin Luttwak was another prominent analyst of these issues. See Luttwak, *TurboCapitalism,* 1999.
[14] Phillips, *Boiling Point*, 1993, pp. 192-215.
[15] Fingleton, *Unsustainable*, 2003, pp. 7-26. *Unsustainable* is a 2003 U.S. edition of a book originally written in 1993.
[16] Thurow, *Head to Head*, pp. 113-126. Fingleton, *Unsustainable*, pp. 245-252, and Fingleton, *Jaws of the Dragon*, pp. 70-78.

made his bones attacking the heterodox authors, as well as politicians who dared to analyze trade issues from a perspective that did not comport with mainstream U.S. economic thinking.

This paper will survey some of Krugman's responses, for several reasons. First, he was one of the most prominent (and vicious) critics of the heterodox authors. Second, his arguments are mostly representative of the arguments made by other "free trade" economists. Third, unlike many other economists (such as Gregory Mankiw) who defended "free trade," he explicitly approaches economics as a "liberal" (in the U.S. political sense), and thus, provided a veneer of "liberalism" to a position on trade policy that was opposed by U.S. labor, manufacturing, consumer, and environmental groups.

Krugman's academic work from the 1980s and early 1990s is, compared to his later policy work, relatively sober. As an economist working to integrate issues of less-than-perfect competition and increasing returns to scale into international trade economics, Krugman acknowledged that theory in these areas meant that "free trade" might not be an optimal policy, and he framed the question of protectionism versus free trade as one that must be determined empirically.[17]

However, when it came time for Krugman to argue for free trade in the policy arena, including in well-known establishment policy journals such as *Foreign Affairs*, his tone shifted. He made numerous appeals to authority- often his own, and that of other modern economists- and frequently accused his opponents of not understanding comparative advantage, which he presented almost as part of the atomic structure of reality itself. Krugman's emphasis on the logic of comparative advantage is a red herring. It is well known that comparative advantage is a logical argument; the internal truth of any logical argument has no bearing on whether the logical argument applies in the real world. Numerous economists and other observers of reality, over several centuries, have pointed out that relaxing the assumptions underlying the theory of comparative advantage can undermine its applicability to the real world.

As such, Krugman often portrayed the heterodox authors as making arguments that failed simple economic logic, when the authors did not do so (and it is difficult to believe that Krugman did not understand that).[18] Many of the heterodox authors' arguments fit within either (1) Keynesian critiques of trade theory when the world is not at full capacity utilization, or (2) arguments based on relaxing the neoclassical assumption that no industries have increasing returns to scale, nor allow capture of the next generation of products.

Regarding (1), John Maynard Keynes recognized, as do modern post-Keynesians, the importance of the neoclassical assumption that economies return quickly to full capacity utilization. Without this assumption, in a world in which there is economic slack, the logic of

[17] Krugman, "Industrial Organization and International Trade," 1986, pp. 40-47. Interestingly, Krugman also acknowledged that "the profession of international economics has a well-developed immune system [that] takes the form of an immediate intensely critical scrutiny of any idea that seems to favor protectionism." (p. 40.) While criticism is often part of a reasoned approach to any topic, particular criticism of one side over another is revelatory of an unscientific bias, and this statement might be taken as an admission against interest that the "profession of international economics" does not approach trade policy in an unbiased, reasoned way.

[18] For example, see Krugman, *Pop Internationalism*, pp. 30-33. Krugman also had a major article published in *Foreign Affairs* critiquing the common geopolitical idea that power and wealth are relative. See, for example, discussion in Thirlwell, "The Return." This author may share with Krugman an aversion to having nations compete on the basis of lowering wages in the name of "competitiveness." However, such a theme is mostly absent from the works of authors such as Thurow, Kennedy, etc., and therefore not relevant to the point of this paper.

comparative advantage does not necessarily apply.[19] In such a world, it is possible that countries would rationally compete over industries or over simply producing, and the countries that obtained the correct industries or ran trade surpluses would grow faster and gain more wealth and power.[20] In other words, if the world is not fully employing all its capital and labor to their maximum capability, then trade liberalization may not be an optimal policy, and countries that run trade surpluses may grow at the expense of countries that run trade deficits.[21]

Regarding (2), Krugman himself made his name academically examining issues of market power, increasing returns to scale, and international trade. Indeed, while Krugman expended a lot of vitriol on the heterodox authors, he also had to spend some time explaining why their analyses were not the same as his, as some of his results found that increasing returns to scale would mean free trade might not be the theoretical best option.[22] But Krugman was hardly the first economist to discover the impact of increasing returns to scale on trade policy, whether in theory or empirically. In the 1970s, famed economist Nicholas Kaldor had shown how losing industries with increasing returns to scale had led to slower growth in Great Britain after it tried unilateral trade liberalization.[23] Earlier economists, such as Friedrich List and Jacob Viner, also made similar arguments about countries needing to use tariffs to initiate or retain industries likely to have future technological advances and/or to be threatened by predatory foreign competitors.[24]

Understanding (1) and (2) allows us to see through Krugman's tactics. For example, Krugman slammed Kennedy for allegedly not understanding comparative advantage because Kennedy asked what happens if a country is the highest cost producer in all products, unless it cuts labor costs. Krugman alleged that such a question indicated that Kennedy did not understand comparative advantage.[25] However, one can also read Kennedy as simply not making the unrealistic neoclassical assumption that underlines the application of the theory of comparative advantage, i.e., that the world is at full capacity utilization, and so every country will pay for its imports by exporting something (instead of just issuing debt to pay for net imports). There is no reason Kennedy should make such an assumption. In a Keynesian worldview, the lack of full global capacity utilization, as well as seemingly irrational consumer behavior, allows countries to run a trade deficit and consume without offsetting production, exactly as the United States was doing both when Kennedy and Krugman were writing, and for several decades since. In such a worldview, Kennedy's concern is legitimate. A high-wage country in a world that is not at full capacity utilization may very well run a self-damaging trade deficit until its labor costs adjust to lower world wage levels.

Another heterodox author, James Goldsmith, made a similar argument that the developing world has a substantial unemployment problem, and so he predicted that freer trade between

[19] For example, see Shaikh, "Globalization," p. 4, Palley, "The Free Trade Debate," pp. 387-390, Felipe and Vernengo, "Demystifying," p. 54, Schumacher, "Deconstructing," Prasch, "Reassessing the Theory," pp. 424-44, and Markwell, "John Maynard Keynes," pp. 256-259.
[20] Besides this idea going back to at least Keynes, it has even been acknowledged recently by President Obama's Treasury Secretary Larry Summers, who has co-written a recent paper noting how, with "secular stagnation," countries that run trade surpluses can grow by hurting growth in their trading partners that run trade deficits. See Eggertson, Mehrota, and Summers "Secular Stagnation in the Open Economy," 2018, pp. 503-07.
[21] See Benedetto "Trade Surpluses," 2016.
[22] For example, see Krugman, *Pop Internationalism*, chapter 7.
[23] Kaldor, "The Nemesis of Free Trade," 236-40, 1978.
[24] See List, *The National System*, 1841, and *Viner, Antidumping*, 1923.
[25] See Krugman, *Pop Internationalism*, p. 79.

the developed and developing worlds would transfer the unemployment pressure on wages from the developing world to the developed world, both in terms of lost jobs and wage pressure.[26] Krugman wondered whether Goldsmith was an "intellectual lightweight" or just a "careless writer".[27] However, Goldsmith's critique is a legitimate Keynesian argument.[28] Krugman attempted to refute arguments like Goldsmith's with his claim that wages reflect productivity, a claim that again depends on the neoclassical assumptions that all economies are at full capacity utilization. Time has shown that Krugman's claim was empirically false.[29]

In another case, Krugman mocked writer and historian Michael Lind, calling Lind "clearly unwilling to invest time and energy in actually understanding" wages and productivity. Lind had argued that wages would not reflect productivity if there were always pressure to offshore jobs to countries with abundant available labor. Krugman's response was that wage rates do reflect productivity, but at a national, not factory or industry specific level. He asserted that even if a Bangladeshi factory has wages much lower than its workers' productivity, Bangladeshi wages will rise if overall national productivity rises.[30]

This assertion could become a convenient excuse. Anytime we observe that workers in a country's industry are paid at wages that fall far short of their productivity, vague claims of their wages being held down by allegedly-low national productivity could be used to explain the discrepancy. Of course, Krugman's critique ignores the other possibility- that wages only reflect productivity if labor law forces some standards of decency on employers. Wages in the developed world rose not only due to increased productivity, but also because of increased pressure from organized labor. But if there is large-scale unemployment in other countries, and "free trade," the pressure of low-wages in those countries could obviously be used to undermine those standards. Krugman's assertion that wages reflect long-run national productivity, with no apparent acknowledgment of any role for labor law or organization, not to mention global unemployment, is actually the claim that most beggars belief.

Settling the debate – the mainstream view

Ultimately, though, what settled the 1980s and early 1990s debate was not only Krugman's screeds, or those of his many allies in the U.S. economics profession, but the supposed path the U.S. economy took over the 25 years after 1990. According to the mainstream economic histories, in the 1990s, the U.S. economy entered a period of strength based allegedly on

[26] See Goldsmith, *The Trap*, pp. 26-28.
[27] See Krugman, "Ricardo's Difficult Idea," pp. 24-25. Krugman's complaints about Goldsmith could be read as asserting that Goldsmith's presentation did not go through all the needed logical steps of refuting Ricardo, although such an argument exists. If so, Krugman's argument is not so much a refutation as a plea for more detail, although the vituperative language employed by Krugman suggests that Krugman regards Goldsmith as just ignorant, and not simply skipping some logical steps. Such an implication ignores that Goldsmith's analysis is consistent with a Keynesian analysis, the possibility of which Krugman seems to concede.
[28] For example, see economist Thomas Palley making a similar critique, with all the requisite logical detail, in "The Free Trade Debate: A Left Keynesian Gaze," pp. 387-390.
[29] See Krugman, *Pop Internationalism*, pp. 50-66. For more information on the divergence between U.S. productivity and wages, see Economic Policy Institute, "The Productivity-Pay Gap," updated July 2019. Krugman has admitted to this and other broad errors recently. However, he still believes that, even though he was wrong in the 1990s, it is still a bad idea for the United States to engage in any trade restrictions. See Krugman, "What Economists (including me) Got Wrong," 2019.
[30] Krugman, "Ricardo's Difficult Idea," 1998.

innovation and high technology.[31] Far from falling behind other countries, the United States was the world's leader in "technology," due to the "innovation" of American business, especially in services.[32]

Nonetheless, the allegedly world-leading technological U.S. powerhouse ran continuous merchandise trade deficits with Japan and Europe over the entire period since the late 1980s, while also generally running merchandise trade deficits with Korea, and adding China and Mexico as major sources of trade deficits. Many mainstream U.S. economic commentators, though, claimed these trade deficits were no problem, an unrelated issue, or an indicator of relative U.S. economic strength, since supposedly everyone in the world wanted the dollar and U.S.-based investments.[33]

Meanwhile, according to the mainstream view, countries that the heterodox authors had warned were passing the United States were actually falling behind. Japan was supposedly mired in a multi-decade malaise, and Europe "languished" because it lacked innovation.[34] At first, in the 1990s and early 2000s, Germany was derided as a stagnant "old Europe," until its obvious economic success by the late 2000s was described as an outcome of having pursued exactly the policies that its U.S. critics claimed it had not been pursuing when they had derided it a few years before.[35] And since Japan was such an obvious "basket-case," mainstream economists argued that no one should have gotten too nervous about opening the U.S. market to Chinese imports over 2000-2015; after all, look at how wrong those Japan hysterics were.[36] China was supposed to be moving toward a market economy, and just performing "low wage assembly" while profound innovators in the United States continued advancing the boundaries of human knowledge.[37]

So according to the mainstream view, Thurow et al belong on the intellectual trash heap of history. Krugman and mainstream economists were broadly right, even if the basis of their arguments (the wage-productivity link) failed empirically. The United States became the world economic leader, advancing forward boldly while other nations stagnated. The United States produced more than ever in its more and more advanced economy, and this success was the basis for its status as a unipower.

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[31] For example, see Broughel and Thierer, "Technological Innovation," 2019, pp. 22-23, claiming that the U.S. "innovation culture" has led to digital innovation having "blossomed" in the United States since the 1990s, resulting in nine of the world's top ten "most innovative companies" being based in the United States.

[32] For example, see Broughel and Thierer, "Technological Innovation," 2019, pp. 22-23, claiming that the European Union allegedly lags the United States in "innovation."

[33] For example, see Griswold, "America's Maligned," 1998, and other examples cited in Palley, "Explaining Global Financial Imbalances," 2011.

[34] For example, see Thirlwell, "The Return," p. 10. The "languished" quotation is from Broughel and Thierer, "Technological Innovation," 2019. As another example, economist Adam Posen of the Council of Foreign Relations and the Institute for International Economics has embraced such a highly critical view of both the German and Japanese economies relative to the U.S. economy. See Posen, "Unchanging Innovation," 2002, and "Is Germany Turning Japanese?" 2003.

[35] For example, see survey in Benedetto, "Can We Apply," 2011.

[36] Fingleton cites the examples of economists Russell Roberts and Jagdish Bhagwati making incorrect assertions about Japan as evidence that Americans did not need to worry about the potential negative impact of increased trade with China. See Fingleton, *Jaws of the Dragon*, 2008, pp. 70-71.

[37] For a recent example, see Andes and Muro, "China: A Manufactured Chimera," 2015. I raised questions about many of these types of arguments in 2012. See Benedetto, "Implications and Interpretations of Value-Added Trade Balances," 2012.

Is the mainstream view correct?

Substantial work has been done- both by old and new heterodox authors- showing that this triumphalist, mainstream view of large economies since the 1980s is not correct. In reality, the U.S. economy lurched through two large financial bubbles that provided an ephemeral appearance of prosperity. During this period, the U.S. economy transformed into a services-based economy with fewer and fewer "good" jobs, even as other large economies have continued to manufacture.[38] Many different works, some of which are summarized below, have helped to bolster this analysis, even as (again) mainstream economics has been late to concede, or still refuses to do so.

Asia and Europe

Regarding Japan, journalist Eamonn Fingleton and historian Ivan P. Hall have shown that Japan is actually performing well economically, and the stories of its malaise are simply not true, and possibly even encouraged by the Japanese establishment.[39] Japanese consumption of luxury products has grown substantially since the 1980s. Its current account surplus has remained high for most of the period (except for a brief time after the Fukushima disaster), and its unemployment rate never approached U.S. levels during recessions. Its infrastructure is new and advanced, based on advanced technology (like its trains[40]) that often cannot be built in the United States. Japan remains a leader in numerous manufacturing industries, and also has become a leader in industries only nascent in 1990, like robotics and nanotechnology.[41] It should also be remembered that much of the concern of the heterodox authors was over competition from Japanese firms in consumer electronics and automobiles. Japanese firms remain internationally prominent in both sectors, while the United States runs a large trade deficit in both sectors. In other words, the heterodox authors were broadly correct about Japan.

Germany too has continued on its path to a strong economy behind manufacturing dominance. Like Japan, it is well positioned in global supply chains that depend on net imports from other countries, especially the United States. It had a brief spell of stagnation in the 1990s, hardly unexpected given that it was absorbing East Germany back into its fold. But with the advent of the Euro, and the massive de facto devaluation of the Deutschmark that entailed, Germany's trade surplus exploded. Its unemployment rate has remained low since, and it boasts many of the world's top manufacturing firms.[42] The heterodox authors were broadly right about Germany.

[38] See Alpert, Ferry, et al "The U.S. Private Sector Job Quality Index," November 2019, and Benedetto, "Trends in Manufacturing Employment."
[39] See Fingeleton, *Unsustainable*, 2003, and *Jaws of the Dragon*, 2008, and Hall, *Bamboozled*, 2002.
[40] When building a maglev train connecting Washington D.C. with Baltimore was considered in 2018, it was a Japanese company that led the effort, as there are no U.S. firms that build maglev trains. Rector, "It can be done," October 2018.
[41] Fingleton, *Jaws of the Dragon*, pp. 73-78, *Unsustainable*, pp. 192-196. See also Hill, "Don't scorn Germany and Japan," 2010.
[42] See, for example, Hill, "Don't scorn Germany and Japan," 2010. Moreover, in the 1990s, Edward Luttwak showed how the allegedly better performance of U.S. unemployment relative to European countries had more to do with lower U.S. labor standards in the service sector allowing the creation of more U.S. low-wage service jobs than European ones. See Luttwak, *Turbo Capitalism*, pp. 112-115.

So too were the heterodox authors right about South Korea, which now has a standard of living approaching or even above U.S. standards.[43] South Korea went through a sharp economic downturn during the Asian crisis of the late 1990s, following a brief period in which it had lowered its trade surplus. It appears South Korean leaders vowed not to let that happen again, and have maintained a trade surplus ever since. The South Korean economy recovered quickly from the crisis, coincident with the renewed trade surpluses. Like those of Japan, Korean companies are world leaders in many industries, including shipbuilding, consumer electronics, transportation equipment, and appliances.

China's experience, which was not much of an economic issue for U.S. commentators in the 1980s, has comported much more closely with the spirit of the heterodox authors than that of the mainstream of U.S. academic thought. China has become an economic and manufacturing powerhouse behind massive government intervention in its economy, and its massive trade surpluses with the world, most especially with the United States. In addition, it has also become a global leader in high-technology industries such as supercomputers and drone hardware.[44] In doing so, it has followed the path laid down by Japan, very successfully.[45]

Indeed, mainstream economists and commentators now worry about China and the rise of so-called "state capitalism."[46] Such a concern parallels closely the argument made by Thurow about the Japanese and German economies in the 1980s.[47] That parallel suggests that the 1980s heterodox authors were making an important point, one that was ignored or derided by the U.S. economics profession in the decades since.

In short, just as a Keynesian analysis (such as those made by the heterodox authors) would predict, major economies that have run persistent trade surpluses, especially in manufacturing industries, have been able to improve the lives of their citizens, keeping them employed and making their lives better. At the same time, these countries have been able to capture and maintain key manufacturing industries.[48]

The United States

And what of the United States? In 2015, former U.S. National Security Advisor Zbigniew Brzezinski pronounced that the era of U.S. global dominance was ending, and a more multipolar world was emerging.[49] Brzezinski's focus may have been speaking mostly of

[43] See *United Nations Human Development Report 2019*, table 3. Moreover, according to IMF data, the U.S. unemployment rate was higher than the Japanese and Korean unemployment rates over 2002-2018, and higher than the German unemployment rate over 2009-2018. International Monetary Fund, World Economic Outlook database, October 2019.
[44] For example, see former Reagan Administration official Michael Sekora, quoted in Shinal, "Trump taking wrong approach," 2017.
[45] Fingleton provides an excellent summary of the history of how China followed the model set up by Japan. Fingleton, *Jaws of the Dragon*, pp. 79-115.
[46] For example, Thirlwell cites economist Larry Summers, political scientist Ian Bremmer, and military strategist Aznar Gat. See Thirlwell, "The Return," p. 11.
[47] See, for example, *Head to Head*, pp. 32-33, in which Thurow describes the Japanese and German economies as "communitarian" capitalism.
[48] Obviously, every country in the world cannot run trade surpluses, a problem that makes international trade negotiation interesting. Denying that such a problem exists, though, does not help solve it.
[49] Brzezinski, "Toward a Global Realignment," April 2016. Whether the United States is overextended militarily is an issue beyond the scope of this analysis. Nonetheless, it is certainly easy to believe that any country that lays claim to lead the vastness of planet Earth as a sole superpower, when it only contains a small percentage of the world's population, has its work cut out for it. What this analysis does

military affairs, but the economic base of the United States was also being questioned, even by mainstream economists (if only after being caught unawares by the 2008 financial crisis). As early as 2010, President Obama's Treasury Secretary, Lawrence Summers, who had once pronounced the heterodox authors wrong, was acknowledging that U.S. economic competitiveness was a concern, although he was still "optimistic."[50]

For those of us who have lived in the United States since at least the 1980s, such pronouncements were hardly surprising. A simple drive across the country in the late 2000s showed vast swathes of the country have gone from being independent, confident, and patriotic communities in the 1980s, to run-down, strung-out, wrecks with boarded up Main Streets, few good jobs, and a big box store outside of town, selling products that used to be made in the United States and sold on Main Street, and are now instead made in other countries (by people, not robots).[51]

No one disputes that over 1990-2015, U.S. manufacturing jobs and the number of factories fell, and especially dramatically after 1998. According to the mainstream story, though, since the data on U.S. real value-added in manufacturing data show a rise over the period, the employment and factory losses are due to a growing U.S. manufacturing sector that is very productive, and thus needs fewer factories and less labor.

This mainstream story has been debunked. Even the official value-added data show that U.S. real manufacturing value-added slowed to nearly no growth in the late 2000s. Moreover, a closer look at the official data also shows that about half of U.S. manufacturing sectors were shrinking, and only computers and electronics production (a U.S. manufacturing sector that was shrinking in nominal dollars) actually grew significantly in "real terms," because of statistical adjustments. Most importantly, more in-depth analysis has shown that mismeasurement of import prices in the official data are likely misleading for various statistical reasons, and the U.S. manufacturing sector overall may actually be shrinking.[52] And still other scholars have shown how U.S. economic data estimates the effect of "technology" to be far higher than other countries do, making U.S. economic growth appear to be higher for no other reason than different statistical methodologies used in different countries.[53]

In other words, in reality, it is likely that the value-added story matches the employment and factories story, and actual U.S. manufacturing capability has been lost. Very late, even some mainstream economists are even beginning to realize the extent of the damage done to U.S. manufacturing employment by net imports.[54]

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address is the issue of whether, in pursuit of that goal, U.S. elites have forced through policies that led to the deterioration of U.S. strength, which was always based on its industrial capacity and broadly-shared wealth. Likely, the problem for U.S. elites is that their vision of the world leads to undercutting the very basis of the strength they inherited in the first place.

[50] Fox, "The Growing Consensus," 2010.

[51] See the cited works of Chris Hedges, as well as his other writing, for more poetic descriptions of this reality.

[52] Atkinson et al, "Worse than the Great Depression," 2012, and Atkinson and Nager, "A Critique," 2015. In particular, Susan Houseman of the Upjohn Institute has done multiple in-depth analyses of the U.S. data on manufacturing. Her analysis has shown how data actually show a real decline in most sectors, and how some official data may be overestimating U.S. manufacturing output. See her analysis and survey in Houseman, "Understanding the Decline of U.S. Manufacturing Employment," 2018.

[53] For example, see Fix, Nitzan, and Bichler show that the United States uses a statistical deflator that results in a substantially higher estimate of computer output growth than the deflator used by Germany and Japan. Fix et al, "Real GDP: the flawed metric," 2019, p. 55.

[54] For example, see Acemoglu et al, "Import Competition and the Great U.S. Employment Sag," 2014, and Autor et al, "The China Syndrome," 2012.

On the broader employment side, the U.S. economy no longer provides a large pool of "good" jobs with pensions and affordable health care, jobs it could provide to a larger portion of its population in the 1970s.[55] This problem is not as severe, or is even nonexistent, in the economies of major U.S. trading partners. The U.S. unemployment rate was higher than the Japanese and Korean unemployment rates over 2002-2018, and higher than the German unemployment rate over 2009-2018.[56] U.S. life expectancy is lower than life expectancy in many European and East Asian countries.[57] U.S. inequality is much worse than that of Japan, Germany, most of Northern Europe, and Korea.[58]

If the economies of these countries were not keeping up with U.S. growth (as mainstream economists contend), where is the evidence in terms of employment, or U.N. human development rankings, or in terms of global industrial leadership in electronics, transportation equipment, and robotics? Is the whole argument that the United States is growing faster based on different statistical methods used, or the large U.S. financial sector?

Of course, one could argue that these relative U.S. economic problems are not due to dismissing the prescriptions of the heterodox authors. Indeed, some modern mainstream economists might admit the problems, but deny that the problems have much to do with trade policy, and instead result from other policy failures. These denials fail on three grounds. First, as economist Susan Houseman has catalogued, even the analytical results of many mainstream economists have shown that there have been large negative effects on U.S. manufacturing employment from U.S. trade policy.[59] Thus, stating that trade policy has been a substantial contributor to the problems does not mean it has to be the only contributor. Moreover, mainstream economists' analyses of the effects of trade policy on manufacturing employment are not always complete, as they may be limited to one or two effects (such as direct employment in manufacturing), and not take into account the effect that trade policy has had on labor bargaining ability, community employment, or wages.

Second, the denials are a straw man anyway. While there may be a few U.S. "ivory tower" liberals who call for New Deal style policies along with lots of unilateral trade liberalization, these are not the people who led the United States over 1990-2015. The U.S. establishment has pushed free trade as part of a broader neoliberal strategy that included financial deregulation, dismantling New Deal programs, keeping antitrust law weak, and unilateral trade liberalization. In the real world, trade policy has been part of, not separate from, the broader U.S. establishment goals over 1990-2015.[60]

Third, the economists' argument is simply that unilateral trade liberalization has been good for "consumers," not necessarily the power to maintain and defend ones' country, not to mention any more grandiose military goals outside one's own borders (goals this author usually does not share). Moreover, the ability to provide citizens with a broadly high standard of living is not well accomplished by gutting millions of working class jobs in order to shovel cheaper imports into the arms and maws of disproportionately upper middle class consumers.

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[55] Alpert et al, "The U.S. Private Sector Job Quality Index," 2019.
[56] See International Monetary Fund, *World Economic Outlook Database*, October 2019.
[57] See United Nations, *Human Development Report 2019*, table 1.
[58] See United Nations, *Human Development Report 2019*, table 3.
[59] Houseman, "Understanding the Decline," 2018.
[60] "The Washington Consensus" for example, includes both free trade as well as goals such as "deregulation." See Williamson, "What Washington Means by Policy Reform," 1990.

The 1990-2015 United States was a somewhat hollow great power – military and diplomatic power masked a weakening economy

Accepting the heterodox analyses above, it becomes clear that, since 1990 or so, the United States has lost manufacturing jobs and capabilities in a way that some of its trading partners have not. Thus, there is a case to be made that the United States has moved toward becoming the economic hollow that the heterodox authors warned it would be. Its economic "strength" now lies in financial services and software, in media and non-renewable natural resources. The stories of the United States being the most innovative and high-tech economy in the world are overdone. Much of its infrastructure crumbles, many of its people are dispirited, and the country could not survive economically independently anymore. The great manufacturing base – once a major source of the population's high morale and the military's strength – is significantly diminished.

There is a national security cost to these failures. A country united as a nation, in which the vast bulk of the population feels pride and loyalty to its traditions, and some basic trust in its institutions, is far stronger than one in which the citizens can see in their infrastructure, jobs, and health care that their elites, at best, do not value them.

Imagine taking on United States militarily in the 1970s or 1980s. Beyond direct military issues, U.S. infrastructure was world class (if beginning to slip). The United States did not depend on any other nation for any manufactured product. U.S. distribution and communications networks were fragmented and atomized, the luxury of a society with a government that at least somewhat trusted its own people (unlike the government of the USSR). And so those networks would have been difficult to bring down completely, as there were fewer central hubs to disable. Most of the U.S. population believed in the United States as an ideal and as a nation, even if they had some criticisms of important policies. To wreck such a country would require an overwhelming blow (like a massive nuclear attack).

But imagine trying to do so now. The United States is a dispirited, economically- fragmented country, with an elite that hides behind gates and walls, afraid of a large chunk of the population that suffers addiction to opioids and abandonment to offshoring.[61] And ostentatious cheerleading aside, it is unlikely the world wants to be the United States. More likely, they look to the countries that are actually economically vibrant, ascending, and engaged in large infrastructure projects, especially China.[62] And they probably know that Japan is not the "basket case" that the U.S. media describes it as.

In short, while United States has military bases spread across the world, the United States has been steadily reducing its ability to provide a decent living for its people or offer a solid economic base that one would expect for a Great Power. Nor did this hollowing start last year or even five years ago.

In other words, the decline in U.S. manufacturing is correlated with the decline in the broad-based wealth of the United States, and its inability to maintain the kind of vibrant, confident, citizenry it had in the past. Such a finding is entirely consistent with the forecasts and warnings by the heterodox voices of 1980s and early 1990s such as Thurow, Goldsmith,

[61] For a clinical description of this problem, see Venkataramani et al, "Association of Automotive Assembly Plants," December 2019. For more poetic descriptions, see Hedges, "The End of Empire," 2017, and "The World to Come," 2019.
[62] See Kadri, "Neoliberalism vs. China," 2020, and McCoy, *In the Shadows*, pp. 196-198 and 238.

Kennedy, and others. And it is a refutation of the mainstream economists of the same period, who often shrilly derided those heterodox voices.

The United States bought the appearance of unipower by engaging in the very policies that weaken its long-term economic and political strength

Perhaps most importantly, the U.S. appearance as a unipower may be related to its real-world decline. The United States may have been buying its global influence- whether military bases or diplomatic support- by allowing other countries unfettered access to the U.S. market. There is substantial documentation that this "trade" actually happened.

Historian Alfred J. Eckes described numerous examples of U.S. diplomacy taking a more important role than commercial policy in post-World War II U.S. trade negotiations. For example, he characterized U.S. trade negotiators as viewing a goal of the Kennedy Round trade negotiations as strengthening the European Commission in Brussels, a goal that frustrated U.S. commercial interests.[63] Eckes also described President Nixon as using trade concessions to entice diplomatic cooperation from the USSR and China.[64] Eckes documented efforts by the State Department in the 1940s and 1950s to ensure that U.S. Tariff Commission appointees were sympathetic to State's negotiating position of using market openings to pursue diplomatic initiatives.[65] Similarly, historian Michael Lind described U.S. authorities during the Cold War as turning "a blind eye to mercantilist trade practices that unfairly harmed U.S. industries – practices that were both blatant and highly successful."[66]

In terms of direct testimony from participants, Clyde Prestowitz, a former U.S. Commerce Department official in the Reagan Administration, described 1984 attempts by Commerce Department officials to put pressure on Japan over semiconductor trade as thwarted by U.S. military officials concerned about needing military bases in Japan.[67] United States Trade Representative (USTR) negotiator Glen Fukushima has written of the conflicts between USTR and the U.S. State Department during the 1980s and 1990s over how to deal with Japanese officials. He described the State Department as viewing the U.S.-Japan relationship as harmonious, and not wanting to share information with USTR, even as in one case, USTR and State were negotiating with the same individual Japanese official.[68] And Paul Volcker, former Chairman of the Federal Reserve and a political appointee in the Kennedy, Nixon, and Obama administrations, recently stated that, for many years, allowing trade concessions to allies was part of a process that "oiled the wheels of our foreign policy, building a whole network of allies… The top dog pays the price."[69]

Assume such government policy continued in the 1990s and 2000s. Now combine the heterodox authors' analysis of the status of the U.S. economy with documented examples of

[63] Eckes, *Opening America's Market*, pp. 199-201. See also pp. 159-166, 230, 265 (among many others) for discussion of State Department and U.S. policymakers' pushes for opening the U.S. market for imports in exchange for diplomatic goals, and pp. 238-240 for a discussion of the Eisenhower Administration's policy of avoiding tariffs on Japan in particular. Also, see examples from Prestowitz, *The Betrayal of American Prosperity,* pp. 91-92.
[64] Eckes, *Opening America's Market*, pp. 211-212.
[65] Eckes, *Opening America's Market*, pp. 227-230.
[66] Lind, "Cold War II," May 2018.
[67] Prestowitz, *The Betrayal of American Prosperity*, pp. 101-102.
[68] Fukushima, "No Double View," 1996.
[69] Childs, "Former Fed Chairman Blasts McKinsey," December 12, 2018.

U.S. policymakers exchanging trade concessions for military and diplomatic goals, and one can consider the following alternative overview of the 1990-2015 period.

An alternative interpretive possibility

Perhaps instead the 1980s heterodox authors were on the right track. Right before the end of the Cold War, the world consisted of two Great Powers (the United States and the Soviet Union) and two or more other large powers (Germany/ Europe, Japan, and maybe Korea).

By the early 1990s, the Soviet Union had broken up, and the United States was able to use its large military, and the diplomatic support of many nations, in a war against Iraq. Whatever one thinks of the morality or the strategic effectiveness of that war, its execution appeared impressive.

Nonetheless, underneath the surface, U.S. military spending of the 1980s had also had a price in terms of a decreased economic strength for the United States, and the "friendship" of so many nations had been purchased in part by allowing them to run trade surpluses with the United States, surpluses that hurt U.S. manufacturing capabilities and the breadth of high U.S. living standards. The United States was weaker than it appeared.

Compounding the difficulties, the United States then accelerated a series of economic policies it had not tried since before the New Deal: financial deregulation, weak antitrust law, weak labor law enforcement, and a trade policy of unilateral liberalization to a degree that the country had never tried before in its history.[70] These policies continued eating away at the true heart of American strength (its industrial economy and broadly-high standard of living), but this decay was covered up by two successive financial bubbles, first in stocks (in the late 1990s) and then in housing (in the 2000s). This cover-up allowed the illusion of American hegemony to continue. Persistent trade deficits, while internally weakening the United States' real economy, allowed continued foreign diplomatic support of U.S. military initiatives.

Meanwhile, the other, regional powers pursued a wise strategy of diplomatic cooperation with the United States while securing trade benefits that placed them in control of key industrial markets in which U.S. producers lost market share- even in the U.S. market. As described above, this policy has been a relative success for these nations, which have become wealthier in a way the United States has not.

Counterfactual – What if U.S. had tried to balance trade, keep broad-based wealth and build infrastructure?

To see the importance of U.S. trade and industrial policy in this history, consider the following counterfactual. What would have happened if, in the late 1980s and early 1990s, as the USSR was splintering, the United States had followed the advice of the 1980s heterodox authors and pursued a policy of resolutely and unilaterally (if necessary) balancing its trade deficit while supporting its manufacturing sector? Certainly, one could imagine that Asia and Germany would simply have accepted the loss of their annual trade surpluses with the United

[70] For example, see Palley, *From Financial Crisis to Stagnation*, 2012, pp. 5-14, 26-56; Smith, *Econned*, 2010, pp. 124-158.

States, admitted it was not very sporting to have run such surpluses in the first place, and continued to be firm diplomatic supporters of the United States.

Of course, such a possibility is highly unlikely. Since Japan and Europe were running trade surpluses with the United States, they could not have retaliated (on net) through a trade channel, had the United States used trade restrictions to demand an end to trade deficits. However, they could have retaliated through two other channels: first, by restricting U.S. investment in their nations; and second, by not cooperating with U.S. diplomatic initiatives. Policy elites in those nations might have begun to support some of their population's demands for reducing U.S. bases, and for not joining U.S. military coalitions. Efforts by U.S. policy elites for the "Washington Consensus" would not have found as much cooperation if balanced trade with the United States were a condition. Even for nations like China, which may not have always joined U.S.-led coalitions or implemented promised investment laws, the constant (and very large) benefit to its economy from its trade surplus with the United States likely restrained it from criticizing U.S. policy more forcefully. And U.S.-based multinationals would not have been able to open so many affiliates overseas, nor pressure U.S. labor for concessions with the threat of offshoring.

In exchange for this loss of influence, the U.S. economy would have had no excuse to do worse than it did before the 1980s. (In the period from 1952-1980, international trade was a very small share of the U.S. economy.) Thus, we can reasonably expect that the United States would have maintained a large manufacturing base and a relatively broad middle and working class. Arguably, with no trade deficit, and more manufacturing, U.S. innovation would have been focused more on manufacturing and less on software and financial shenanigans, leading to broader and more sustainable growth than the U.S. economy actually experienced.[71]

In other words, the United States right now would be a more stable country with a healthier economy, and even a better ability to sustain its "power" in the long run, at least for truly defensive purposes. By implicitly encouraging (without pushing) more sensible, less dogmatic, economic policies, it might have even inspired broader global growth. However, it would not have looked like the "unipower" of the 1990-2015 years. It would not have found as much diplomatic support as it did for its military operations across the globe. It would not have been dictating diplomatic and economic policy to the world, and it would have had significantly more complicated diplomatic issues with Japan, South Korea, Europe, and maybe Canada and Mexico as well, throughout the entire period.

The counterfactual allows us to see the real choice the United States faced in the early 1990s. By choosing to appear like a unipower, when it did not have being a unipower as a real option, it ultimately undermined its own long-term prospects, even as just a power.

[71] Yes, there are many economic studies that purport to measure what would have happened if the United States had not joined this agreement or that agreement. In general, these studies claim to measure the effects of U.S. tariffs, which were already low. They do not consider (1) that the United States could have used many kinds of trade measures to counter constant trade deficits with other nations, including for reasons of currency and (2) many times, the signing of a trade agreement is a signal of commitment by the United States not to raise tariffs, so it could encourage firms to feel more comfortable in setting up a business model of importing products into the United States.

Conclusion

In the 1980s and early 1990s, mainstream economists railed against heterodox economists and non-economist thinkers for questioning the appropriateness of "free trade" and for advocating national industrial policies. The debate was resolved, at least among the arbiters of acceptability, in favor of the mainstream economists. And yet, the heterodox arguments ring now like the unheeded warnings of prophets, while the mainstream economic view looks more and more debunked by reality.

The appearance of the United States as a unipower over 1990-2015 depended on policies that damaged the future of the United States and hurt a large segment of its population. It is likely that even during 1990-2015, the United States was never really a unipower. It was a very powerful Great Power that lived beyond its means, selling off the seed-corn of its past, in order to have the appearance of being far more powerful than it really was. Other nations engaged in a "rope-a-dope" strategy of staying out of the U.S. way, or appearing to fall into the ropes exhausted, while in reality building their strength.

The policy implications of such a conclusion should also be clear. Since the United States was never really a unipower, then it should certainly not be behaving like one now. Its policies should be to restore its own industrial economy and balance its trade, so that its own people's living standards and infrastructure can again be world class. To do so, some alliances will need to go through deep and painful adjustments. Military bases in foreign countries may need to be shuttered and the troops relocated to U.S. soil. Diplomatic initiatives may need to be abandoned, and the United States may need to accept that some countries on the other side of the earth, that border each other, may wish to develop closer relationships with each other than they have with the United States, and do so on their own terms. And of course, the adjustment back to a balanced trade will present short-term adjustment pain for the U.S. economy.

There are many examples of nations past and present accepting the limits of their reach and thriving in the aftermath. Rome under Hadrian and Trajan slowed expansion and focused on internal infrastructure. It lasted another 300 years in the West. Similarly, many European nations with extensive colonies pulled back from those colonies after World War II. They recognized that they were no longer going to be able to hold other nations under thrall, and their own nations' citizens benefitted greatly from ceasing to try to do so.

However, recognizing reality will require reexamining the belief that mainstream economists' views on international trade are beyond question. Instead, the heterodox authors of several decades past were Cassandras whose counsel should no longer be ignored.

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Empirical rejection of mainstream economics' core postulates – on prices, firms' profits and markets structure

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Abstract
Mainstream economic theory relies largely on deductions from assumptions, rather than from assertions based on a previous systematic gathering of observations on the basic elements of a market economy and its dynamics. This is the case for assumptions on: the general pattern of behaviour of firms' average costs in relation to the volume of units (returns to scale); prices determination (price theory); firms' size relative to market demand (market power); prevailing market structure regarding the competition/monopoly axis; people's economic behaviour (use of the "homo economicus" paradigm); socio-economic conditions (assumption of equality in income distribution, etc.); economically relevant information flows in technology, financial channels, etc. (perfect information); etc. All of this underpins the "standard model" core paradigm of the general equilibrium of competitive markets.

The present paper is devoted to presenting the results of confronting two of these core assumptions with the extensive empirical evidence available regarding them. First, the assumption on "price determination – in relation to the respective average costs" – (price theory), and therefore on the relative relevance of firms' profits. Second, the one on "the prevailing market structure regarding the competition / monopoly" axis; or, in other words, on the overall pattern regarding firms' size relative to the respective market demand, for any product or service.

As a result of this confrontation with observational evidence (hypothesis testing) it is argued here that these two "standard model" core assumptions cannot actually be sustained. As hypotheses on the economic world, they must be rejected. Therefore the economic theory built upon them is not a valid theory (from the perspective of the scientific method) to explain the workings of our market economies, to teach economics to newcomers at university class rooms, etc.

1. Putting *standard model* assumptions to the test

Economic theory, like any theory, is supposed to be mainly a descriptive, explanatory, outline of a specific part of reality – of the workings of our market's economies, in the case of economics or economic theory.

The present article is the result of testing – by confronting them with empirical evidence – two related core pieces of the mainstream economics theoretical *standard model*: on the one hand, the assumption (or explanatory theory) on how the prices of goods (products or services) applied by enterprises relate to their respective unit costs, and consequently on the enterprises' relative level of profits. On the other hand, the assumption (theory) on the type of markets – vin the competition / monopoly axis – that is supposed to characterise these economies. These topics correspond to what, in orthodox economics textbooks, used to come under the entries *Price theory* and *Market equilibrium theory*. These, in turn, are linked with the usual entries *Theory of the firm*, *supply curve,* and *market equilibrium*. All of them key pieces of the theoretical model of the "*general equilibrium of efficient & competitive markets"*.

As a result of this testing, it is shown here that the explanation implicitly given by mainstream economics (*standard model*) of the workings of a market economy – regarding price/cost relationship, companies' market-power, and market dynamics and structure – cannot be sustained in the face of the overwhelming empirical evidence available.

In a recent article, Salim Rashid[1] argued that "today's economic theory is unverifiable" because:

> "economic theory makes predictions about equilibrium positions. To verify such predictions, we need equilibrium data. Since, hitherto, we have no way of knowing if the data we use in empirical work is equilibrium data, all tests that have hitherto been conducted to verify economic theory are non sequitur".

It is difficult not to agree with this statement.

Certainly, we cannot find real-world data to check the assumptions of the *standard model*, mainly because they refer to an imagined economic world (perfect competition, perfect information, no entry barriers, ...).That is, the problem is not the frequent one of lacking data to test assumptions (theories, hypotheses) which are based on simplifications of a given reality. The actual problem is that the *standard model* assumptions do are based on simplifications but of an imagined economic world.

However, if we look at the conventional economics *standard model* (henceforth, ESM) from outside its internal logics, we are able to test the *postulates* on which it is based, for example price determination, business profits, and business behaviour regarding market operation. That is, it is possible to confront and to put to the test these postulates – usually stated in just an axiomatic way in mainstream textbooks – with the vast observational evidence available in this regard.

Let us underline these postulates. The explanatory idea, about the abovementioned elements of economic reality, that mainstream economics conveys – through textbooks and academic teaching – to readers or students can be summarised as follows:

> "…the free market rule means that, spontaneously, in the market *for any good*, in the end there are a great deal of (private) producer/supplier companies. All of them operate with the same technology, the same size (that of the *optimal efficient scale*, *oes*), and the same efficiency. Therefore, each one produces the same quantity of output, q^{oes}units, at the same average cost (the minimum possible, which will then coincide with the corresponding *marginal cost*). Since there are a 'multitude' of identical producer/supplier firms competing in the market, none of them has market power. Thus, all of them sell to clients/consumers at the same price, which - due to such *perfect competition* - is equal to their (common) average cost. Therefore, all producer/supplier undertakings operate without any profit (sic)[2]. This situation defines a *market equilibrium*, Demand=Supply=*Q* units, characterised by:

[1] Rashid, Salim (2019) "The fiction of verifiability in economic 'science'." *Real-World Economics Review*, n. 88 (p. 14).
[2] "…If all firms, active and potential, take prices as unaffected by their own actions, this implies that active firms must earn exactly zero profits in any long-run equilibrium..." (Mas-Colell et al., 1995, p. 335).

> *Price=Average cost* (=*marginal cost*); where $Q=q^{oes}$ x (number of producer/supplier firms). This is thus the case for any product or service in the economy – with some rare exceptions (natural monopoly). Overall, this leads to a *general equilibrium* of *competitive & efficient markets* in the economy; a *general equilibrium* which – under the additional assumptions of full employment (of work and the other factors), equality in income distribution, and perfect information, and on people's behaviour as consumers – has the properties of a *social optimum* in terms of economic well-being."

Expressed in a more compact way,

> "… 'competition': the common sense meaning is one of struggle with others, of fight, of attempting to go ahead, or at least to hold one's place (...). In current equilibrium theory there is nothing of this true kind of competition; there are only individuals, firms or consumers, facing *given* prices, *fixed* conditions, each firm or consumer for convenience *insignificantly* small and having *no influence* whatsoever upon the exiting conditions of the market (…) and therefore solely concerned with maximizing *sure* utility or profit –the latter then being exactly zero. The contrast with reality is streaking" (Oskar Morgenstern, 1972: 1164).

Some of us have observed that the above neoclassical framework of postulates (private businesses selling their products at cost price, etc.) used to be shocking at first for a new student on an economics course. Certainly, the standard student does not usually have direct business experience. However, at least she is aware that businesses (companies and individual entrepreneurs) obviously seem to exist and operate with the aim of profit-making, and that apparently they usually succeed. Overall, they obtain profits on a regular basis, quite high profits in the case of some well-known companies.

At first the contrast between, on the one hand, her *common knowledge* about the economic world and, on the other hand, the theoretical explanations on the workings of a market economy that she receives from teaching and textbooks, generates for her some sort of a schizophrenic situation (which could possibly lead her to self-blame for perhaps having lost some key issue of economics in the classes or readings). However, the assigned textbook talks about the above-mentioned framework of postulates as, implicitly, just simplifications of reality, and her instructors seem to be competent academics. On the other hand, if you attend classes and work on the assigned readings – thus getting into the mathematical-drawing language and the inner logics of what is being taught on the course – it is not really difficult to pass the examinations, and even obtain high grades. Thus, the student ends up by endeavouring not to relate the explanations of the economics course with the flow of her personal perceptions from real economic life, but rather to keep both in mind as two alien compartments.

From this outlook, the aim of this paper is to answer the following question: in the face of the abovementioned *standard model*'s theoretical explanations (postulates) of the workings of our market economies, what does the observational evidence of the real economic world tell us about the overall patterns of firms' behaviour? This is discussed specifically in relation to: a) price determination at firm level and, therefore, the relative importance of profits; and b) the

actual degree of "competition", or of its opposite, firms' market power, in the markets really existing in our economies.

The guiding idea when making this confrontation of ESM postulates with empirical evidence has been just to apply the scientific method, in the sense that a given theory is more or less good (useful) to the extent that it explains well the observed reality or phenomena that it is intended to describe in a simplified manner. Therefore, if a theory does not explain reasonably well the reality that it is supposed to describe, then it should be either changed or rejected and replaced by another one which gives a better, more useful, account of how that part of the real world under analysis is configured (what its essential elements are) and works (links between elements, and overall dynamics).

(I) Selling prices, and observed firms' behaviour

2. Generic-evidence statement 1: *Companies generally do not sell at cost price*

The above stands as a self-evident empirical statement: in a market economy, capitalist in the sense of being based on private business, companies do not normally sell at cost price, as the standard model in economics assumes,[3] but rather obtain profits. Some businesses obtain proportionally more than others. They generally make their decisions under the criteria of maximising their profits in the medium-long term.

We can observe, indeed, that sometimes, for short periods of time, because of an unexpected drop in demand, a company sells at cost price, or even below, with losses, but as something exceptional, temporary. It is obvious that overall, in the long run, firms operate with profits. To be more precise, they try to maximise them in the medium-long term when making decisions (on product range, activity level, firm size, worker hiring and types of contracts, technology options, etc.). That is, of course, within the framework of the firm's possibilities, and the legal rules and constraints.

This observed pattern even has a standard expression in corporations' reports and top executives' public speeches or declarations: "the company's guiding objective is to create value for its shareholders".

In relation to this, for any attentive observer – or participant – of business life, it is a matter of fact that companies tend to grow, to produce as much as they feel able to sell, as long as this increases or allows them to maintain their total profits. A general business strategy in this line is precisely to try to "gain market share". As it also is to extend the market-territory to be covered (to new areas within the country, and to other countries).

In short, it is easily observable that, in our market economies, sales prices are normally higher than the respective average cost of the product for the producer / selling companies. Even in the case of reasonably competitive markets. In fact, the ordinary business practice of applying a given profit-over-cost percentage, M, – so to determine the selling price to set/offer to potential customers – even has a traditional name: *mark-up*. It is usually expressed in terms

[3] With a nuance-remark, in some standard text: when the author points out that she/he considers, as a component of the *average cost* concept, a theoretical "*normal unit-profit*". I discuss this later on, in section 5.

of rate, M/100= *m*; *margin rate*. Thus, the practice most commonly observed in companies' behaviour in order to determine the respective selling/offer prices for each of their products/services is of the type: *Price = Average cost*x (1 + *net margin rate*); $P=AC\cdot(1+m)$.

It is also fairly common knowledge that such a margin rate, *m*, tends to be higher – and consequently so does the price – when a firm has some market power or operates under oligopoly conditions for a given product. This is even more the case if it holds a monopoly over it. It is *higher* (margin rate) relative to the average that tends to prevail for companies – in the specific economy – when the situation within the sector is of a *reasonably competitive market*; for example, about 10 or more companies offering exactly the same good, and each of them with relatively similar characteristics and degree of access to the communication channels with potential buyers.

In the latter case it is observed that the over-cost margin rate (profit) does actually tend to converge among the different companies operating in that market and, therefore, so do their selling/offer prices. This is simply an empirical acknowledgement. We may interpret that situation as, for example, that there is – at such a moment and in a regulatory and legal framework (country) – a certain minimum margin rate below which the persons who own a company in that "industry" are not interested in remaining in the business in the medium-long term. However, elaborating a deductive theoretical explanation about such enterprises' behaviour would not alter the observed reality,[4] that even in reasonably competitive markets, companies usually operate with a certain rate of profits.

From an empirical approach, the relevant question would in any case be: on average, what is the order of magnitude of the mark-up, the net margin rate, *m*, of companies in our economies?

3. Empirical evidence on the percentage of mark-up

The ubiquity of mark-up business practice for deciding selling/offer prices is common knowledge, especially among people involved in enterprises' commercial and administrative activities. However, on the other hand, it is difficult for someone "from outside" to directly quantify rates of margin for a particular company: the prices applied by that company for each of its products may obviously be public knowledge. However, the unit costs for each of them are – for obvious reasons – highly confidential internal information, a professional secret not only to customers but to competing firms.

However, if we have access to a company's accounts statements for a given period[5], it is possible to deduct what *average* rate of margin over cost (mark-up) was applied by the firm for its different products during that period, regardless of the specific mark-up option concerning the concept of *average cost* to be taken as the base, to then apply a given %. Let us suppose, for example, that the company option was to apply a certain overhead % on the

[4] It could be theorised that this minimum rate observed in "reasonably competitive" markets is due to enterprises' owners requiring a certain remuneration for the financial capital invested, or that the margin rate is rather related to the economic risks they assume as entrepreneurs (customer payment defaults, for example). I will come back to this in section 5.
[5] This is actually easy: in some countries annual accounts of companies are made public on a regular basis. For example, in the case of Spain, any company (SA or SL) has the obligation to deposit their annual accounts – Balance sheet and Income statement – in the provincial *RegistroMercantil* using a standard template.

"*direct* average cost" (*dAC*) for each product. A posteriori, having its *Income Statement* for the period in hand, it is easy to calculate the implicit average overhead rate on the *total average cost* (*AC*) of each product, i.e., the net margin rate: *m* = (Revenue from sales/Operating expenses) – 1. And when the aim is to measure the relative importance of enterprises' rates of profit-over-cost in an economy, as is with our topic here, there is no doubt that this average percentage overhead on *AC* – i.e., the *net margin*, *m* – is the most relevant indicator.

The above is precisely the situation and calculation procedure most common in surveys, studies or academic empirical research about *mark-up*. The ground data are aggregates from the Income statements of large sets of companies: from a certain sector of activity, from a certain area/country, and for a certain year. Moreover, the quantitative determination of the mark-up rates is basically of the same type described above. The only difference is that researchers work on aggregate data (basically for *sales revenues, SR*, and *operating expenses, OE*) from a large number of firms. Thus, $\bar{m}=(\Sigma SR / \Sigma OE) - 1$. The resulting value, $\bar{m}$, therefore represents an average of the respective average-margin-rates of each of the companies in the database selected by the researchers.

Thus, by way of example, the Central de Balances of the Spanish central bank (Banco de España) publishes aggregates of annual Income statements for a very large number of companies. Carrying out the above calculation, $\bar{m}= (\Sigma SR / \Sigma OE) - 1$, for all the companies included in this database for the year 2017, (484,395 companies)[6], the outcome is $\bar{m} = 0.09$, that is, a net profit over costs (=operating expenses) of 9%, on average, for that important proportion of Spanish firms.

Here it follows another example; in this case from a research strictly speaking, with much more coverage.[7] It studies the annual accounts submitted to stock exchange agencies by all publicly traded companies in the US, and covers several years. The article summarises the author's measurements of the average mark-up rates of each statistical sector (from the database used) for each of the years from 1959 to 2012. However, the results are presented in terms of average mark-up rates for the whole set of companies (all statistical sectors together) in such an extensive sample, for each year. The following data for some specific years are representative of these measurements: 1965, $\bar{m}\approx$15%; 1980, $\bar{m}\approx$9%; 2012, $\bar{m}\approx$16%.[8]

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[6] Own elaboration, by using aggregates from *Central de Balances – Resultadosanuales de las empresas no financieras, 2017*, Banco de España, Madrid (2018) p. 85 and following.

[7] Traina, James (2018). The database used is Compustat (USA), excluding banks and other financial companies as well as public utilities.

[8] Traina (2018), pp. 5-8. It should be noted that the author's calculations –and therefore the figures he presents– are expressed in terms of the equivalent to (*Revenues from Sales*)/(*Operating Expenses*). That is, they are expressed not in terms of ***m*** but of (**1+*m***). He does, however, use an unnecessarily indirect approximation to determine that. He takes this calculating formula from De Loecker and Eeckhout (2017):

$$\mu = \theta^{V} \cdot \frac{P^{Q} \cdot Q}{P^{V} \cdot V}$$; for each statistical sector (i), and for each year (t)

In more standard language, this expression means: $\mu = \theta^{V} \cdot$ [(*Revenues from Sales*)/(*Total Cost of "a* (sic) *variable input"*)]; where θ^{V} is then defined by the authors as "the elasticity of total output (Sales) to the (unspecified) variable factor". This unusual concept, θ^{V}, is in turn quantified by them, for each statistical sector of the corresponding database, making assumptions and estimates grounded in the theoretical setting of the abstract Cobb-Douglas production function.

However, when applying this methodology as curious as it is indirect and sophisticated, Trania just takes as "*Total Cost of a variable input"* the figures for *Operating Expenses* from the Income statements in the database. Therefore, the concept of mark-up that he is measuring is just the one referred to here: *net margin rate over costs*, ***m*.**

4. Average cost vs. marginal cost in the literature on the subject

It is worth underlining that in the academic literature on measurements of mark-up percentages, in the section of the article or report devoted to setting out the theoretical framework (on which the methodology and the mathematical expression to apply are justified), authors talk more about evaluating "the difference between price and *marginal cost*" (rather than *average cost*). This is also the case with the ones cited above.

This may be surprising, since for empirical research using companies' annual *Income statements* for such a conceptual distinction is irrelevant. Insofar as a company operates minimising its total costs – in the simple case of a single-product undertaking, minimising its average cost – the *marginal cost* for any of its products (if calculated) is by definition equal to the corresponding *average cost*. These are just two ways to say the same in economics: that the firm is "cost efficient" because it is minimising its unit costs. Therefore, if an author (implicitly) assumes that companies whose Income statements contain the database (on which to work in order to measure the mark-up rate) have operated by tending to minimise their costs (an assumption widely accepted as to be reasonably realistic), then it is quantitatively indifferent to talk of *marginal cost* or of *average cost*, since the data to be used are the ones in those Income statements.

Marginal cost is a theoretical concept that cannot be calculated from a profit-and-loss accounts database. The reason why authors formally refer to marginal cost instead of *average costs* – or simply *operating expenses*, which is the variable they actually take for their research – belongs to academic life dynamics. It could be explained on the grounds that these articles or surveys are elaborated from within the language and referential framework of standard, orthodox, neoclassical, economic theory. And in this theoretical framework, *marginal cost* is a key concept (formally: first derivative of the total costs, for a given good, regarding output quantity) around which pivots the postulate of a *market equilibrium* and therefore the model of *general equilibrium of competitive markets* which, in turn, is the core paradigm of mainstream economic theory.

5. A biased definition, with ideological implications

As pointed out earlier, in some orthodox economics/microeconomics textbooks, when it is stated that "in equilibrium, firms sell at a price equal to their average cost, i.e. without making a profit", authors add a provision. This is that the concept of average cost they are referring to includes, in addition to the actual average cost, AC (the one firms calculate), a certain amount in terms of *"normal" profit-per-unit.* This theoretical concept, *normal unit-profit*, (*nup*), when explicitly defined refers to the opportunity cost of the factor "*financial* capital invested by the owners of the firm". These textbooks' authors are therefore (implicitly) talking about a different concept of average cost: AC^{+}, equal to *AC+nup*. It is therefore higher than the average cost strictly speaking. If we follow such a definition, then when we observe a specific real case, *Price* = *AC* + (*unit-profit*), we should express it as *Price=AC+*[*nup* + (*extraordinary unit-profit*)].

Certainly, if we take this semantic resource into account, the postulate of the orthodox model (general equilibrium of competitive markets) – intended to refer to a capitalist market economy – that "in a free, competitive market, in equilibrium, in the long run, firms obtain zero

profits" is less shocking. It must be understood, then, that what is meant by this is, "(in equilibrium) $P = AC^{+} \equiv AC+nup$".

Is this theoretical resource useful when the aim is to explain the workings of market economies based on private enterprises? Does it make sense in an economic theory to define the average cost, including a portion of the profit margin? Or, looking at the matter from another viewpoint, does it make sense to define, to describe, business profits as something restricted to the theoretical concept of "extraordinary profits", and to simultaneously postulate that it will "generally be null" for any good/firm? In short, is it ethically neutral to talk about business profits with a meaning other than the usual one, not only in the business world (enterprises' annual accounts) but also in tax rules (corporate income tax) and in the field of National Accounts, as well as, of course, in common language?

In any case, to talk of *average cost* with such (usually implicit) assumptions is at least a source of misleading confusion for students and readers of economics textbooks. This is even more so when adding in these texts – generally also implicitly – the assumption that normally the "residual" component, the "extraordinary unit-profit", is zero. On the other hand, the "normal unit-profit" (*nup*) is a purely theoretical concept, in the sense that is not possible to measure / quantify it in a real case – for reasons parallel to Rashid's argument cited at the beginning: such a concept of *nup* rests upon the standard assumptions of equilibrium, perfect information, perfect competition, etc.).

Such a theoretical-semantic resource ("average cost" with the meaning of *AC* + *nup*) is like consciously or unconsciously offering an idyllic (or *naive*) picture of the workings of a market economy, basically made up of private and, therefore, profit-seeking undertakings. This picture is summarised in the orthodox model's motto, "(in equilibrium) companies do not obtain (extraordinary) profits", where, moreover, the contents of the parentheses are usually implicit. This does not seem to be something scientifically-academically neutral. It is a theoretical resource that could seem to be intended to generate a certain idea that the capitalist market system is by nature something morally fair. It suggests that "companies normally earn "just what is fair" if markets are given full freedom to operate". The contrast of this with what the direct observation of economic and business reality shows, is not worth highlighting again here.

(II) Market structures (for any good/industry) most generally observed in real life

6. Generic-evidence statement 2: Companies holding *market power* are something not exceptional in our economies

For any observer of the reality of our economic world, the following statement may be self-evident: the situation of "reasonably-competitive market" – meaning by that, for example, about 10 or more companies offering exactly the same good, and every one of them with relatively similar characteristics and degree of access to the communication channels with potential buyers – does not appear to be precisely the dominant one in practice, let alone the situation of "perfectly-competitive market".

The generic empirical observation of the business world in which most people in our economies earn their living shows that the three market-type structures – reasonably

competitive market, different degrees of oligopoly, and monopoly – as well as several mixtures of them,[9] occur with significant frequencies. As the empirical data presented below indicate, in actual fact there are as many cases of markets ("industries", sectors, products) with few producer-supplier companies (oligopolistic situations), as cases of markets with a number of or many competing companies (reasonable, significant, or strong competition), and equally numerous cases of monopoly situations. In other words, market dominance positions (oligopoly or monopoly situations) by one or a few companies are actually considerably more frequent than is usually assumed in mainstream economics / microeconomics texts.

Generic evidence about this is especially visible to those who are employed in the commercial areas of companies' activities, mainly in purchasing departments (few options for suppliers of this or that product). This is, however, also the case in sales activities (companies' usual internal practice of self-setting market share targets for a given product or for a product range).

More precisely we have, of course, specific empirical evidence in the form of official statistics, professional empirical studies, research reports, etc. The degree of monopoly-oligopoly in a specific market (good, industry, sector) has traditionally been measured in economics by a *market concentration ratio,* ***C***. This measures what proportion of the total sales in a market is covered by the top three, four, or five companies (*C3*, or *C4* , or *C5*, ..., ratios). Thus, if the top four companies in terms of sales amount to 85% of total sales in a specific market (product/sector/"industry") – an oligopolistic type situation, therefore – then we talk of a market concentration ratio of *C4* = 85.

Thus, in the classic manual of Industrial Economics by Roger Clarke (1989), we can see market concentration ratios, measured at the level of the top 5 companies (*C5*), for different types of goods (statistical "sectors", in fact) in the United Kingdom[10]. "Industries" such as sugar, cables, cars, breakfast cereals, coffee, batteries, cement and others, are listed with *C5* figures above 90%, and for some of them (such as sugar, tobacco and hydrocarbons and their derivatives) the *C5* ratio was 100%. Which indicates oligopoly/monopoly situations.

The detailed study by Sutton on market concentration ratios (1998) is historically noteworthy. In this case it presents indicators, for the United States, referring to the top four companies' market share (*C4*) for each of the 197 types of goods or "industries" (industrial sub-sectors, according to the statistical classification of economic activities at the 5-digit level in the USA). Percentages in the order of 60%, 70%, and 90% also appear with significant frequency.[11]

In both cases, these are ratios obtained (or calculated) from sectoral statistics published by the official agencies of the respective country. In that context a sector, sub-sector or "industry" – for example, "Pharmaceuticals", or "Cables" – actually includes several or many different products. Its corresponding indicators (e.g. "Pharmaceuticals", *C5*=75%) thus actually represent the average of the market concentration ratios for the different specific goods/markets encompassed by the corresponding statistical grouping (classification code-

[9] By way of example, in Spain there are quite a large number of undertakings producing kiwis but one of them, *Kiwi Atlántico*, represents 60% of total national production. Should we qualify this situation as "competitive market" (because of the high number of enterprises in it) or rather as "quasi-monopoly" (because of the market dominance by one of them)?
[10] Clarke (1989), tables 2.2. and 2.3., on p. 22 – the statistics database used by Clarke to determine these *C5* ratios corresponds to the years 1977-78.
[11] Sutton (1998), Appendix 4.3, tables 4.3.1 and 4.3.2, pp. 550-557.

level). Which means that the *C* ratios calculated from these data give, inevitably, a *low-resolution* information on markets concentration.

On the other hand, a public statistical agency could obviously also calculate concentration ratios by taking the market share of the leading, top, firm in the industry, or the sum of the top two (*C1*, or *C2* level ratios). This would give more accurate information about monopolistic situations. However, we will not find data at that level (or at *C3* level) in statistical agency reports – and therefore not in academic studies either – because the confidentiality clauses of public agencies publishing these statistical data prevent this (on the grounds that otherwise specific companies' data could be easily identifiable). That is why the most common in the statistical releases are *C4* and/or *C5* indicators.

Another example of empirical data is the one below, resulting from a broad study which uses statistical databases corresponding to 10 years later than the ones used by Clarke in his above-cited work. In this study, *C4* market concentration ratios are calculated for the whole set of industrial sectors of several countries, and then average values for each country are presented[12]:

	C4 (average)	(s.d.)
Germany	35,9	20,8
France	34,9	23,5
Italy	31,6	22,3
United Kingdom	39,5	22,3
US	31,4	16,4

More recent data (2004), specifically for the UK, released by the *Office of National Statistics (ONS),*[13] show that the situation regarding market concentration is quite similar to the one three decades before, as per the work by Clarke. A 2018 report by the OECD[14] on market concentration ratios for several relevant industries in the UK is also in line with this view: sectors such as Groceries, Broadband, Telephony, Electricity, Gas, Banks' personal current accounts, present figures for *C4* of 90–70%; of about 60% for Mortgages; and of 50–40% for Cars.

Since the end of the 80s, besides the *C* ratios, preference has been given by researchers and public agencies to an alternative measure of market concentration: the Herfindahl-Hirschman ratio (*H*). This indicator is calculated as the sum of the square of the market share of each of the firms in the specific market. I.e., not only is the market share of the 4 or 5 top firms taken, but rather that of all the firms operating in the sector/industry. Thus, the possible values of this ratio go from *H*=10000 for a pure monopoly situation (the square of 100%), to values close to zero for a situation of "almost perfect competition". This ratio has the advantage of allowing a good discrimination between different degrees of monopoly-oligopoly (see below). However, it also has the disadvantage of giving values that – unlike the "traditional" C ratio – are of non-intuitive interpretation, since they do not vary in proportion to what is commonly understood by degree of concentration of firms' market power – as can be seen in the following simulation:

[12] Lyons, Matraves and Moffatt, (2001), table 1, p. 12
[13] Mahajan (2006); appendix 1, pp. 42-44
[14] *OECD,* (2018) (p. 9).

Simulation for the Herfindahl-Hirschman market concentration ratio (H)

	Different possible type-situation, for a specific market/product/sector:	Market shares for the top firms active in the market in %					Rest of the firms active in the market		**H ratio**	C_5 ratio	C_4 ratio
		1ª	2ª	3ª	4ª	5ª	Share in %	firms			
1	Pure monopoly	100	0	0	0	0	-	-	**10.000**	100	100
2	De facto Monopoly	90	0	0	0	0	0,25	40	**8.103**	90	90
3	Oligopoly/monopolistic (a)	60	10	10	10	0	0,25	40	**3903**	90	90
4	Oligopoly/monopolistic (a)	40	15	15	15	15	-	-	**2500**	100	85
5	"Balanced " Oligopoly	20	20	20	20	20	-	-	**2000**	100	80
6	De facto Oligopoly	20	20	20	20	5	0,50	30	**1633**	85	80
	6 > (in-between) > 7	15	12	10	8	5	2	25	**658**	50	45
7	Reasonable competition (20 similar firms)	5	5	5	5	5	5	15	**500**	25	20
8	High competition (80 similar firms)	1,25	1,25	1,25	1,25	1,25	1,25	75	**125**	6,25	5
9	Atomised n ("almost perfect") competition (200 similar firms)	0,5	0,5	0,5	0,5	0,5	0,5	195	**50**	2,5	2

Thus, in the aforementioned work by Sutton, besides the already commented *C4* market concentration ratios, we find data for *H* measures for each of the sectors. Also, in line with what was pointed out before on the basis of his *C4* measures, values higher than 2000 for the *H* ratio for most of the sectors appear in the tables cited above.

Let us, however, look at more recent data, first referring to the UK.[15] Working on the latest detailed data published by the public agency *BIS*, the following summary can be produced:

Degree of market concentration (UK, 2015), *Herfindahl* ratio

1. Oligopoly & Monopoly situations: 1600 < H : 137 sectors
   - 1.1) 8000 < H, (10 sectors)
   - 1.2) 4000 < H < 8000, (22 sectors)
   - 1.3) 1600 < H < 4000, (105 sectors)
2. Relative competition situations: 500 < H < 1600: 129 sectors
3. Situations of reasonable or high competition: H < 500: 114 sectors

Own elaboration on the basis of "BIS Analysis of key sectors (by SIC2007)/Table 5: The Herfindahl-Hirschman Index for each 5 digit SIC2007 code". BIS release 03/05/2016.

Finally, the most recent empirical measures available for the US: every five years the US Census Bureau publishes highly detailed databases (classification of economic activities at

[15] The UK is probably the country for which the most data on market concentration indicators are available: Besides the *ONS* regular releases regarding *C5* ratios, there is also the *Department for Business Innovation & Skills (BIS)*, which publishes data on market concentration, in this case using the *Herfindahl* indicator, and on an even more detailed level: aggregates of economic activities at 5-digit statistical code (392 sectors).

the 6-digit level) with market concentration ratios, *C4* as well as *H*, for the different sectors covered.[16] Among these, the macro-sector encompassing all industrial activities stands out – in the sense of the prominence that is given to it by the public agency.[17] Focusing on these, and using the most recent data available (2007), at the 5-digit aggregation level there are 183 "industries" or types of manufacturing goods. By first analysing the corresponding data on *C4* ratios, the outcome* can be summarised as follows:

> For 38 of those 183 goods / industries / manufactures, the *C4* ratio is higher than 50%. For 23 of them, it is higher than 60%. Among the latter, the most outstanding ones, in terms of sales volume and degree of market concentration, are Tobacco, Breweries, Petrochemical manufacturing, Computer and peripheral equipment, Telephone apparatus manufacturing, and Appliance manufacturing.

By using the other market concentration measure offered by the report, the *H* ratio, the summary would be:

> Manufacturing sectors for which,
> H > 1000: 32, of which 12 with H higher than 2000 (situations of oligopoly/monopoly)
> H < 500: 94, of which 24 with H lower than 125; a border-value that could be associated with high competitive situations (see simulation table).
>
> (*) *Own elaboration, based on the database mentioned.*

As can be seen, the empirical measures about market concentration reviewed above allow us to maintain the overall assertion suggested by overall generic evidence, as stated at the beginning: the three types of market structure – competition, oligopoly and monopoly – (each of them encompassing different variants, as illustrated in the simulation table, first column) are present with similar frequency in the real market economies.

7. Innovation, market niches, and *natural monopoly*

The sequence of empirical evidence gathered so far on mark-up % as well as on market concentration ratios may appear to some readers scarcely surprising, since we are talking about real market economies, basically made up of private companies. Which are logically guided in their decision-making by profit criteria. In this respect, observational evidence shows us that a company's profits partly depend on a binomial: company's growth, and increase-of-its-market-share, or finding "market niches". That is, they depend partially on the fact that the company would hold a certain degree of market power. This business objective is in turn related to specific management strategies and instrumental or intermediate objectives, among which innovation – in processes, products, etc. – plays a significant role.

> "... competition is a type of behaviour by businessmen and not a market structure like 'perfect competition'" (Blaug, 1998: 15).

[16] https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=dataset&id=dataset.en.ECN_2007_US
[17] (Manufacturing: NAICS 310000-339999); US Census Bureau, *Concentration Ratios: 2007, Economic Census; Manufacturing (EC077315R12)*.

This dynamics in the business playground easily leads to technical-economic situations close to what we know as a *natural monopoly*: where a single firm may produce the Q units of a specific product/service that the market demands, cheaper than two firms producing Q/2 units each, etc. It is moreover worth underlining that, due to this dynamics, the *natural monopoly* is a market situation that is actually much more frequent than is commonly assumed in mainstream economics textbooks. It is especially frequent for many "ordinary" goods (in the sense of non- socially-sensitive or strategic goods) for which no regulatory issues usually arise. This is the case, for instance, of most complex-technology specialised equipment (such as a scanning electron microscope, a cinema's projection equipment, a power generation turbine, most sophisticated industrial robotic equipment, etc.). The same also applies to numerous luxury goods – such as yachts, armoured cars, private jets, etc.

Indeed, in some cases the technical-economic situation of *natural monopoly* occurs for a socially-sensitive or strategic product or service. These are the cases for which there tends to be a socio-political consensus that such a productive activity should be subject to regulation by the public powers, in order to avoid abusive prices and/or to guarantee supply conditions. The usual historical examples in this regard are basic public utilities such as the distribution of water, electricity and gas, as well as telecommunications, for a given population. These are cases where the *natural monopoly* feature comes mainly from the fact that they are *goods* that require an important physical infrastructure, such as a distribution network (wiring, piping), which in economic terms it does not make sense to duplicate, triplicate, etc. In addition to these historical examples, there are those of public transport services, which also present, in whole or in part, characteristics of natural monopoly. In these cases due especially to *economies of coordination* and to their features of socially-sensitive goods: service configuration (which type of urban transport?), interrelationship with urban development, and ensuring service regularity.

However, as stated above, it should be emphasised that while these cases – in which the technical-economic situation of a *natural monopoly* occurs simultaneously to that of socially-sensitive or strategic good – are cases of a high socio-political impact, they are not, even remotely, the most numerous cases of *natural monopoly* situations in practice.

8. Conclusions

(I) The core assumption of the modern-neoclassical standard model of mainstream economics, "in a market economy, in equilibrium companies end up by applying prices equal to their average cost – equal, in turn, to marginal cost – for the corresponding good or service; and consequently, they operate obtaining zero profits" is a clearly unreal assumption. It cannot be sustained in the face of the overwhelming observational evidence, not even as an acceptable methodological simplification.

If the flow of information that regularly emanates from the business world (for example, direct experiences of economic actors, managers talking about running their companies, economic press...) is not voluntarily ignored, it is self-evident that companies normally operate obtaining profits (sales prices are normally higher than the respective average cost); that they tend to grow as much as they can, insofar as this allows them to improve their profitability prospects ("competitiveness"); and that their selling price for a product is normally not taken as an external data, but rather as an internal decisional variable; i.e. that "pricing policy" is something important in any company's management.

Specific empirical evidence (measures of mark-up rates) confirms and shows us that, in our developed market economies, sales prices tend to be on average in the order of 9-16% higher than the respective average costs.

(II) In parallel to the above, it is not possible to uphold – in the face of the observational evidence – the orthodox standard model postulate – based upon the above assumption, among others – that

> "market economies tend toward a competitive equilibrium in each market (product, sector, industry); a kind of equilibrium characterised by the fact that none of the firms active in a specific market will hold any power over the price (non-existence of firms' market power)".

Empirical evidence shows rather that market situations where one or a few firms hold a dominant position (high market share) in the market are not actually infrequent. On the contrary, these situations are in some way systemic. Strong control over a given market is associated with an oligopoly-type situation – or a situation close to a monopoly. These types of situations (market power) are obviously what in turn allow companies to obtain higher profit margins.

In this respect, there has been presented here empirical data on markets concentration indicators that point out that market situations where five or less companies concentrate a dominant part of the total sales in a sector (i.e. oligopolistic or monopolistic situations) are actually present in about one-third/half of the markets (industries, sectors) in dynamic economies such as, for instance, US or UK. The empirical overview presented here on the market concentration indicators also suggests that it would be *naive* to expect that this extensive reality could be substantially modified by a regulatory body, such as a "competition-enforcing public agency"[18] – in the sense of going beyond its role of regulating the classic public utilities (and even in these cases, with the well-known limitations) or giving its green light to some big mergers.

All the above have certainly relevant consequences: Without these two (I & II) theoretical assumptions of the ESM (perfectly informed and efficient firms selling at cost price, and none of them holding any market power), the mainstream paradigm of the *general equilibrium of competitive markets*, which plays such a central, fundamental, role in mainstream economics, cannot be sustained.

To look at the matter from another perspective: from the point of view of the scientific method it can be said that mainstream economic theory does not properly explain the workings of our market economies, as far as the sphere of firms and markets. This is not regarding technical specificities or secondary details but rather regarding fundamental issues of the real economic world. Therefore, it should be substituted by another economic theory that gives a better account of how our real market economies work.

[18] By way of example, the EU's competition regulatory authorities are taking as a reference for giving their green light to a merger of companies from the same sector a value of H=2000 (see simulation table in the text) for the (estimated) concentration ratio of the would-be resulting market situation. In the case of the US (Antitrust rules), the reference value is H=2500.

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Humanism or racism: pilot project Europe at the crossroads

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Abstract
This policy paper combines a large number of acute contemporary problems in political economy and shows that it is possible to bring them under one broad common umbrella: the choice between humanism and racism. To do so, more fine-grained definitions of humanism and racism are put forward.

From that theoretical perspective the possible policy options for further European Integration are discussed. It is argued that Europe could be a role model for global evolution if it is possible to overcome racism and to use diversity as a creative force. As a driving agent for such a development the emerging class of organic intellectuals is identified.

Introduction

The state of the global political economy is producing an extremely dangerous dynamic. The human species has conquered the planet, its productive forces are reaching ever more sophisticated levels and are arranged in a global network that would be able to transform growth of profits into growth of general welfare. But such a transformation needs a political agent, which is powerful enough to defeat the forces, which currently exploit large parts of the human population just to accumulate profits in the hands of some small, globally ruling classes.

The essential characteristic of the human species is that its members are using internal mental models to choose their actions. These models mostly are learned and shared by groups, constituting what in political economy has been called class consciousness. The formation of this consciousness partly takes place in local family and work contexts, partly it is shaped by the global information sphere. The structure of classes thus today can only be understood by taking the processing contradiction between local and global experiences serious. The successes of Fascism leading to WWII show that there are ways to interpret exploitation, which can mobilize the population of nation states against an imagined group of enemies. This strategy of a self-proclaimed new national ruling class to strengthen their new rule and the accompanying exploitation regime is called **Racism**. It divides the human species into two groups, a superior one (which has the right to exploit) and an inferior one (which in the long-run is thought to fall back to the status of intelligent animals). Racist ideology is “rational” as far as it promises to keep class rule and exploitative force in the hands of the superior class. To exert power two different possibilities can be combined: direct coercive force and ideological power, i.e. manipulation by ideology. Being a member of this class – or at least to believe that one is a member of it – it is evident that there is an immediate material and psychological benefit of subscribing to racism.

Humanism, the ideology that ranks the welfare of the whole species first, denies that there is a division between superior and inferior humans. Though it insists on the existence of classes and class struggles it nevertheless also underlines that progress towards general human welfare *of all* in the long-run is the lesson to be learned from history. Racist short-run

maximizations can be understood, but to suppress them in time is important: destructive military force as part of the general growth of productivity nowadays even in the short-run easily can lead to the extinction of the whole species if races or nations go to war.

Humanism comes in different flavours. The simplest form takes a short-cut via religious rules or morale sentiments. This **axiomatic humanism** does not refer to any further justification but rather views itself as a self-evident, innate attitude. As a consequence, its carrier is the single human individual. It thus remains deeply rooted in methodological individualism and is free from being linked to any consideration of classes and exploitation. This independence from any decisive political stance allows a wide-spread acceptance in different social strata. The downside of this flexibility is the impotence of axiomatic humanism with respect to well-defined social and political actions that go beyond a single individual's morale or religious judgement. Another type of humanism is **evolutionary humanism**. In short, it is based on a deeper understanding of long-run social progress of the whole species – that is, it represents the full version of what axiomatic humanism often is the unconscious short-cut of[1]. Evolutionary humanism necessarily needs to interpret history in its sequence of class struggles – of emergence and demise of classes – to delineate long-run progress. Single individuals are not the starting point of the explanation, their internal model-building and communication is just one ingredient to better understand the upward leading oscillations that class struggles produce. In between these two types of humanism it is easy to position mixtures, which interpret the axiomatic version as the evolutionary outcome of unconscious historical experience, or vice versa the evolutionary progress as an asymptotic approximation towards optimal ethical behaviour.

Racism in turn, also appears in a variety of ways. **Strict racism** indeed builds on biological traits of a ruling class. Be it the colour of the skin, the body height, or facial features just to name some classics; it again is the individual member of a class that carries the insinuated superiority.[2] To raise biological traits to the level of an enduring class phenomenon it is necessary to regulate reproduction, e.g. regulations that in-class mating of nobility is mandatory, or that leading positions in the ruling class are reserved for males. Apart from strict racism some softer forms, which allow for non-biological traits are common:

> **National racism** is built on the place of birth of individuals and thus shared cultural traits acquired during childhood. Since nation building became a significant historical trend in Europe in the last centuries, this type of racism is in the focus of the next section of this paper. National racism always is on the verge to condense to strict racism. The anti-Semitism of Fascist regimes is a dramatic example.
>
> **Religious racism** is built on the belief that some superior being, some God, has chosen the religious community one belongs to as a superior part of society. Since this type of racism works solely on the level of information processes, with no visible relation to the material world, it is particularly hard to overcome once it has established itself in the internal models of a religious community. It also has the competitive advantage relative to other forms of racism that its perspective in principle is global, though its core carriers originally typically come from well-defined global regions, e.g. Christianity, Islam,

[1] Preliminary short-cuts play a central role in the development of knowledge. Indeed, science itself can be regarded as a project, which attempts to check short-cuts and to replace them by better knowledge, i.e. better informed short-cuts.
[2] Sexual racism clearly is just a special form of strict racism. Gender racism usually is just sexual racism in disguise.

Judaism. If the implicit messages of the respective religion include elements of axiomatic humanism, then a fall back to strict racism is less likely. On the other hand, enlightenment processes will hardly take place if religious racism is closely interwoven with an existing exploiter status, e.g. Christianity and the European feudal class in the Middle Ages.

Note that the far-reaching definition of the concept of racism used in this paper extends the use of it in everyday language.

Europe

Europe in the 19th century was the epicentre of conflicts between nation states. In this last phase of feudalism internal national class structures of states were melted into ideologies of national racism. In particular, the rivalry between France and Germany did breed fierce and lasting emotions – encapsulated in biased internal models interpreting events – in large parts of the population. Great Britain, the global hegemon, entertained a somewhat different type of national racism; the proclaimed "splendid isolation" expressed the superiority of a nation chosen by history to lead the world. This propaganda successfully transpired into a typical attitude of large parts of the British population, something in between haughtiness and British humour. In many European countries the respective cultural and historical trajectory enriched the process of nation formation, and in many of them an element of national racism was present.

With World War I the centre of the global political economy started to shift from Europe to North America. From then onwards an atypical nation became the hegemon of the capitalist world. It was a strange brew of military leaders (e.g. Washington), slave holders (e.g. Jefferson), and businessmen (e.g. Vanderbilt) which substituted a shared historical ancestry by a common conquered territory and an emphasis on individualistic self-determination, on the freedom of the strongest. The emerging ideology indeed could turn into strict racism with respect to "a lower race", to everybody who was not a white Anglo-Saxon protestant, and at the same time be flexible enough to exploit the creative potential of the diverse refugees that left their repressive regimes in Europe, Asia, Africa, and Latin America. American fake identity often worked better than the rigid tradition-loaded original national racism. The reason for this phenomenon might be found in the reduction of ambivalence that a European youth typically inherits when confronted with its own traditions that usually reach far back in history[3]. US history is only short, but it reveals important secrets of ideological evolution.

Nevertheless, the most dramatic lesson learned in the 20th century was the **emergence of Fascism**. Fascism showed the enormous force of a movement, which manages to turn national racism into *militarist strict racism*. The latter is not just a singular event based on an unhappy particular coincidence of an economic and political constellation, some charismatic but also psychopathic leaders, and the availability of new mass media tools. The Fascist triumph in Europe between the end of WWI and the end of WWII is a much more serious historical turn in human evolution than is commonly understood. Militarist strict racism, to use a more general term than the specific historical form called Fascism, has been an incentive compatible form of social organisation for large parts of society: It provided substantial profits

[3] It is this distance to traditions, which made the "American Way" so attractive for the European youth after World War I.

for several war and surveillance industries,[4] it pushed certain scientific fields connected to these industries, it promised employment opportunities as public employees, in particular as soldiers, thus reducing unemployment, and it provided social identity and pride for those belonging to the chosen superior race. The last point gains additional importance in recent decades, since new information technologies allow for *high-speed distribution of ideologies*. Today the hegemony of choice, way of perception and interpretation of events in the not directly observed parts of our environment rests in the hands of global media networks, which are not subject to any democratic control. Potential alienation, ingrained already in the global division of labour and the ideological hegemony of the ruling classes, becomes manifest alienation when larger parts of the population join strict militarist racism and treat the remaining people like an alien, subordinated race. The European experience of Fascism shows how to build racism on the foundation of nationalism, i.e. how to exploit fear from losing economic welfare combined with wishes to retain a disappearing social identity – both necessary elements of advancing global capitalism – to construct a new and radical superficial identity that only needs followers of a magical leader in a hierarchical military system. Of course, 80 years later these followers look as alien as the believe system they followed. But a brief look at the organization forms of certain contemporary religious leaders, be it Islamic, Hinduist, or Jewish systems,[5] shows that strict military racism is not dead.

Despite the fact that in particular the older generation in Europe is still influenced by elements of religious beliefs, it is not religiously-rooted racism that is a menace for Europe. It rather is a re-appearance of old blood and ground ideologies that one more time provide the basis of racist propaganda in Europe.

Space

The usual reference point for national racism is space, i.e. a certain geographical territory for which the dominance of a racial elite is claimed. While in early hunting and gathering tribes such a claim was directly connected to their biological reproduction, e.g. to their hunting grounds, this link was less prominent in the times when the strong nationalist movements lead to modern nation states. To become one nation, e.g. in Germany or Italy in the 19th century, was promoted by political leaders not so much with economic arguments but was referring to cultural elements, in particular language. Since political leadership remained feudal till WWI it was implicitly clear that class structures were to be preserved in such a unification process. Coalitions and alliances between nations thus were a matter of ties between the nobility of different countries. When capitalism entered its new stage of integrated capitalism[6] after WWI political leadership of most European countries had changed dramatically. The bourgeoisie, the new ruling class, had to devise a new faction of administrative personal, which was able stabilize and to integrate the different economic and political strata within the nation. Usually, big businessmen already had been involved in feudal systems as consultants and financiers before, but political, military, and cultural command had still been in the hands of the nobility. Nationalism and its tendency to become national racism were the preferred instruments of the

[4] Expected wars promise massive consumption of these products that does not run into the risk of insufficient demand; it is the oppressive Fascist state itself, which finances the demand by using its monopoly of power.
[5] The high tide of extreme Catholic racism has been in the Middle Ages. Since then the Christian Church has developed an adorable mastery of flexibility with respect to the assimilation to prevailing ruling classes.
[6] Compare (Hanappi, 1986; 2018c) for a detailed treatment of the stages of capitalism.

new administrative class faction to unite, to integrate the population of Europe in the interwar period.

It is remarkable that the economic trajectory of European businesses pointed in an opposite direction. With the first wave of globalisation starting at the end of the 19th century large scale division of labour began to blur national borders. Within many European countries large firms were establishing worldwide economic links and it can be plausibly argued that the Great Depression of 1929 to 1934 was basically an outcome of the mismatch between the actions of local (national) administrative factions of ruling classes and the intentions of the partly globally acting businesses.[7] Fascism was just the new integrative movement, which after the ideological confusion accompanying the Great Depression provided a country-wide interpretation scheme by transforming national racism into strict biological racism. Germany and Italy, where people due to older nationalism considered themselves as losers of WWI, proved to be the most fertile grounds for Fascism. So it appeared there first.

The step from national racism to strict biological racism is a subtle one. As history showed, once in state power Fascists first forced what they considered as members of the lower race to emigrate, or they simply killed them. A smaller size of the lower race not only secures national safety; it also contributes to the feeling of superiority and the social identity of the ruling race. With respect to economics strict military racism clearly implies a return to a pre-capitalist command economy. An enormous increase of government expenditures to expand police control and military – thereby reducing unemployment – made a currency reform unavoidable. It was also an immediate consequence that the survival of a Fascist regime with its backward economic setting needed expansion, needed war. One of the most notable features of the Fascist regimes was their ability to keep ideological control by the means of the newly developed mass media of broadcasting. To clean the country from foreign, lower race elements includes the exclusive maintenance of cultural artefacts of the superior race, of "home culture".

Nevertheless, the expansion in space by leading wars is not a very promising strategy in the long-run. Moreover, the internal implosion of an economy founded on command structures and unproductive war activities adds to this dilemma. But even in the rather short time of their existence Fascist regimes probably lead the human species closer to its extinction than any other type of threat in our history.

Time

To discuss the rationale behind the emergence of racism – its conditional necessity as a possible development stage to be overcome by evolutionary humanism – it is important to take a closer look at the notion of time. Collective memory, similar to the memory of human individuals,[8] is organised in short-term and long-term memory. Additionally, and rather different to individual memory, it is characterized by massive self-amplifying cultural feedback effects: If a group held together by a tight local communication structure develops a negative attitude towards its own status *vis-à-vis* a local neighbour if it feels unduly suppressed, then a slight stimulus easily can explode into a broad and general racist attitude of the whole group

[7] Alfred Sohn-Rethel has provided an illuminating account of the economic processes accompanying the takeover of the Fascists, see (Sohn-Rethel, 1978).
[8] See (Kahneman, 2011).

only due to the amplification via internal communication. This then is the basis for the outbreak of a sudden local wave of shared antipathy; nothing serious as long as direct interaction between the groups can correct exaggerating prejudice.[9] The negative events are stored in society's short-term memory and can be purged as they are subsequently corrected.

But at this point political entrepreneurs organising public opinion can enter the scene. They can use the amplified general mood of the group and make profit, i.e. redirect public tax and expenditure streams accordingly, which they can influence when they are elected as political leaders. A necessary ingredient to keep the distorted public opinion long enough alive to arrive at state power is the careful maintenance of a generally acceptable scapegoat, an enemy to be blamed for the informationally blown-up misery of the group. It is evident that modern information technologies are making the emergence of such political entrepreneurs ever more probable. Return now to the issue of memory. The task of the political entrepreneur is to avoid corrections by direct empirically observable interaction, therefore an emphatically distributed dream-world has to be produced, which turns the sporadic short-term stimuli into a kind of hidden long-run memory. It is the "destiny", the "fate" of the group (be it a so-called Arian nation, a religious community, or any kind of sect), which gives back to the group what has been their innate superiority that has been promised since eternal times. Hitler's imagined "empire for 1000 years" just projects into the future what a distorted collective memory of the Arian race always knew. This explains the love of such political entrepreneurs for symbols of a faraway past in their dream worlds. Such symbols are immune against the profane contradictions of daily observable misery; the latter can be done away with by brutal state interventions benefiting the superior race in their promised land.

But time is moving on, and as the calamities of expansive foreign policy, internal command economy, and an over boarding police apparatus are cumulating, the system approaches its collapse rather quickly. Thousand years of glory melted down to the seven years of the hell of World War II.[10]

Seen from a larger perspective, the sources for racism can be found in a multi-layered structure of conflicts:

- A conflict between the *short-run* power and money maximizing strategy of a small group of political entrepreneurs and the *long-run* welfare-increasing goal of the human species.
- A conflict between *local* perception of human individuals and an increasingly more dominating influence of interpretations of *global* political economy dynamics, which are provided by private media firms.
- A conflict between an almost complete *impotence* of the *single* human individual as part of ever larger economic units with respect to direct political influence and, on the other hand their openness to mind manipulation, which yields a *volatile mass* of *manoeuvre* for political entrepreneurs.

[9] In Austrian villages with a greater share of migrants, there typically exists less xenophobia than in those with a lower share. As numerous empirical studies show, direct interaction usually works against a publicly stirred hatred against foreigners.
[10] The general structure of this process can be found in many more contemporary adventures of political entrepreneurs. They range from the rise and fall of the Islamic State to its mirror images of Donald Trump and Kim Jong Un. It might be only a question of time till Europe experiences the emergence of this type of "leader" again.

- A conflict between an increasing *loss of social identity* of individuals in an age of alienation[11] and the arbitrary possibilities *to identify with symbolic artefacts* that seem to escape the relation to a vanishing world of realities.

Along these lines the emerging pathology of parts of the population in the richer parts of the world, e.g. in Europe, is a latent danger that might develop into a manifest re-appearance of fascist national and biological racism. Indeed, first signs of such a development are only too visible.

Pilot Project Europe

The French Enlightenment by and large was the progressive political program envisaged to overcome Feudalism and its religious ideological superstructure. It took several hundred years to be successful enough to chase away political and military leadership of the feudal class. After World War I a new phenomenon, the sweeping political success of national and biological racism in Europe took hold. Under the lead of Germany and Italy an Arian European unification by military action – with the help of Japan even a global Arian unification – was started. As sketched in the previous paragraphs this unification was based on the opposite premises of the tenets of Enlightenment, it was based on racism instead of humanism. Human individuals were seen as fundamentally divided into races, superior races and inferior races, each to be allocated in separate geographical areas, the inferior race doomed to be eliminated rather sooner than later. Eventually, if needed, a few members of this race could be efficiently selected to contribute to the glory of the superior race.[12]

In this new era after World War I the old program of Enlightenment has dramatically failed. While during Feudalism the spread of knowledge in the population was suppressed by keeping education at a low level and always safeguarded by religious institutions and their peacekeeping illusions, in the new setting knowledge – more precisely *relevant* knowledge – is silenced by the untamed *noise* of the media machines of the new ruling classes. In such a scenario Enlightenment is a powerless weapon. Even if the internet is not so easy to control by political authorities – and certainly will be the central nervous system of a future human species – its content is still too diverse in quality and relevant parts are hidden behind a fancy wall of nonsense. In other words, the use of the internet for evolutionary humanism still waits for an up to date proposal.[13] But the technical form a progressive initiative is currently learning to use is only one side of the problem. Much more important is its content. Not the media is the message, the content is what a message should transport – by whatever media. So proceed with content.

Europe is a mid-sized political entity, the European states are smaller than the continent and the global political economy is larger. As a smaller entity it is prone to “continental racism”: are Europeans superior to Africans, Asians, Americans? Hundreds of years of colonialism have cultivated this type of racism. It is one of the most pressing tasks to get rid of this type of racism quickly. This cannot be done by changing the mind sets of European citizens by a

[11] Compare (Hanappi Hanappi-Egger 2018) for a more detailed treatment of this point.
[12] In the current debate on the immigration of African refugees to Europe the plan to have a new type of concentration camps to select who should be allowed to enter Europe is in this spirit.
[13] Empty chatrooms, islands of never visited blogs and endless mailing lists turning into spam are signaling that the evolution of group and class consciousness has not really reached our technical capabilities yet.

media campaign, enlightenment will not work. What is needed is to acknowledge the diversity of continents by actively rearranging money flows and education structures.[14] Of course, the only way to reduce the inequalities that are in the background of wars and migration flows is to install large money transfers from the rich to the poor. And these flows are then not only to be used for immediate consumption but also for an education program that secures a proper place in the global division of labour between continents. The only alternative to such a program would be the introduction of a strict military order governed by the superior continent, i.e. a modern type of neo-colonialism. What national racists in Europe (already on their way to form a continental racist platform of Europe) are speculating with is that the racist solution in the short-run might cost European citizens less than a large financial support program for Africa. In the long-term, even in the mid-term, neo-colonialism will have to collapse. But this is ignored by hit-and-run political entrepreneurs. The punishment for the short-term maximisation can be expected to be a heavy economic downturn accompanied by a ruining rivalry, including military conflicts, between European nationalists. Despite these doom prospects it has to be doubted that the progressive long-run perspective finds majority support among European citizens alone. The media power is already too unequally distributed. Thus it is only in coalition with populations of other continents that continental racism in Europe can be held back.

Looking at Europe as a larger political entity that contains smaller ones provides an additional perspective. The ***diversity*** of the capacities of the human species in different continents is the starting point for the global division of labour, e.g. for Europe a place as specialized knowledge developer could be a possibility. Turning the diversity concept to the inside of the European continent implies that what it needs is a strong enough political centre able to manage and further develop this diversity. So far European integration already took important steps towards that goal. The most important one was the introduction of the Euro. Money is a sign system for social value[15], so a common currency at least establishes that the carrier symbols of social value are shared. But fiscal policy till today remains in the hands of national governments, it is the stronghold of the respective national ruling classes and incorporates the respective co-operations and conflicts it has institutionalized with other classes. No local national government is ready to give away that power voluntarily. So to implement further integration is also a question of the agent – where is the strong social agent which can force the different groups in Europe's ruling classes into an alliance? The obvious candidate would have been the German government, but the historical burden of its Nazi past severely constrains acceptance of a German lead in the European unification process. The next best guess could be a preliminary stronger alliance of the five big European nations: Germany, France, Spain, Italy and UK; with Brexit now just four are remaining. The governments in the first two countries in the moment are representing some kind of social partnership solution, an institutionalised compromise between ruling classes and their opponents. Once they come up with a common policy program the other two have the chance to follow.

Spain belongs to the Mediterranean group ***EU South***, which faces a different set of problems than the rest, but under a social democratic prime minister would probably be willing to join Germany and France. Italy after its recent elections is already strongly torn into two opposing pieces – left versus right, North versus South. It is unlikely to be a trustworthy ally. Finally, the UK after years of disastrous Tory governments will be lost for the European unification project

[14] This is the most important step from design to practice, which then produces a feedback from practice to improvements of the theoretical design.
[15] The relation between money, credit, capital, and the state is thoroughly explained in (Hanappi 2013).

for a long time. Thus, at best three member countries will be remaining as the core for such a project. Even if they manage to come up with a tentative solution for the migration problem this at best provides a transitory state of affairs.

The major obstacle for the continuation of the European unification process is the takeover of several Eastern European countries by parties subscribing to strong right-wing nationalism, to national racism. In these countries the Stalinist period in the 20th century has produced a dominance of the state administration faction of the ruling class that even after the breakdown of Stalinism never was balanced by an emerging counterforce of progressive members of the civil society. Representatives of the business world usually – like in Russia – were oligarchs who quickly found arrangements with the leading bureaucratic elite that was often inherited from Stalinist times. Even if this unhealthy mixture sometimes leads to conflicts it nevertheless seems to be stable enough to hinder a successful political integration of these countries with respect to sensitive EU policies, e.g. migration policy. This constellation makes it plausible to group these countries under a particular header: ***EU East***. Movements opposing ruling autocrats and nationalists are emerging in EU East, but transnational links between them are rare and scarcely systematic.

Contrary to EU East the governments of north-western and Scandinavian countries represent a much more important part of the business faction of the ruling class, including not only just big business but also representatives of the large sectors of medium-sized firms. For convenience this group will be dubbed ***EU North***. Due to the more deeply rooted competition between these countries' firms, coalitions between these states are more difficult to achieve than, e.g. between the members of the Visegrád Group in EU East. It is also evident that the heavier weight of economic interests in EU North governments has lead Germany to a more open migration policy: In the end cheap labour input in a country with declining population is a long-run economic imperative that outweighs short-run education cost of migrants. But following the path of long-run profit maximization in EU North was disturbed by two major political earthquakes: The Arab Spring and the war in Syria. They produced a wave of migration[16] in 2015 that was used by right wing nationalists to win elections by nationalist racist propaganda. The reason for the strength of such groups in EU North can be found in the fact that middle income groups in these countries are aware that it will be them who will have to lose most if cheap foreign workers are substituting them. A considerable part of the welfare of these middle income groups stems from the fruits of past peaceful class-struggle[17], e.g. social transfers and an institutionalized social net. The racist nationalist interpretation of the danger they face pretends that this part of welfare could be preserved if only the foreigners were kept away. This argument has induced parts of the business community to support right-wing parties, because a rewinding of the successes of the institutionalized struggle of the labour movement is certainly advantageous for them. The rule is: first exclude foreign workers from social benefits, then extend the measures to all employees. It is the support of a growing number of firm owners that makes nationalist racism so dangerous in EU North. Additionally, two other, smaller segments of the societies in EU North contribute to this development. First, there is a remainder of academics with a mind-set still oriented by strong and militarized hierarchical order.[18] They have been not too successful in the administrative top-level of liberal states that promote economic flexibility and openness to change. This "elite that has been benched" is waiting for its return as authoritarian leaders. They often act as

[16] See (Hanappi, 2016).
[17] Note that what this peaceful class struggle in the North was able to win was first largely earned as successfully acquired profit of TNCs via value chains exploiting the global South.
[18] Compare Adorno's "authoritarian personality", see (Adorno, 1950).

background organizers of national racist parties. Second, there is a group of fierce and disappointed people with little or no education, which in the search of an identity that enables them to be an important part of the society grasp for that role by subscribing to nationalist and biological racism. They are the infantry of right-wing extremism. There is not much of an economic policy program behind this right-wing army, just a few short-run advantages for those firms who join first. Nevertheless, the political challenge by this group is the most severe challenge for EU North.

The top positions in the European Union currently are in the hands of EU North. Southern countries are economically in a worse position but it can be argued that there the political development is already *more* developed than in the North. Further developed means that the contradictions between a wealthy and powerful upper class and its ideologically unstable, politically confused opposing class are sharper and are already having an impact on the composition of governments.[19] In Greece, after a particularly corrupt sequence of governments lead by conservative and social democratic leaders,[20] Syriza for several years has seized the opportunity to steer the country between the Scylla of being ruined and suspended from the EU by enormous interest payments and the Charybdis of losing the support of the Greek population by making too many concessions to the creditors outside Greece. In Spain a similar rise of Podemos, a movement left from the traditional social democratic party, has led to its inclusion in a left government coalition. Portugal has seen a less dramatic transition than Spain, a velvet revolution had ended the rule of dictator Salazar, but like in all countries of EU South and despite a social democratic government the exploding deterioration of income and wealth distribution points at a latent potential of political instability. The most exciting case in EU South is Italy. There, first the Five Stars Movement, M5S, reached the majority of votes in elections. The confused programmatic foundation of this movement had proved to be highly popular, mirroring the confusion of its voters worked well, but then – suddenly in state power – the deficiencies of a missing theoretical backbone surfaced rapidly. This process was speeded up by the decision to form a coalition government with the openly right-wing and racist Lega Nord, which came in second at the Italian elections in Spring 2018.[21] The latter follows the strict plan of all right-wing nationalist parties of Europe to stop the ongoing European unification by replacing the EU with a loose federation of authoritarian national racist leaders. The ready-made topic of anti-migration issues was immediately seized the Lega Nord. Its leader, Matteo Salvini, overnight had become the most prominent member of the Italian government. Only due to a strategic mistake – he believed in his own exaggerated self-appraisal – his party lost its place in the Italian government. But Italy still is deeply divided between a disoriented and scarcely organised majority of voters (in particular in the south) and a determined right-wing movement (dominating the north) with strong international links and the local media tycoon Berlusconi supporting it.

EU South thus shows clearly that European unification needs a new and attractive vision to be supported by the population. And the people living in EU South probably are the ones that can be addressed best by such a vision. The deep economic crisis there, very high unemployment and vanishing prospects of welfare increase, has to be answered by a strong European economic policy stance. Insisting on government debt reduction, i.e. austerity policy, and waiting for the wonders of a suddenly re-emerging capitalist growth boom since

[19] In this respect the development in the UK resembles EU South, and it is this aspect which explains the special role of the UK in EU North.
[20] Compare (Hanappi, 2015) for an interpretation of the Greek crisis.
[21] The proposal of M5S to form a left of center government with the social democrats was rejected by Matteo Renzi, the leader of PD.

twelve years has proven to be a disaster. Strong European economic policy is contrasted by the offer of the extreme right to introduce strong local, i.e. national and racist, policies – an offer that a considerable share of voters accepts – at least as long as it is the only game in town. But who can provide such an offer and how can it be distributed among the electorate? To connect some of the loose ends left by the previous paragraphs a brief recapitulation is necessary.

- It seems to be adequate to consider the current state of Europe as consisting of three parts: EU North, EU East, and EU South. This helps to understand how Europe's inner diversity has to be dealt with.
- For each of the three parts a separate set of strong policies has to be proposed to keep the unification process going. In the North special focus has to be given to prevent business communities to support parties promoting nationalist racism and in particular to regain participatory democratic control of the media sector. The latter proves more and more to be pivotal to prevent racism. In EU East a disastrous development of an authoritarian role model of the administrative faction of the ruling class is most advanced. There the fight against corruption and a tough policy of cutting support for states that do not align to central EU objectives is necessary. In particular, the groups opposing authoritarian rulers – from civil society organisations and workers to innovative small business communities – have to be supported. The policy action needed in EU South concerns first of all a stop of austerity policy to support employment policy, i.e. public employment, of southern governments. Interest payments on (the stock variable of) government debt in these countries should be set to zero,[22] implying a shake-up of Europe's financial architecture. In the sequel the successful introduction of the Euro two decades before can find its continuation by a redesigned common fiscal policy, again a proposed shake-up for national ruling classes.
- Such a management of the inner diversity of the three parts of Europe asks for a finely designed set of measures that goes far beyond the scope of this paper. It is clear that design needs an intellectual[23], and in the end also a geographically organised centre. The centre will have to propose mechanisms how to combine local with global decision procedures, short-term with long-term goals,[24] considering also the other epiphenomena listed as sources of racism.
- The embedding of Europe in the global political economy is not a side issue but is as important as its inner diversity. It also has to follow the imperative that complementarity of diverse parts – including the solution of diverse, different contradictions – has to be treated as an advantage. It is in this sense that Europe can and should be a *pilot* project. It can be an example to be followed. As part of the global economy Europe's contribution could be precisely to introduce the type of large scale social innovation that on an even larger scale might be the global role model. An evident precondition for this vision is to develop Europe as one of the global hubs of scientific knowledge, in particular as a hub for all social sciences.

[22] Compare (Hanappi, 2013) for a more detailed recommendation of 10 policy measures to overcome the 2008 global crisis.
[23] There is, e.g. an enormous amount of knowledge slumbering in mathematical voting theory, in theories of mechanism design, in game theory, in network theory, and many other specialized areas. A considerable part of this mainly formal knowledge is waiting for its actual application in society. Note that the design of a law system then is a derivative task. Institutions and jurisdiction are an epiphenomenon of political economy dynamics.
[24] Global versus local and long-term versus short-term clearly is also the obvious choice for environmental policy.

- As a consequence, the carrier of such a vision of the pilot project Europe, in the end also the stimulating agent for its implementation, can only be a *global class of organic intellectuals.*[25] This class is able to use the globally available accumulated knowledge of humanity as its central nervous system. Though each of its members necessarily only commands a small and local share of this knowledge their ability to co-operate, to cross transdisciplinary borderlines under the threat of global racism might be enhanced far enough to master all difficulties and even to develop didactic skills to reach a broader global audience[26] – this hope is the reason for the adjective "organic".

The perspective on a possible continuation of the European unification process therefore hinges crucially on the common effort of those who can produce a sound and feasible vision of the welfare enhancing mechanisms that the human species needs. These mechanisms will have to reconcile via social institutions several contradictions – a number of them have been specified in this paper – and certainly will have to be implemented by overcoming the resistance of many ruling classes worldwide.

Humanism or racism

The alternative to this vision of evolutionary humanism is a short-term orientation that makes a group believe in its superior race property – "my race first" would be an appropriate paraphrasing of a well-known contemporary motto. The evolutionary idea of the survival of the fittest, i.e. of the extinction of the unfit, is misinterpreted by racists as they propose the elimination (or at least the subordination) of part of the species by their own racially "superior" group. Already the biologist Charles Darwin had seen this selection process rather stemming from the interaction of the species with its environment, in the end it is the long-run adaption of traits of the species to its environment. Of course, a thriving species like the human species will change its environment and these emerging - amplifying and non-linear - dynamics have produced the particular capacity of the human species not only to shape its environment but also to cope with surprises. One hundred and fifty years after Darwin we know much more about this process of evolutionary political economy, compare (Hanappi & Scholz-Wäckerle, 2017). History shows that the adaption process of the human species was a sequence of alternating periods of slow change of a prevailing social structure and periods of faster change with a profounder change of social structures. It is evident that in particular the breaks in human history that reframed social structures, e.g. the turn to agricultural societies or industrialisation, have also lead to changes in the typical traits of members of the species. But what has not changed is the fact that it remained always the same, though developing, human species. The foundation of the concept of humanism is the focus on the further progress of this species. If it is qualified by the adjective *evolutionary* humanism, then this finer grained structuring of human development is a central element of this focus.

Opposed to this view the core proposal of racism holds that *within* the human species biological groups, i.e. races, are developing which follow a certain optimisation path: At any point of time the superior race struggles to supersede and to eliminate the inferior race. By attaching to this daring hypothesis the status of a natural law racist groups typically try to legitimate their aggressive behaviour against human outsiders not belonging to their race. Racism therefore does not emphasize the role of the interplay between the human species

[25] See also (Hanappi, 2018).
[26] In (Hanappi, 2018c) the question of the enduring role of capital in such a future setting is posed.

and its environment but concentrates on conflict between humans. For its proponents, progress thus degenerates to a victory over inferior races within the human species. As far as the actual empirical record is taken into account it makes clear that the racist proposal is completely unscientific. Instead of a long-run optimisation process of a certain race's properties, what can be observed rather is a wide variety of non-biological characteristics of groups in different societies on earth. These characteristics are instead determined by the dynamics of the political economy of the respective society and thus should be called (history dependent) class characteristics. As the global economy became more and more interwoven, local classes are slowly transformed into global classes.[27] It is the scientific study of processes like this, which can provide an ever more scientific underpinning of evolutionary humanism. Nevertheless, racism – be it in its old disguise of national racism or in its new disguise of seemingly continental racism ("America first") – evidently can manage to stir up larger groups of individuals in our already emerging "age of general alienation". The means of mass destruction available today make it possible that the blind ally of racism, if it is successful implies the end of the human species; which of course is the same as a complete failure of evolutionary humanism. The contrast between humanism and racism therefore could not be sharper than it already is today. To take sides in this conflict is the most urgent task, in particular for scientists and all those subscribing to thousands of years of human progress.

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Towards abolishing the institution of renting persons: A different path for the Left

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Abstract
This paper is a brief analysis of how the Left has been side-tracked for about a century and a half by Marx, Lenin, and the Russian Revolution. It is as if the central question was whether people should be publicly or privately rented – with the Great Capitalism-Communism Debate and Cold War being like a "Peloponnesian War" over whether slaves should be publicly owned (Sparta) or privately owned (Athens). Although Marx would have *personally* favored abolishing the (private) wage-labor relation, the deficiency was in his theories. He had:

- no theory of inalienable rights to critique wage-labor *per se*;
- no labor theory of property about workers appropriating the whole product (positive and negative fruits of their labor); and
- no theory about democracy in the workplace (or elsewhere).

The major fork-in-the-road started with the inchoate "labor theory" of Locke, Smith, and Ricardo. Marx tried to develop it as the labor theory of value and exploitation, and the so-called "Ricardian Socialist" (such as Thomas Hodgskin and to some extent, Proudhon) developed it as the labor theory of property – while modern economics bypassed it entirely with the marginalist revolution. We argue that the Left should take the branch indicated by the labor theory of property.

What is the name of today's work relation?

Today almost all working people are employed as private or public employees. The employer-employee relationship is usually described by various euphemisms such as hiring, employing, giving a job to, place-holding, and so forth. But from the economic viewpoint, it is the renting of a person similar to renting a car (called "hire-cars" in the UK) or an apartment, i.e., buying the flows of services of an entity instead of buying the entity itself.

This rental terminology is not controversial. As the first American Economics Nobel winner, Paul Samuelson, put it:

> "Since slavery was abolished, human earning power is forbidden by law to be capitalized. A man is not even free to sell himself: he must *rent* himself at a wage" (Samuelson, 1976, p. 52 (his emphasis)).

Other prominent economists agree:

> "Strictly speaking, the hourly wage is the rental payment that firms pay to hire an hour of labour. There is no asset price for the durable physical asset called a 'worker' because modern societies do not allow slavery, the institution by which firms actually own workers" (Begg, Fischer and Dornbusch, 1997, p. 201).

What are the facts of the matter?

To analyze this legal relationship of renting persons, we have to look at the facts of the matter regardless of the legal superstructure. The facts are that all the people who work in an enterprise, employees and working employers, are jointly de facto responsible for using up the other inputs and producing the products. But due to the human rental contract, which operates as if that human responsibility can be alienated and transferred, allows the employer to appropriate 100% of the positive and negative product, which means the employer owns all the assets produced and owes all the liabilities created in production, i.e., the employer legally appropriates the "whole product" (Menger, 1970 [1899]).

But that human responsibility cannot in fact be alienated and transferred by any voluntary acts of the employees. Since this is about the 500th anniversary of the Protestant Reformation, by the doctrine of the inalienability of conscience, "No one can believe for another" (Cassirer, 1963, p. 117). Just as a person cannot in fact alienate the decision about what to believe to another, so they cannot alienate the decision to do this or that to produce a widget in a productive process. All people can do voluntarily is to, say, follow another's orders to do this or that, which means they are inextricably co-responsible for the results.

A simple example on inalienability

The factual inalienability of a person's responsible agency is non-controversial and perfectly well recognized by the Law when the person commits a crime – even as a slave or an employee. As one of the abolitionists put it:

> "The slave, who is but 'a chattel' on all other occasions, with not one solitary attribute of personality accorded to him, becomes 'a person' whenever he is to be punished" (Goodell, 1969 [1853], p. 309).

The person's inalienable responsible agency is similarly recognized by the legal system when the person is only rented instead of being owned by a master. A standard British law-book on the employer-employee relation notes:

> "All who participate in a crime with a guilty intent are liable to punishment. A master and servant who so participate in a crime are liable criminally, not because they are master and servant, but because they jointly carried out a criminal venture and are both criminous" (Batt, 1967, p. 612).

Now what happens when the employer and employee "jointly carried out a [non-]criminal venture"? Do the employees suddenly turn into machines being "employed" by the all-responsible employer? No, the inalienable co-responsibility of the employees is the same as before. It is the response of the Law that changes. No crime has been committed so no need to hold a trial to explicitly implement the *juridical principle of imputation*; to assign the legal responsibility in accordance with the factual responsibility. The employer pays off 100% the input liabilities (the expenses) and thus has 100% claim on the produced outputs, and the employees qua employees have 0% of the negative and positive fruits of their labor.

Since there is no actual transfer of responsible human agency from the labor-seller to the labor-buyer, the whole contract to buy-and-sell labor, i.e., to rent persons, is a legalized fraud

on an institutional scale, and thus should be abolished along with the self-sale contract. Ernst Wigforss, one of the founders of Swedish social democracy, thus argued for the invalidity of the human rental contract.

> "There has not been any dearth of attempts to squeeze the labor contract entirely into the shape of an ordinary purchase-and-sale agreement. The worker sells his or her labor power and the employer pays an agreed price… But, above all, from a labor perspective the invalidity of the particular contract structure lies in its blindness to the fact that the labor power that the worker sells cannot like other commodities be separated from the living worker... Here we perhaps meet the core of the whole modern labor question..." (Wigforss, 1923, p. 28).

Wigforss is making an inalienable rights argument that the labor "that the worker sells cannot like other commodities be separated from the living worker." The modern political theorist, Carole Pateman, makes the same point in her 1988 book *The Sexual Contract*:

> "The answer to the question of how property in the person can be contracted out is that no such procedure is possible. Labour power, capacities or services, cannot be separated from the person of the worker like pieces of property" (Pateman, 1988, p. 150).

Responsible human action, i.e., "labor," cannot be separated from the person – unlike the services of any thing that is rented out, e.g., a mule, truck, or apartment.

How the Left lost its way

Some of what John Stuart Mill said in the middle of the 19th century still sounds radical today.

> "The form of association, however, which if mankind continue to improve, must be expected in the end to predominate, is not that which can exist between a capitalist as chief, and workpeople without a voice in the management, but the association of the labourers themselves on terms of equality, collectively owning the capital with which they carry on their operations, and working under managers elected and removable by themselves" (Mill, 1970 [1848], Bk. IV, Chap. VII).

How has the Left managed to make so little progress since that time? The answer is that Marx, Lenin, and the Russian Revolution have set back the Left for over a century and a half. It is as if the central question was whether people should be publicly or privately rented – with the Great Capitalism-Communism Debate and Cold War being like a "Peloponnesian War" over whether slaves should be publicly owned (Sparta) or privately owned (Athens). Although Marx would have *personally* favored abolishing the (private) wage-labor relation, the deficiency was in his theories. He had:

- no theory of inalienable rights to critique wage-labor *per se*;
- no labor theory of property about workers appropriating the whole product (positive and negative fruits of their labor); and

- no theory about democracy in the workplace (or elsewhere).

Marx did have a labor theory of value and exploitation – which, even if it were not otherwise flawed, would only imply that workers were not paid the full value of their labor power. As Marx himself put it:

> "It will be seen later that the labour expended during the so-called normal day is paid below its value, so that the overtime is simply a capitalist trick to extort more surplus labour. In any case, this would remain true of overtime even if the labour-power expended during the normal working day were *paid for at its full value*" (Marx 1977, Chap. 10, sec. 3 (emphasis added)).

In the American vernacular, Marx "brought a knife to a gun fight." He brought a value theory to a property-theoretic fight. Even if it had been a sound theory of value, it would not have been a critique of wage-labor *per se* but only of labor not being "paid for at its full value."

But that is not Marx's greatest blunder. By misunderstanding the basis for the employer's appropriation (i.e., the human rental contract), he ended up attacking the idea of private property! This allowed the employers ("capitalists"), who are the beneficiaries of the whole fraudulent human rental system,

- to appropriate the positive and negative fruits of other people's labor by renting them; and
- to parade as the defenders of private property that is supposed to rest on the principle of people getting the fruits of their labor!

How hopeless is a so-called "critique" that allows those, who defraud people out of the fruits of their labor by renting the people, to parade as the "defenders of private property" – the system that is supposed be based on the principle of getting the fruits of your labor. Although they lacked the power of Marx's systematic thinking, not to mention his rhetoric, there were others, such as Thomas Hodgskin and Pierre-Joseph Proudhon, who during or preceding Marx's time correctly understood that it was a property-fight to get private property refounded on a just basis. Indeed, one need look no further that the titles of their main books: Hodgskin's *The Natural and Artificial Right of Property Contrasted* (Hodgskin 1973 [1832]) and Proudhon's *What Is Property?: An Inquiry into the Principle of Right and of Government* (Proudhon, 1970 [1840]).

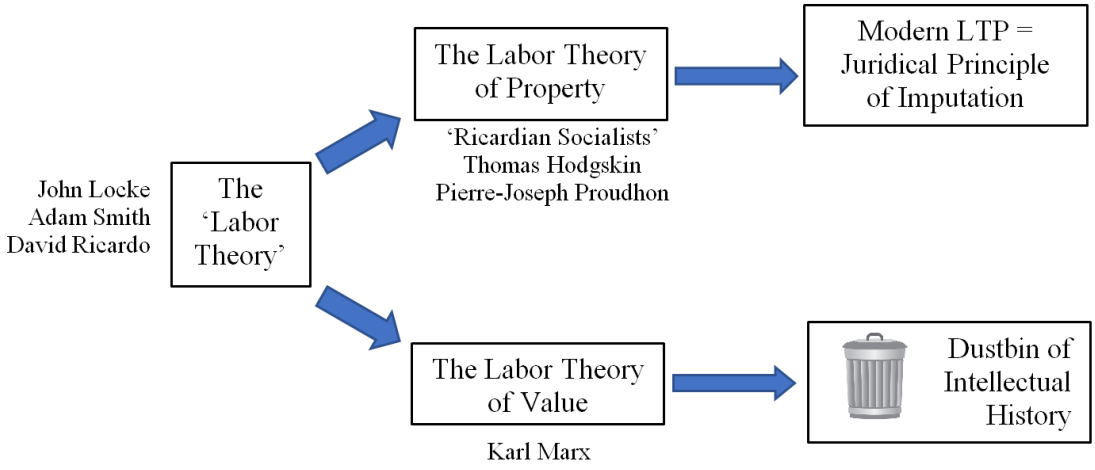
The conclusions of these arguments are that, contrary to Marx and Marxism, the Left should be arguing for the abolition (not nationalization or 'socialization') of the whole system of renting human beings:

- In the name of inalienable rights (abolishing the human rental system);
- In the name of private property (getting the fruits of one's labor); and
- In the name of democracy (in the workplace).[1]

[1] For further development of these arguments using the labor theory of property, the theory of inalienable rights, and democratic theory, see (Ellerman 1992) or (Ellerman, forthcoming).

That is the Neo-Abolitionist call for the abolition of the renting of people that follows the historical Abolitionist call for the abolition of the system of the (involuntary or voluntary) owning of people. The alternative to the human rental system is the genuine system of private property and non-fraudulent market contracts where everyone is a member of the democratic enterprise where they work so all people are jointly working for and governing themselves in the workplace – and jointly appropriating the positive and negative fruits of their labor.

Figure 1 Two roads from the "Labor Theory"



Democratic firms

In a remarkable post-WWII passage, the Conservative thinker, Lord Eustace Percy, put the fundamental task as follows:

> "Here is the most urgent challenge to political invention ever offered to the jurist and the statesman. The human association which in fact produces and distributes wealth, the association of workmen, managers, technicians and directors, is not an association recognised by the law. The association which the law does recognise – the association of shareholders, creditors and directors – is incapable of production and is not expected by the law to perform these functions. We have to give law to the real association, and to withdraw meaningless privilege from the imaginary one" (Percy 1944, p. 38).

With the renting of persons abolished, each firm would be "the association of workmen, managers, technicians and directors." Labor would be hiring capital, instead of the owners of capital renting the people working in "their" firm to appropriate the (positive and negative) fruits of their labor. Each firm would be democratic community of work, an industrial republic, with the industrial cooperatives in the Mondragon system in the Spanish Basque country being an existing example (Whyte and Whyte, 1991). The vision of abolishing the wage system in favor of a commonwealth of cooperatives was a goal of the 19th century Labor Movement (Gourevitch, 2015). But then the Left was side-tracked for over a century and half by Marx, Lenin, and the Russian Revolution and the ensuing Great Debate about whether people should be publicly or privately rented.

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Simpler way transition theory

Ted Trainer [Simplicity Institute]

Abstract
Industrialised societies have far exceeded sustainable levels of production, consumption, resource use and ecological impact. It is not generally understood that this means solutions must involve De-growth to much simpler lifestyles and systems. This makes the goals and the means of the required transition unlike any those in any previous revolution. Industrialised, globalised, competitive, individualistic, acquisitive and market-driven society must be replaced by mostly small localized communities maximising self-sufficiency and self-government within cooperative communities embracing and frugal non-material values. The implications for the transition process are also radical. Successful strategy cannot focus on political action within existing decision making institutions, confronting the ruling class, taking state power or resorting to physical force. The required changes cannot be made unless they are widely seen to be desirable. Thus this is primarily a cultural revolution. Therefore a sound theory of transition will be quite different to that assumed by conventional analysts, "green" activists, "populists" or those within the Marxist/socialist camp. A major element within the Simpler Way theory is the claim that official decision making institutions and procedures are incapable of bringing about the required changes. System collapse is therefore highly likely and desirable transition can only be achieved if sufficient commitment to The Simpler Way has previously been built.

The situation: The nature of the required transition.

It is necessary to begin by focusing on the enormous and poorly understood magnitude of the global sustainability situation. Major global problems including resource depletion, environmental destruction, deprivation of the Third World, resource wars and deteriorating social cohesion, cannot be solved unless the amount of producing and consuming going on is dramatically reduced, probably by 90%. There are two lines of reasoning leading to this conclusion, one to do with resource and ecological limits, and the other to do with the nature of the economy.

The Situation: 1 - The limits to growth.

Following is an overview of the case that present rich world per capita levels of GDP probably have to be cut to around 10%. (For the detailed case see TSW: *The Limits to Growth*.)

The commonly cited "Ecological Footprint" index shows that to provide the average Australian with food, settlement area, water and energy takes about 7 ha of productive land (World Wildlife Fund, 2018.) If by 2050 the expected 9.8 billion people were to have risen to the present "living standard" in Australia, and the planet's amount of productive land is the same as it is today (this is highly unlikely), then the amount for humans to use per capita would be 0.8 ha. In other words Australians today are using about ten times the amount per capita that would be possible for all to use.

There are other indices which yield worse multiples. The figures given by Hickel (2018) show that for materials consumption the ratio is 2.5 times as bad as for productive land. Wiedmann

et al. (2014) state a similar conclusion; the average per capita consumption of the ten main iron ore and aluminium consuming nations is around 80 times the average of all the rest.

However this has only been an indication of *the present* grossly unsustainable situation. To this must be added the fundamental and universal commitment to ceaseless growth in production, consumption, trade, investment, "living standards", wealth and GDP. The impossible implications are easily demonstrated. If 9.8 billion people were to rise to the GDP per capita Australians would have in 2050 given 3% p.a. economic growth, then total world economic output would be approaching *18 times* the present amount. But the present amount is grossly unsustainable: the WWF estimates that even now we would need to harvest from 1.7 planet Earths to meet current resource demand sustainably.

Note that in future resource availability is likely to be significantly diminished compared when the above numbers were derived.

Rejection of this limits to growth case involves the belief that technical advance will deal with the associated problems, that is, enable continued increase in production and consumption while bringing environmental impacts down to sustainable levels. It is not difficult to show the extreme implausibility of this claim. The core assumption is that resource use can be "decoupled" from growth in economic output or GDP, i.e., that technical advances can bring resource and environmental impacts down to sustainable levels while enabling continued GDP growth. But the above figures show the enormity of the reductions that would be required. Impact rates per unit of GDP would have to be cut to the region of 2% of present rates by 2050. More importantly, the general finding of the many studies of "decoupling" find that despite constant effort to improve efficiency and productivity, growth of GDP is accompanied by growth of resource use. (See the extensive review by Parrique et al., 2019.)

To summarize, the overwhelmingly important conclusion to be drawn from the limits to growth analysis is that the overshoot, the degree of unsustainability, is so great that a sustainable society cannot be defined other than in terms of De-growth to levels of per capita resource use, production, consumption and GDP that are in the region of one-tenth or less of present Australian per capita levels. Few analyses focus on this multiple, and therefore few recognize the profound implications for thinking about the form a sustainable society must take, or for the transition path to it. It is the foundational premise in the following discussion of Simpler Way transition theory.

The Situation: 2 – The limits to capitalism

It is clear from the above discussion of limits that the present economic system is a major element in the causal chain, and that a sustainable economy must not just be a steady state economy but one which has undergone De-growth down to a small fraction of present levels of production for sale. The present economy cannot do this. Growth is one of its indispensable, defining characteristics. Capitalism involves constant accumulation of capital and thus the imperative to find additional investment outlets for it.

In addition, the required economy could not be driven by market forces. This mechanism inevitably generates inequality, injustice, and wealth maximisation. It allocates scarce resources and goods to richer people and nations, simply because they can pay more for

them. Similarly it determines that "development" is driven by what will maximize the profits of investors in the global economy, not by the needs of individuals, societies and ecosystems.

The present economy leaves as much as possible to be determined by market forces. However a satisfactory society that operated within severe biophysical limits would have to carefully plan and regulate the use of very scarce resources. Its economy would have to be at least predominantly "socialized", in some form.

The justification for the economy's distribution and development effects has been the claim that eventually the wealth it generates will "trickle down" to enrich all. Apart from the many other challenges to this rationale, the foregoing discussion of limits rules it out as there is no possibility of global resources enabling growth to the point where trickle down has lifted all to acceptable living standards.

There would be considerable agreement that even though the effects of limits and scarcity have not yet impacted heavily, the present economy is not heading in the direction of sustainability and justice, It has now led to disturbingly high global levels of debt, inequality, resource conflicts, social breakdown and discontent. The 1% have risen to extreme wealth while the take home pay of the average American worker has hardly risen in forty years. Growth and productivity rates have been in slow decline for decades and the advent of robotics is likely to drive aggregate wage levels and thus demand down and therefore exacerbate these deteriorating conditions and trends. Above all loom the prospects of peak "fracking" and thus "peak oil" and "peak debt". (See below.)

The system's only recipe for salvation is more rapid growth, the very thing that is tightening the limits noose. It is therefore clear that the economic system is a major generator of global sustainability problems and that it is not capable of solving them. Thus there is a strong case that a sustainable and just economy cannot be a capitalist economy.

The profound significance of the foregoing analyses could hardly be exaggerated. They show that a sustainable and just society cannot be achieved unless many fundamental components of the present society are more or less scrapped and replaced by extremely radical alternatives. What is required goes far beyond the claims of the De-growth movement. (For a more detailed explanation see *De-growth, a Friendly Critique*.) For instance, given the above need for a possibly factor ten cut in per capita resource consumption a mere *reduction in scale within existing systems* cannot be the answer; it can only be achieved by change to radically different systems.

What then is the alternative?

The Simpler Way answer to this question has been detailed in various places and will only be briefly summarized here. (See TSW: The Alternative, Sustainable Society) The argument is that if the limits are as severe as has been outlined above then the only way to get the per capita resource use rates right down while ensuring a good quality of life for all is through transition mostly to settlements in which are core elements are;

- Communities that are small in scale, closely integrated, highly self-sufficient, running their own local economies through cooperative and participatory processes.

- Economies which enable local people to gear local resources to meeting needs, with low dependence on imports from the national economy. That means profit maximization would not drive these economies.
- Voluntary committees, co-operatives and working bees which develop and maintain infrastructures, harvest from community gardens etc.
- Mostly small community self government via town assemblies and participatory democratic processes.
- Mostly low intermediate and traditional technologies, e.g., much use of hand tools.
- High levels of community and social cohesion. No unemployment; all have a livelihood. Committees oversee areas such as aged care, youth welfare, water recycling, orchards, leisure provision.
- Extensive development of commons providing many free goods especially via "edible landscapes".
- Small scale and proximity enables integrated functions, e.g., kitchen scraps can go to nearby poultry, and animal manures can go to compost heaps, fish ponds and methane digesters, at negligible dollar, transport, energy and bureaucratic costs.
- Informal "work" and administration by community members eliminates much need for costly professional input, e.g., in aged care and education.
- Large cashless, free goods and gifting sectors.
- Little need for transport, enabling bicycle access to work and conversion of most suburban roads to commons.
- For many, the need to work for a monetary income only one or two days a week.
- Predominantly collectivist values, prioritizing the welfare of the locality.
- Above all, non-material sources of life satisfaction, contentment with frugal material "living standards".
- Beyond these settlements there would still be "state" bureaucracies dealing with for instance railways, some large scale and mass production industries, such as for steel and cement, universities to train professionals, and (small) cities. However their scale would be greatly reduced, although resources available for socially useful R and D could in fact be significantly increased.

Thousands of people now live in these kinds of conditions within the global Eco-village Movement. (See GEN). The government of Senegal is working to convert 1,400 villages to these principles. (St Onge, 2015.) The *Remaking Settlements* study (Trainer, 2019) derives estimates supporting the claim that these procedures could cut the energy, dollar and footprint costs typical of a Sydney suburb by more than 90%, while improving the quality of life. Reductions of this magnitude are achieved by the Dancing Rabbit Eco-village in Missouri (Lockyer, 2017.)

It is reasonable to ask whether this vision is viable given that half the world's people now live in cities. Can it be done in Tokyo? The first point to make is that it is our best option. It gives us a far better chance of shifting all people to sustainable and just ways than they have in Tokyo today. Secondly, the goal would be to defuse big cities by enabling many people to move to rural regions, establishing villages and towns on lands previously dominated by agribusiness. But Permaculture, urban agriculture and related approaches make possible remarkably high yields in densely populated areas, and in regions with poor soils by use of animals and plants and the recycling all nutrients including human "wastes". A fishing industry can be located in small backyard tanks throughout a neighbourhood. Rooftops, brick walls and concrete roads can be gardened by using containers. In a highly self-sufficient economy

most urban roads could be dug up and converted to gardens, ponds and orchards. These kinds of practices can make most of present city suburban areas viable. Community gardens in Havana produce 20 tonnes of food per ha. each year, twelve times the average Australian wheat yield. (Again for numerical reasoning see the *Remaking Settlements* study.)

The argument so far has been that when the discussion begins with an understanding of the situation in terms of biophysical limits, the logically inescapable conclusion is that only settlements of this general kind can enable a sustainable and just society. This transition goal contradicts those driving previous revolutions.

This society cannot solve the problems

The conventional assumption is that the problems can and will be solved by the institutions and processes of present society, such as by parliaments implementing effective policies in line with international agreements to cut carbon emissions, and ordinary people accepting legislated adjustments in their circumstances. But from the perspective of The Simpler Way this expectation is now clearly mistaken. Given the foregoing account of the magnitude and nature of the problems, the institutions and political process of this society are not capable of rationally facing up to and making the enormous and disruptive changes required. Consider the following reasons.

1. The enormity of the changes required

Even the De-growth literature generally fails to adequately represent the magnitude and difficulty of the reductions required. If rich world volumes of production and thus consumption of resources must be cut by up to 90%, then *most* of the present quantities of industry, transport, travel, construction, shopping, exporting, investing etc. has to be phased out. How is this going to be done? It cannot be a matter of closing a coal mine and transferring the workers to other jobs, because the amounts of production, work and jobs have to be cut dramatically. It would have to involve the creation and massive implementation of totally new social structures and procedures, whereby most people could live well without producing anywhere near so much as before. This could not be done unless it involved historically quite unprecedented and rapid cultural change, to widespread public understanding and acceptance of the extremely radically new systems and values, and a willingness to build and operate the new local systems.

2. There isn't time

Even if the understanding and the will existed, it is difficult to imagine that the required changes could be carried out in a few decades. They involve reversing what have been some of the fundamental drivers of Western civilization over the last two hundred years. Yet it is probable that the following three main global threats each give us no more than ten years if they cannot be eliminated.

2a. Carbon. According to various estimates the "carbon emission budget" associated with a 67% chance of limiting temperature rise to under 1.5 degrees will have been exhausted within about twelve years. (Levin, 2018, Steffen, 2020.) Many insist that this one in three chance of failure as far too high to accept. A more responsible target would significantly reduce the budget, and the time left to move off fossil fuels. Note also that these estimates do not take

into account the positive feedbacks, such as warming causing loss of snow causing absorption of more solar heat. Currently there are around 490 new coal-fired power stations being built, with 790 planned. (Global Coal Plant Tracker, 2020.)

By 2050 energy demand is likely to be around 890 EJ/y, 56% higher than at present. (Minqui, 2019.) Input from renewable sources would have to increase by 27 EJ/y but the current rate of increase is only 0.72 EJ/y. (Our World in Data, 2019.) This equates to building 1.5 million 2 MW wind turbines every year, costing over 6% of world GDP not including the cost of storage, grid strengthening etc. And plant built now will probably only last 20-25 years, half as long as coal-fired plant. It does not appear likely that satisfactory renewable energy solutions can be found for emissions from the heavy land transport, agriculture, fugitive, military, shipping and aircraft sectors. These numbers would seem to completely rule out any possibility that acceptable emissions targets can be met in the time available.

2b. Oil. It is likely that a major and permanent collapse in oil availability will occur, possibly within a decade. (Ahmed, 2017.) It is generally recognized that the availability of conventional petroleum peaked around 2005 and has declined significantly since then. World supply has continued to increase due to the remarkable rise in output from the advent of “fracking” in the US tight oil regions. However there are strong reasons for expecting this source to peak and decline soon. (Hughes 2016, Cunningham 2019, Whipple 2019, Cobb, 2019.) The major producers have not made a profit in any year of operation while accumulating a debt of over one quarter of a trillion dollars. It seems that an oil price high enough for producers to break even is too high for the economy to avoid recession. Unless there are major and unforeseen technical breakthroughs reducing costs, which are not thought to be likely, at some point in the near future lenders will probably cease providing capital.

In addition Ahmed (2017) presents a persuasive case that most Middle East oil producing nations are encountering such serious ecological, food, water, population growth and climate problems that their capacity to export could be largely eliminated within ten years. Meanwhile the amount of energy it takes to produce a barrel of oil is increasing significantly (Brockway, et al., 2019). Despite these alarming observations the precariousness and urgency of the petroleum situation is attracting little attention.

2c. Debt. After remaining more or less stable for two decades, global debt has doubled in the last two, is now equivalent to around three times global GDP, is far higher than before the GFC, and is regarded by various economists as inevitably bound to crash soon (Brown, 2018).

Many other biophysical difficulties are reducing the capacity of economies to deal with the accelerating problems tightening the limits noose, including water scarcity, fisheries decline, deteriorating mineral grades, accelerating costs of ecological disruption including climate change, agricultural soil damage and loss, ocean acidification, and sea rise. A holocaust of extinctions appears to have begun, now including insects and thus pollination of food crops. These and other factors will cut into the diminishing resources available to apply to solving system difficulties.

3. Existing political institutions are not capable of making changes of the magnitude required

Existing systems are reasonably good at making small changes. Elections are usually won by small margins so governments cannot afford to irritate significant numbers of voters or they will be thrown out. But they cannot adopt policies that go against the vital interests of significant sectors.

This situation is partly a consequence of the self-interested, competitive, individualistic ethos built into present cultural and political systems. Burdens are not shared appropriately but are typically left to groups least able to avoid them. Because dealing with the predicament effectively would be seen to involve painful adjustments on a massive scale people would be acutely sensitive to perceived inequities in the adjustments they were called upon to make. Fierce resistance, disputes and appeals would surely proliferate over the new options presented, the changes in locations, and especially the dramatically reduced levels of income, purchasing and consumption.

4. The problems interact, compound and positively feedback

Often solving one problem increases difficulties in other areas, especially energy demand. More importantly problems often have multiplicative interactive effects. For instance Ahmed's analysis of Middle Eastern oil producers shows how climate change, drought, rising temperatures, soil loss and rapid population growth are mutually reinforcing to generate intractable challenges for governments. Their declining capacity to cope leads to repression in an effort to contain discontent and maintain order, which feeds back to generate more discontent, further disrupting productive systems and capacity to cope.

Thus the difficulties now being experienced due to climate change are likely to be swamped soon by a tidal wave of many compounding positive feedback effects. Several analysts have detailed how the combined effects are likely to lead to sudden and catastrophic breakdown in the global economy. (For instance, Mason 2003, Korowicz, 2012, Morgan, 2013, Kunstler, 2005, Greer, 2005, Bardi, 2011 and Duncan 2013.)

5. Effective action could not be taken unless governments were predominantly "socialist"

The required massive restructuring could not be carried out unless powerful centralized states could drive them through despite strenuous resistance. As noted, current political systems usually determine that governments have only small electoral margins and thus are well designed for stability as they enable small sectors to block changes which threaten their interests. Needless to say it is not likely that widespread public readiness to accept "socialist" governments with the required powers to implement vast and unprecedented change is going to emerge in time, unless governments acquire very strong and authoritarian powers. It is not plausible that such governments with a De growth program could be elected within the present pro-growth and pro-"liberal" ethos.

Resistance can be expected to be especially fierce on the part of those with most to lose and most power to thwart De-growth, viz. the rich. A sufficient amount of De-growth would mean the elimination of most of the investment opportunities yielding their wealth. They own the media and the think tanks, (and it could be said the politicians to whose campaign funds they

have donated.) They have the power to move their factories overseas and thus devastate regions, currency values and trade balances if governments do not adopt policies that suit them. Many would say that the transnational corporate and banking elite have long since taken control of the global economy and will not, indeed cannot tolerate significant deviation from policies that maximize growth in profitable investment opportunities.

6. The conventional world view is oriented in the wrong direction

The dominant world view takes for granted that solutions to problems must involve high-tech "end of pipe" fixes that deal with the effects of unsustainable practices, as distinct from moving away from the practices that generate those effects. Proposals must not and need not interfere with growth. The automatic tendency is to go for more complex, energy and capital-intensive supply side technologies. Minerals getting scarce … then mine the moon.

The world view also takes it for granted that individual and national progress equals getting wealthier, that purchasing is the key to the good life, that competitive self-interest is socially progressive and collectivism is mistaken, that luxury and indulgence are attractive, and thus that frugality and self-sufficiency are not. Bigger houses are preferable to smaller ones, globalisation is desirable because it enables access to more and cheaper goods and services, if you can afford it then it is in order to consume it, travel is morally unproblematic, small farming is for peasants, the future of food is high-tech agribusiness preferably in multi-story greenhouses, intense specialization is the future so the Jack-of-all-trades will not be needed, simplicity and frugality are not fashionable and why repair it when you can throw it away and buy another one cheaply.

In addition modernity has developed structures and systems that would now make it extremely difficult if not impossible to implement the necessary solutions, notably evident in the city where high rise buildings and freeways have eliminated backyard fruit and vegetable gardening and have made energy-intensive transport, water, sewer, power etc. systems essential. Nations have become heavily dependent on trade to secure things they once made for themselves, meaning vast commitments to air and sea transport systems. Suburbs have become leisure deserts meaning that resort must be made to energy-intensive globalized sources, including international holiday travel.
.
Perhaps most problematic is the absence of any notion of ordinary people taking control over the running of their own neighbourhoods, suburbs and towns. Councils and state governments decide what is to be done and they look after maintenance and attend to any problems that arise. Post modernism focuses attention on trivia, predominantly electronic but also in the form of sport, fashion, Facebook gossip, movies, celebrities and spectaculars. Individuals consume fleeting thrills, which add to the factors distracting from any sense of collective concern to get together to do something about shared local problems. These taken for granted outlooks and predispositions constitute a mentality that is not conducive to the required transition.

But these reasons pale beside the one that is most significant.

7. The fundamental nature of the predicament and therefore what has to be done to solve it is not recognized

Few people have any understanding of the limits to growth situation and the need for large-scale De-growth. The almost universally held supreme goal among virtually all those in executive government and associated bureaucracies, in the economics profession, in the media, and by the general public, remains indubitable commitment to limitless increase in production and consumption. A now vast limits to growth literature accumulated over the past 50 years has heavily documented the self-destructive irrationality of this commitment, but the mainstream has more or less completely ignored it and has little or no awareness of the situation.

These considerations would seem to constitute a strong case that this society is not capable of dealing with the predicament. Thus the fundamental premise in Simpler Way transition theory is that there is no prospect of achieving transition to a sustainable and just society deliberately and rationally via official policy making institutions and processes. The only way the transition might be achieved will be discussed below.

The inadequacy of common transition theories

If the foregoing account is accepted little space needs to be given to assessing the merits of conventional and generally green thinking about transition strategy. These are not based on the realization that the limits to growth means there must be De-growth to some kind of simpler way, and they assume that the required changes can be achieved via the normal decision making processes of existing society. However more needs to be said about the socialist perspective, given that it derives from long established Marxist theory on social change.

What can we learn from Marxist transition theory?

From The Simpler Way perspective the answer is, much that helps us understand the situation, but unfortunately not much that is useful for this unique revolution. Marx's analysis of capitalism and its contradictions, dynamics and fate are of great importance, but his ideas on the revolutionary goal and the transition process are seriously mistaken, due primarily to the advent of limits.

But first some of the valuable insights. Possibly the most important one is Marx's view that capitalism has built into its foundations contradictions that will in time lead it to self-destruct. The most serious of these would seem to be that capitalism inevitably generates greater inequality. A few now possess most of the world's wealth while large numbers in even the richest countries struggle, and are not seeing significant increase in their incomes. Hence the rise of the discontent that has led to Brexit, Trump, right wing extremism and the French "Yellow vests". Thus it seems Marx was correct in saying capitalism would lead to increasing immiseration followed by trouble. Thus Marx provides important elements in Simpler Way transition theory, notably the notion that the dynamic built into the system's very nature will be the primary cause of its elimination.

Now what aspects of the transition issue do Marxists and the general Left get wrong. Unfortunately, from The Simpler Way perspective, just about all of them. Firstly they get the goal wrong. They have a long and unblemished record of striving to free the forces of production from the contradictions of the capitalist mode of production so that the throttles in the factories can be turned up enabling "…everyone to have a Mercedes." (This perspective is exemplified by Phillips, 2014.) The foregoing discussion shows that in most respects a satisfactory post-capitalist society must contradict the dominant socialist vision deriving from Marx. It cannot be capitalist but nor can it be highly industrialised, or state-centred or affluent or have a high or growing GDP.

When we turn to strategic implications almost all aspects of the standard "Marxist" vision can be seen to be mistaken. Firstly there is the dominant notion that the ruling class is to be overthrown by a determined vanguard party willing to use force to take state power, in order to then bring about the necessary changes. In most if not all revolutionary movements in recent history this was probably the correct and only option. But the goal in those cases was basically to take control over the productive apparatus and then to run it more effectively and justly, getting rid of the contradictions previously impeding output and distribution. However as explained above, that can no longer be the goal. It now has to be to reduce output and "living standards".

In addition that goal *cannot be achieved by the state*. It is a cultural problem, not primarily an economic or redistributive problem. It has to involve largely dismantling the existing industrial, trade, agricultural financial etc. systems and replacing them with smaller and radically different systems driven by citizens committed to radically new ideas and values. This cannot be done by force; it can only be achieved by people who understand and willingly accept simpler lifestyles and systems. The state cannot give or enforce the world view, values or dispositions without which such structural changes cannot be made. No amount of subsidies or information or secret police can make villagers cooperate enthusiastically and happily to plan and develop and run their thriving local economies.

Perhaps the major fault in Marx's view of transition was the complete failure to recognize the significance of this cultural factor. He saw transition solely as a matter of economics and power, of getting rid of the ruling class, of getting hold of state power and thus getting the capacity to force change through. As Avineri (1968) explains, he assumed that even after the state had been taken the masses would still hold the old capitalist world view, focused on better incomes, accepting bosses and alienating work conditions, being disciplined workers, being individualistic and competitive, and wanting affluence. Marx assumed that these dispositions could be attended to much later, during the slow transition from "socialism" to "communism". That might have made sense in a revolution involving violent takeover of industrial apparatus to be run by an authoritarian group intent on turning those throttles up, but it's not relevant to this revolution.

The Eco-socialist is strongly inclined to argue that if we had state power we could facilitate that change in consciousness, help people to see the need for localism, etc. But there is a major logical confusion here. No government with the required policy platform, one focused on transition to simpler systems and lifestyles and decimating the GDP, could get elected unless people in general had long before adopted the associated extremely new and radical world view. So the main task is to work on the development of that change in grass-roots consciousness, and if that succeeds to the point where the right kind of party is elected, the *revolution would have already been won*. The essence of this revolution is in the cultural

change, and if that is achieved then the taking of state power and the structural changes thereby enabled will best be seen as *consequences of* the revolution. Focusing on taking state power would not contribute much if at all to cultural change. This rejection of resort to force, power or violence, and turning to the awareness task is central in the strategic thinking of some notable Anarchists of the past, including Tolstoy, Gandhi and Kropotkin (Marshall, 1992).

Other criticisms of standard Marxist/socialist transition theory follow from this but will only be mentioned briefly here. One is the notion that capitalism must mature and be swept away before the new society can be built. However because the Simpler Way approach depends on the development of new ideas and values it must involve a period of slow emergence of these within the old system, and it does not assume that the scrapping of the old system is a step that has to be taken *prior to or separately from* building the new one.

The left has a fundamental faith in the importance and the role of the working class in the revolution. However there are a number of reasons why it is not likely to lead the coming revolution. Unfortunately the traditional class interests of workers in capitalist society do not align well with The Simpler Way. Workers are vitally dependent on wages and thus on the "health" of the economy. They are for better conditions, bigger pay packets enabling increased consumption, more jobs and production, more trade, a greater role for the state in running things, redistribution of wealth and provision of better "welfare" by the state. In general the working class is strongly in favour of economic growth.

This revolution is not just or primarily about liberating the worker from capitalism. It is about liberating all people from consumer-capitalist society. In addition, all people not just the working class, must be the revolutionary agents through their participation in and control of the development of the emerging new local communities.

Hence the major tactical principle would seem to be, "Do not confront capitalism". This contradicts the socialist's fundamental assumption that we must get rid of the old before the new can be built, on the rubble. However the historically unique situation we have now entered presents us with the need for a non-confrontational strategy, one that involves turning away and "ignoring capitalism to death". (This does not deny the need to confront over specific threats, such as to log a forest.)

Capitalism cannot survive if people do not continue to purchase, consume and throw away at an accelerating rate. The Simpler Way strategy (in the present early Stage 1 of the revolution; see below) is to gradually build the alternative practices and systems which will enable more and more people to move out of the mainstream, to spurn consumer society, and to secure more of their material and social needs from the alternative systems and sources emerging within their neighbourhoods and towns. The hope must be that people will come across to The Simpler Way because as the resource, ecological and financial crises intensify and seriously disrupt supply to their supermarkets they will increasingly come to realise that this is their best, indeed their only option.

The revolutionary left is strongly inclined to dismiss this approach as naïve, on the grounds that if threatened by alternatives the rich and powerful will crush deviants. However in an era of deteriorating resource availability and increasing disorder it is not obvious that ruling elites will find it easy to do this. It will not be a matter of turning the police and army on rioting workers but of preventing large numbers of people in scattered towns and suburbs from

organizing cooperative gardens and committees and working bees. Versions of this turning away strategy are increasingly being endorsed and practiced, for instance among the large scale Andean peasant movements, most notably the Zapatistas, and the Rojavan Kurds. (See also, Appfel-Marglin, 1998, p. 39; Relocalise, 2009; Mies and Shiva, 1993; Benholdt-Thompson and Mies; 1999, Korten, 1999, p. 262; Rude, 1998, p. 53; Quinn, 1999, pp. 95, 137.)

What will happen?

Following is an attempt to sketch the most likely trajectory ahead, leading to conclusions regarding the way a desirable outcome might be achieved.

The multi-factored limits noose will tighten, hopefully slowly but probably too quickly. Many of its elements are gathering momentum and compounding to increase difficulties towards a time of great and terminal troubles. As explained, the key determinants of our near-term fate are the future of fracking and of debt. Most likely is a relatively sudden end of the debt-fueled tight oil venture which triggers a global debt crisis and a far more serious and possibly terminal global economic collapse than GFC1.

Many analysts have tried to draw attention to where these limits are heading. Mason (2003) for instance sees the many problematic trends culminating in “The 2030 Spike”, the title of his book. As noted above, among those who discuss the multi-dimensional global breakdown likely to be brought on before long by limits and scarcity are Korowicz (2012), Morgan (2013), Kunstler (2005), Greer (2005), Bardi (2011) and Duncan (2013).

The next collapse might not be the final one; some foresee “… a long and bumpy road down”. Randers (2012) expects the time to troubles to be around 2070. However Ahmed (2017) Mason (2003) and others give reasons to expect it to be before 2030. The hope must be for a protracted Goldilocks depression, one that is not so severe as to destroy the chances of salvage, but savage enough to jolt people into recognizing that they must shift to local, cooperative and frugal self-sufficiency.

The situation will at best be confused and chaotic, with governments and “leaders” continuing to not understand causes and quick to blame the wrong things. The present tendencies to right-wing populism and fascism will gain momentum. Privileged classes will scramble to support repressive measures to restore order and protect their security and property. Angry lower classes will call for strong leaders willing to break rules. (A recent survey found this to already be true of a majority of UK people; Walker, 2019.) Capitalism will again morph into its fascist form. There will not be sober, clear headed rational thinking about causes and solutions. Governments will be even less capable of analyzing or dealing with the situation effectively than they are now.

The international possibilities are similarly disturbing. Dominant powers will become more energetic in their efforts to control sources of scarce resources and markets. Third world governments are likely to allow greater environmental destruction and to resort to increasingly repressive measures to control dissent over deteriorating living conditions (Ahmed, 2017).

It clear that even now before most of the above mentioned limits factors have impacted significantly the global economy is in trouble. Long term profit rates have been falling, interest

rates have been lowered almost to zero in a futile effort to kick start the economy, and the wheels have been kept turning primarily by taking out and "spending" astronomical amounts of debt. Collins (2019) points out that the economy has already shifted into a "catabolic" or "cannibalistic" phase. As the capacity to do good business producing and selling useful things deteriorates, investors turn to activities that plunder the economy. It is as if a hardware firm starts selling its own roofing iron. The illicit drug industry and the Mafia are similar; rather than producing new wealth the owners of capital turn to ways of extracting previously produced wealth. The rise to domination by the financial industry is part of the syndrome, enabling profits from the investment of ever-rising wealth to take the form of rents on assets and services.

The hope has to be that these events will force large numbers of people to realizing that the system is irretrievably broken and can never be restored, but far more importantly to see that their only option is to organise cooperative needs-focused local economies as fast as they can. Their circumstances should make it obvious that they must cooperate and work out how to convert their localities into gardens, workshops, co-ops, orchards etc. They will see that they must set up committees and working bees and town meetings to decide what it's best to do. Most important will be the enforced shift in mentality, from being passive recipients of government, accepting rule by distant officials, to collectively taking control of their own fate.

Similarly there will be a rapid shift in expectations as people realise that they cannot have their old resource-squandering self-indulgent affluence back. They will see that they will have to be content with what is sufficient, and will have to cooperate and prioritise the common good, and avoid competing as individuals for selfish goals. (Ironically it is very likely that the experienced community and quality of life will immediately improve.) Things like this are already happening where Neoliberalism has had its most destructive effects, for instance in Detroit, the Catalan region, and in Greece.

The pre-figurers

The chances of a satisfactory outcome have been greatly increased over the last three decades by the emergence of the Eco-village and Transition Towns movements. There are now thousands of people living in highly self-sufficient intentional communities, and involved in efforts to make their towns more self-sufficient, cooperative and self-governing. This practical phenomenon is being accompanied by a large literature elaborating the theoretical case for local alternatives.

Here probably for the first time in history we are seeing the rapid spread of a "utopian" practice, mostly among ordinary people in rich and poor regions. A remarkable example is provided by the Catalan Integral Cooperative involving thousands of people in activities explicitly designed not to have anything to do with the market or the state. (TSW: *The Catalan Integral Cooperative*.) As was mentioned above, in the Third World many more are involved in developments such as the Via Campesino peasant movement, and the establishment of Eco-Villages in Senegal.

This scene provides us with the answer to the general question of transition strategy. What is to be done? The answer is, build Eco-villages and Transition Towns. This is the Anarchist principle of "pre-figuring", that is, working on establishing the new systems here and now

within the old. Don't wait until the old system has been swept away and don't prioritise fighting head-on against it (Rai, 1995, p. 99; Pepper, 1996, pp. 36, 305; Bookchin, 1980, p. 263).

The point of pre-figuring can easily be misunderstood. It is not primarily to increase the number of post-revolutionary ways that exist, and the assumption is not that just setting up post-revolutionary arrangements one by one will lead to these eventually having replaced consumer-capitalist ways. The main point is educational/ideological. By becoming involved in the many emerging local initiatives activists are likely to be in the most effective position to acquaint participants and onlookers with the Simpler Way perspective, and with the need to eventually go on from the present localist preoccupations to the more distant Stage 2 problem of dealing with growth, the state, the market and the capitalist system. (See further below.) The point is in other words, cultural and educational. Establishing small examples of the radical new arrangements is likely to be the best way to help people to see the desirability of those ways, and to see the need to abandon conventional ideas, systems and values. Only when there is widespread acceptance of the new worldview will it be possible to make changes at the level of the state and the national and global economies.

Thus in this revolution it is necessary to think in terms of two stages. The focal concern in the present Stage 1 is slowly building in our towns a "Needs Driven Economy" under or beside the old "Profit Driven Economy", whereby people can devote local productive capacities to collectively meeting as many local needs as possible. The crucial sub-goal here is increasing the extent to which *citizens take control of* their town, as distinct from allowing their fate to be determined by distant politicians, bureaucrats, market forces and corporations.

Stage 2 of the revolution

Following is a brief indication of the direction the later events in the transition might take.

As local economies become more widespread and elaborate and as the global economy deteriorates it will become increasingly obvious that scarce national resources must be deliberately and rationally devoted to the production of basic necessities, as distinct from being left for market forces to allocate to the most profitable purposes. There will always be items that towns cannot produce for themselves. In general most of these can come from surrounding regions, including grain and dairy produce, tools and light machinery, various materials, appliances, glass and irrigation equipment (…although the *Remaking Settlements* study finds that surprisingly little would need to be imported from further afield.) However some will have to come from more distant sources such as steel and cement works. It will therefore be necessary for all towns and regions to be able to import these few but crucial items from the national economy, and to be able to produce some of them to export into it.

These conditions will generate the pressure that in time will force states to carry out revolutionary change in national economies. People will become acutely aware that scarce national resources must not be wasted but must be devoted to providing settlements and regions with the crucial materials and manufactures they cannot produce for themselves. This will require planning to distribute to all towns the opportunity to produce and export some few items, so that they can pay for their importation of those few they need. There will also be tasks and functions that must be planned and administered from the centre, such as allocating water use throughout a river basin, and facilitating the movement of workers from

moribund industries to new ones, again bearing in mind that the total volume of producing going on will have to be cut to a small fraction of the present amount.

Thus the survival imperatives emanating from the grass roots will force central governments to greatly increase intervention, planning, regulation and restructuring. It might at first sight seem that this means the emergence of or need for greatly increased state power. On the contrary it *is likely to be a process whereby power is taken away from the centre, and whereby citizens exercise increasing control over central governments, via their town assemblies.* The tone will shift from making requests on the state to making demands, and then to taking increasing power over the planning and decision making processes.
It will be increasingly recognized that the local is the only level where the right decisions for self-sufficient communities can be made. Thus the remnant state-level agencies will in time become controlled by and servants of the towns and regions, run via the typical Anarchist processes involving thoroughly participatory town self-government. Eventually all significant decisions including concerning national policies, will be made by town assemblies voting on options brought down to the town level from conferences of delegates from towns and regions (drawing on professional expertise where appropriate.)

The chances of the transition proceeding as has been outlined here are not at all promising, but the argument has been that this is the path that must be worked for. One of its merits is that it envisages a transition that could be entirely peaceful and non-authoritarian.

A major issue that has not been addressed in this account is the likely response to the coming breakdown by the capitalist class and its associates. Only brief reference can be made here to some relevant themes. The breakdown will write off vast amounts of debt, investment, corporations and assets, thus eliminating much of the capitalist class. (As in Anarchist Spain in the 1930s many bankrupt factory owners will be happy to join community collectives, transferring their assets to them.) What remains of capitalism will certainly attempt to shift to its fascist form, but resource scarcity along with drastically impoverished “effective demand” will thwart this. Many regions, especially in the Third World will be cut adrift as plantations, sweat shops and mines cease to be profitable, and thus will be liberated to follow the Zapatistas. Attempts to impose savage “austerity” on rich world masses are likely. The outcome will depend on the extent to which people have come to clearly understand that their fate depends on establishing localism. If its advocates and pre-figurers fail to spread the vision widely in the short time there is left to do this, then the longer term trajectory will be towards war lords semi-feudalism and large scale population die-off.

It should be evident that both the nature of the alternative society that has been sketched here, and the transition path to it, embody classical Anarchist principles. In the coming era of limits, scarcity and frugality only communities running on Anarchist principles can deliver a sustainable and just society, and the path to the establishment of those communities cannot be other than via pre-figuring and ordinary citizens in existing settlements building thoroughly participatory arrangements. Neither the new society nor the path to it can involve significant degrees of centralization. The appropriate world view is therefore Eco-Anarchism, rather than Eco-Socialism.

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BOOK REVIEW:

Degrowth: necessary, urgent and good for you

Kallis, G. Paulson, S. D'Alisa G. and Demaria, F. (2020) *The Case for Degrowth.* Cambridge: Polity Press, 151pp. (ppk) ISBN-13: 978-1-5095-3563-7. $12.95.

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Introduction

Some introductory context is required for the general reader to make sense of Kallis et al.'s important new book, *The Case for Degrowth* (Kallis et al., 2020). It is now widely recognized that we have entered a period of climate and ecological "emergency" leading to the existential possibility of "ecocide" (e.g. Ripple et al,. 2020; Lenton et al., 2020; Hansen et al., 2017; Steffen et al., 2018, 2015). Complacency and delay have been endemic (see Lamb et al., 2020; Oreskes and Conway, 2010). But it is also recognized that fundamental change is required in order to avert disaster (Spash, 2020a; Newall and Taylor, 2020; Fullbrook and Morgan, 2019; Gills and Morgan, 2020a). What we mean by "change", however, has remained in dispute. If we dispense with nuance for the moment, there are broadly three positions, each of which blends into the next based on relative emphasis and matters of degree, albeit with some greater disjuncture for the third position with which this essay is chiefly concerned.

First, there is the historically dominant position that has informed the majority of state discourses, COP negotiation and UNEP "line of least resistance" policy discussion over the past 30 years. This dominant position argues for gradual change based on mainly market led or market conforming processes and induced technological change. Over the years and as evidence of climate change and ecological damage has accumulated, this dominant position has transitioned to a modified variety of "business as usual", which anticipates massive redirection of investment and resources over the course of the century to solve "the climate problem" through "green growth". However, the anticipation is still that this massive redirection will be mainly price signalled and private sector led, with the state providing tax incentives and subsidies, regulation to facilitate change and some degree of "partnership". In this first position, green growth assimilates climate crisis as the latest opportunity for a profit-driven concept of progress.

There is a second position evolving out of the first, which also argues for tax incentives and subsidies, regulation to facilitate change and partnerships, but places greater emphasis on intervention, massive mobilisation of resources and ownership of productive assets by the state as the foundation of a new economy: a "Green New Deal" (GND) program. The concept of a GND is embraced to different degrees by different states, political parties and regional organizations and the term is thus vulnerable to rhetorical use and "greenwash" problems. As such adoption of the language of GND and variations on its policy framework merge into the first or historically dominant position: the EU has been working towards a GND (progressed by the European Council 2019 and by the European Parliament 2020 with an opt-out for

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Poland). Central to GNDs (and this has gained momentum since the Paris agreement) are decarbonisation strategies and targets for net zero GHG emissions by mid-century.[2] GNDs envisage a transformed energy and transport infrastructure based on electrification and renewables, major changes to agribusiness and land management (e.g. extensive tree planting) and a new manufacturing sector harnessing the latest ("fourth industrial revolution") technology to produce within a more "circular economy" for a more ecologically aware consumer, eating differently and living in new or retrofitted lower impact or climate resilient housing stock.

The more radical varieties of the second position are more critical of the historically dominant position. Advocates criticise the historically dominant position for its delays, complacency, and debilitating compromises and willingness to just keep talking whilst problems mount. The critique suggests the dominant approach does not go far enough, since it places too much emphasis on gradual, spontaneous and voluntary change – which, despite dominant position claims to the contrary, underplays the urgency and severity of the problems at hand, neglects the broader ecological issues that have arisen conjointly with the most high profile issue of greenhouse gas (GHG) emissions and most crucially, underplays *the role of corporate vested interests in creating delay and the potential role of the state* as a mobiliser of resources. It is this last feature that is central to the more radical versions of GNDs. Whilst the more conservative end of the first position associates green growth opportunity with modified business as usual, serving already existent corporate interests, the more radical variant of GND programs in the second position place great emphasis on climate crisis as an opportunity to address the cumulative pathologies of the last few decades of globalised neoliberalism. The list of pathologies is long: the creation of short-termist economies and societies with greater inequality, lower social and economic mobility, debt dependence, wage stagnation, precarious employment, underinvested public services and numerous fragmentations and socio-political fracture lines (structural racism etc.). The more radical version of the second position then, views climate and ecological "emergency" as an opportunity for renewal based on a greater role for the state and an equitable transition that provides a foundation for a transformed society and economy. Perhaps the best known of this variant is associated with the progressive wing of the Democrats in the USA (Alexandria Ocasio-Cortez and so forth).

However, there is a third position that is sceptical regarding the framing and adequacy of even the most radical of the progressive variants of the second position. In the last ten years the dominant position has begun to reframe as a "green growth" project and this has remained an explicit feature in much of the planning and justification of GNDs. Even the more radical variants of the second position tend to be vague, inconsistent or vacillating on this subject, at least in so far as they lack clarity on what "growth" means and whether there is evidence that "green growth" is feasible and thus compatible with the overriding goal of ensuring the future of our species. Green growth embraces the concept of growth as both the means to enable ongoing socio-economic transformation and as a consequence of successful

[2] Note: "net" zero versus full decarbonisation has also become an issue. For example, Anderson et al (2020: 2) state: "Paris-compliant carbon budgets for developed countries imply full decarbonisation of energy by 2035-40, necessitating a scale of change in physical infrastructure reminiscent of the post-Second World War Marshall Plan. This brings issues of values, measures of prosperity and socio-economic inequality to the fore. The stringency of Paris-compliant pathways severely limits the opportunity for inter-sectoral emissions trading. Consequently aviation, as with all sectors, will need to identify policies to reduce emissions to zero, directly or through the use of zero carbon fuels."

transformation. The third position – the growth sceptics[3] – share much of the more radical second position's perspective and aspirations, articulated as a "just transition" (for historic context of the concept see Newell and Simms, 2020). But they differ sharply over any implicit or explicit commitment to growth.

Perhaps the most prominent variety of the third position at the moment is the "degrowth" movement. For advocates of degrowth (as it is for other sceptics – see later) a growth system is *the* fundamental problem not an intrinsic aspect of solutions. Kallis et al. (2020) then, are as the title of their book suggests, making *The Case for Degrowth.* The subject is perhaps the most significant of our time and Kallis et al.'s contribution deserves to be widely read.

Before setting out the book's main argument and structure, since there are numerous misunderstandings, it is worth elaborating on what degrowth in general "is" – this draws partly on the book's first two chapters and appended "frequently asked questions" (Kallis et al., 2020: 1-42, 110-129) and other relevant sources (see e.g. Chertkovskya et al., 2019; Gerber, 2020; Hickel, 2020a; 2020b; 2019; Liegey and Nelson, 2020; Kallis, 2019; Kallis, 2018a, 2018b; 2011; D'Alisa et al., 2015; Demaria et al., 2013).

What is degrowth?

Advocates of degrowth distinguish *material* growth from *economic* growth. Material growth is the increasing use of matter and energy by societies, whilst economic growth is the increasing measured value (in exchange) of economic activity – typically measured as percentage change in GDP per year (for individual countries, but also as published regional and global statistics from the World Bank, IMF etc.). It is the form, scale and intensity of material activity that is responsible for adverse climate and ecological effects and it is continual material growth that pushes against planetary limits and exacerbates cumulative effects. It is material growth, therefore, that must ultimately be halted and reversed in order to address climate and ecological problems. However, though economic growth is distinguishable from material growth, a real economy is not an immaterial set of exchange values, it is a set of material processes undertaken to produce goods and provide services. One of the major flaws in mainstream economics is that measurement of material processes is not foundational to economic analysis. "Ecological economics", by contrast, starts from the premise that an economy is a material process and this involves thermodynamic consequences, entropy, waste creation, and basic bio-physical modification of the world – oriented on "throughput", "metabolic flow" etc. Advocates of degrowth then, tend to embrace an ecological economics position, albeit one must recognise that ecological economics encompasses a range of views (Spash, 2017); degrowth advocates, however, are *not* or not only ecological economists, though if they are they tend to constitute the more activist end of ecological economics and their position does not reduce merely to economics. As such, degrowth shares some concerns with (again with differences) social ecological economics (see Spash, 2020b) and there are also different terminologies with overlap – such as "postgrowth" (Koch, 2020; Buch-Hansen, 2018; Buchs and Koch, 2019; 2017).

[3] Though it may be more accurate to use the term growth realists in so far as they recognize we continue to act as though we had choices that are not really open to us (in so far as one can ever say anything concrete about the future). Perhaps the most prominent name associated with the critique of growthism over the years is Herman Daly (e.g. Daly 2015).

In any case, advocates of degrowth highlight that material growth and economic growth are analytically different but are in reality closely associated. Bigger economies measured by exchange value are greater users of matter and energy.[4] As such, advocates of degrowth argue that "dematerialisation" and "decoupling" are not supported by the evidence – there may be some relative reduction in matter and energy use per $GDP using some measures, but the overall tendency is for matter and energy use to grow as economies grow (Hickel and Kallis, 2019) and for carbon emissions to grow;[5] moreover, as economies grow then the scale of associated problems that must somehow be mitigated by innovation and technology likewise grows,[6] and whilst a more "circular economy" is desirable, a fully circular economy is thermodynamically impossible (akin to a perpetual motion machine) and cannot make observed *ever-expanding* land, sea and resource use feasible on a finite planet.[7] An economy is a subsystem operating within, yet capable of detrimentally impacting upon, basic earth-system dynamics.

So, for advocates of degrowth the scale and intensity of material activity associated with economies are *already* too great on a planetary level and must be reduced to sustainable levels. Clearly, in a world of inequality within countries and inequality between countries (one of "uneven development") this immediately invites questions regarding where and what to reduce, and we will return to this below. What needs to be emphasised first (for clarity) is that advocates of degrowth place great emphasis on the generalised commitment to growth – "growthism" – as *the* foundational problem of contemporary socio-economies. In *The Case for Degrowth*, for example, Kallis et al introduce the simple and arresting observation that a system predicated on continual economic (and thus material) growth targets a percentage increase in the economy *every* year and whilst the percentage may seem small to a member of the public the compounding effect is significant: 3% per year doubles an economy every 24 years, quadruples it every 48 years and increases it 16 fold over a century (Kallis et al., 2020: 12-13, 24-25). Moreover, this expansionary drive is not confined to one country, but rather propagated from one country to the next as industrialised-consumption economies spread and evolve.

The main target of the growthist critique is actually existing economies and so the main target is what we typically refer to as capitalist economy. To be clear, the degrowth critique is not incompatible with discussion of nuance related to "varieties of capitalism", the "developmental state" etc. nor does it simply assume a command economy is preferable to a market one, if

[4]The UN International Resource Panel Global Materials Flow Database (1970-2017) provides extensive evidence that establishes that global material use remains high:
https://www.resourcepanel.org/global-material-flows-database
On "material flows" see also Wiedmann et al 2015.

[5] As Fletcher and Rammelt note (2017: 451), the decoupling concept was introduced by the OECD in 2001, initially assimilated by the UNEP via its International Resource Panel in 2007 and widely disseminated through the UNEP in 2011 via the report *Decoupling natural resource use and environmental impacts from economic growth* (as a precursor to Rio+20 in 2012). For data contesting various aspects of decoupling see Keen 2020; Schröder and Storm 2020; Parrique et al. 2019.

[6] The range of ecologically destructive activity includes patterns of: intensive agriculture, industrial scale fishing, industrial scale extraction of minerals, gas and oil, growing global energy demand, global vehicle ownership and manufacturing output as well as continual waste disposal for plastics, pesticides, cosmetics, fertilizers, food waste, heavy metals, and medicines.

[7] See analysis from the IPCC (2019a and 2019b). For example, agricultural land use is a major cause of emissions and climate change. 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.

continuous growth is the basis of that system.[8] The overriding issue is that a growth system is deeply problematic because it necessarily comes up against real limits imposed by the world (confirmed by climatologists, earth system scientists etc; see Ripple et al., 2020; Lenton et al., 2020; Hansen et al., 2017; Steffen et al., 2018; 2015).[9] However, advocates of degrowth also argue that a growth system is historically aberrational – a dangerous or reckless *exception* to how we have lived previously (and some still live today) – but an exception that has successfully been naturalised, and the main focus here is capitalist market economy, since this is most prevalent.[10] Advocates of degrowth emphasise that the idea of growth has become a kind of worldview or socialised "common sense" that works to obscure the implications of pursuing perpetual growth. Ideologically, we are encouraged to associate growth with progress and to think of growth as the basis of innovation, technological change, improved livelihoods and more choice, despite that none of these features *necessarily* require continual material expansion – and especially on a planetary level. Furthermore, degrowth advocates tend to argue that for the kinds of real economies that dominate, the absence of economic growth is not a designed "steady state". The absence of economic growth is not stable – it is stagnation, recession depression and crisis. As such, advocates of degrowth point out that our economies are predicated on *stability as growth,* which is a profoundly unstable dynamic.

From a degrowth perspective, various factors have come together to reproduce growthism as "common sense" – corporations in competition (even though they may be suppressing competition as they expand), employment creation through proliferation (e.g. planned obsolescence), populations encouraged to consume for identity purposes, governments focused on GDP metrics, and a whole set of information, persuasion and knowledge producing disciplines and practices that valorise the system as is and implicitly or explicitly associate continual growth and progress – naturalising the unnatural or exceptional and obscuring the fundamental problem of limits. In this context, mainstream economics plays a prominent role as a source of concepts and theory, of policy and of education.[11] Advocates of degrowth, by contrast, as well as embracing (with caveats) ecological economics, tend also to advocate a more social and conditional idea of an economy based on "provisioning". Andrew Sayer (in a different context than degrowth) summarises this perspective as:

[8] Though the transition from socialist command economy to capitalist mixed economy (with highly specific characteristics in China's case) is itself problematic, as growth sceptic Richard Smith argues (see e.g. Smith 2016).

[9] And for statement on cumulative failure of emissions policy see UNEP emissions gap analysis. For example, UNEP, 2019; Christensen and Olhoff, 2019. Note also that argument that suggests there have been previous periods of rapid warming tend to underplay the difference that anthropic interference makes in the modern period (as well as the vulnerability of human civilization). It is true that the end of the Paleocene and beginning of the Eocene 50 million years ago was marked by a rapid rise in atmospheric GHGs and global temperature, with changes occurring over perhaps 1000 years and persisting for around 100,000 years. This did result in widespread extinctions but also rapid evolution. However, our own situation is not equivalent i.e. liable to solve itself, since the causes are not time limited in necessarily reversable systemic transmissions. As Lenton et al. (2020) note, we are either imminently approaching or may have already exceeded 9 critical climate tipping points. This is in the context of problems of: deforestation, water table depletion, eutrophication and rising toxicities in soil and air, desertification, rapid species extinction and general loss of biodiversity on land and sea, disruption and destruction of ecosystems, melting ice sheets, sea level rises, increasingly erratic weather patterns and extreme weather events.

[10] To be clear, degrowth activists are not the only ones to identify growth as historically aberrational and problematic; see Spash 2020a; 2020b; Dale 2012.

[11] For general ecological economics critique see also O'Neill 2007; Söderbaum, 2018; Røpke, 2020; Gills and Morgan, 2020b; Morgan, 2015. For a different perspective see Bacevic (2020).

> "Most basically, we need to remember something that has been forgotten in modern mainstream economics: economics is about *provisioning*. As anthropologists and feminist economists have reminded us, it's about how societies provide themselves with the wherewithal to live. Provisioning requires *work* – producing goods, from food and shelter through to clothes and newspapers, and services, such as teaching, providing advice and information, and care work. Almost all provisioning involves social relations between people, as producers, consumers, owners, lenders, borrowers and so on. It's through these relations that provisioning is organised. Some kinds of provisioning take place through markets; some do not. The market/non-market boundary does not define the edge of the economy: unpaid work [contributes]" (Sayer, 2015: 20-21).

This is a more wide-ranging perspective regarding the purpose of an economy – it avoids immediate reduction that associates markets, wage labor, material-economic growth and progress. A provisioning perspective is more compatible with a needs based, human flourishing and capabilities approach to an economy. It opens up a more conditional and qualitative set of questions or inquiries focused on how and what we provision and this contrasts with the inversion that underpins contemporary economy (the economy becomes the monster we feed… and it is written about as an objective entity whose needs must be met even if that involves sacrifice – to mix metaphors, a treadmill where, for example, it becomes patriotic to go out and spend and consume for no other purpose than that the kinds of economies we have created require this). An emphasis on provisioning, of course, is not an exclusively degrowth position anymore than ecological economics and degrowth are the same, but that is not the point. Provisioning is a discursive feature of degrowth.

However, whilst degrowth is increasingly a field of study, it is important to remember that its origins are more political, rooted in social movement critique of capitalism and the exploitations of capitalist developmental policy. The term degrowth thus has a history, as Liegey and Nelson note:

> "[It is in the] context of heightened debate and widespread dismay that the degrowth movement sprang to life in Europe and spread further afield. The term '*décroissance*', later translated into 'degrowth' in English, began as a provocative slogan used by activists in the early 2000s. The French political scientist and editor Paul Ariès has referred to degrowth as a 'missile word', intentionally making people question the "growth is good and more growth better" flag under which all nations seemed to have united in economic terms. In strict translations of '*décroissance*', going beyond growth means reducing or decreasing. Proponents focus on reducing environmental use and abuse, yet degrowth is, at once, both a qualitative and a quantitative concept. The qualitative dimension is captured in concepts such as "frugal abundance", which connects 'conviviality' – enjoying one another's company and acting in solidarity – with valuing the richness of simplicity as in 'small is beautiful'. Beyond significant misunderstandings arising externally, degrowth has developed multiple meanings and nuances within the activist movement campaigning for it. Most significantly, the word 'degrowth' has misled to the extent that its prefix and association with words such as *de*cline and *di*minish seem to indicate that *de*growth means austerity, puritanism and even poverty. The minimalist simple-living aspect of degrowth seems to confirm such

> suspicions. Especially since the global financial crisis broke during 2007–8, with persisting consequences, degrowth sounds unsettling. In contrast, degrowth theorists and activists see degrowth as establishing secure and safe lives, fulfilling everyone's needs in collaborative and collective ways, as celebratory and convivial. The degrowth principle of living within Earth's regenerative limits in socially equitable and collectively supportive ways addresses both global and environmental crises" (Liegey and Nelson 2020: 2-3).[12]

So, whilst degrowth advocates tend to question the naturalisation of growth and objectification of an economy as though we had no alternative, they do highlight the structural conditions that lead to exploitation in the name of progress. For example, Gerber states:

> "The ideology of growth – or growthism – is at the core of capitalism. Growthism sustains capitalism politically because it allows avoiding redistribution by giving the impression that everyone will continually benefit from it. Growthism pacifies class struggle while justifying existing structures of inequality… In the West, growth was instrumental to diffuse demands of the workers' movement, in the East, to excuse the lack of democracy and worker control, and in the South, to justify dispossession and extractivism. Today, GDP growth remains the key stabilising mechanism of capitalist economies" (Gerber 2020: 237).[13]

And degrowth advocates emphasise that "growthism" depoliticizes key issues in a neoliberal context. According to Demaria et al., degrowth is about re-politicisation:

> "The contemporary context of neo-liberal capitalism appears as a post-political condition, meaning a political formation that forecloses the political and prevents the politicisation of particular demands. Within this context, degrowth is an attempt to re-politicise the debate on the much needed socio-ecological transformation, affirming dissidence with the current world representations and searching for alternative ones. Along these lines,

[12] As Demaria et al. (2013) note and Gerber (2020) summarises: "There are four immediate sources to the modern notion of degrowth: first, the radical western environmental movement of the 1960s and 70s, with two famous women in particular, Rachel Carson who wrote *Silent Spring* in 1962 and Donella Meadows who coordinated *The Limits to Growth* report in 1972; second, the political, cultural and existential critique of capitalist modernity, as in the works of Erich Fromm and Cornelius Castoriadis; third, the heterodox current of ecological economics, and particularly the work of Nicholas Georgescu-Roegen…; and fourth, the critique of 'development' seen not as a liberation process but as the continuation of western capitalist hegemony, with the works of Arturo Escobar or Ivan Illich." (Gerber, 2020: 238)

[13] Again, this is an argument broadly shared by other growth sceptics. For example, Spash, 2020a: "The globalisation of this capitalist form of economic structure means domination of resource rich regions for extraction, control of ecosystems for productivist ends (goods and services) and social dependency on monetary flows. Within countries resource extraction wins over indigenous peoples' rights and Nature. This is the case in both the global South and North. German brown coal (lignite) extraction has destroyed much of the remnant of ancient Hambach forest while also evicting residents and destroying whole towns. Native Americans in Canada have suffered from tar sands extraction and in the USA lost against fossil fuels interests building oil and gas pipelines (e.g. Standing Rock protests against the Dakota Access Pipeline). Alternative economies and ways of social provisioning by indigenous communities are typically regarded as backward and unprogressive and their values derided. The economic rhetoric is about production, consumption, competition, innovation and government operating to support growth in corporate profits."

> degrowth is a critique of the current development hegemony" (Demaria et al., 2013: 192).

This emphasis on systemic critique of the ideology of growth contrasts sharply with mainstream economics. Mainstream economics is an anodyne tale of growth expressed as dynamic efficiency achieved through markets – framed as an ahistorical concept, *the* "market". A cluster of theories and concepts are deployed to support the position: comparative advantage in trade, total factor productivity growth models and their descendants etc. and perhaps most influentially, the familiar narrative of mutually beneficial "globalization". Advocates of degrowth look at this very differently. If one looks beyond some simple and often misleading metrics (such as Branko Milanovic's "elephant curve"), "development" around the world has been to the detriment of both the environment and much of the population on a state basis (e.g. Hickel, 2018; 2017). The *historical* market and *historical* globalization have depended on exploitation of peoples and places (taking in slavery, imperialism and empire as well as modern corporate practices) – much of this is articulated under the heading of "extractivism" (from natural resources to flows of debt servicing). Moreover, in the contemporary period, the environmental and human costs of trying to keep continuous growth going have been great (everything from plastics in the sea to financialised debt-dependency and the acknowledged post financial crisis vulnerabilities exposed by the Covid-19 pandemic). Degrowth then, is *not* the latest global North (if well-intentioned) demand that the global South sacrifice in order to save the planet and, conveniently, safeguard the greater living standards of the global North (Hickel, 2020a; 2020b; 2019). Degrowth (again, an argument shared by many growth sceptics e.g. O'Neill et al., 2018; Dietz and O'Neill, 2013) makes the case that we can all live differently whilst achieving better livelihoods, and one key strand in this is bringing a halt to exploitative economic relations.

To summarise, degrowth is a subset of the growth sceptic position, which draws on ecological economics for its approach to the materiality of economies, but places this in a more activist context of politicised critique of growthism and "development". It highlights the aberrational nature and adverse consequences of continuous growth as a systemic goal, emphasizes the ideological function of growth and the perpetuated inequalities, harms and exploitations of actually existing economies. The inference drawn by advocates of degrowth is that an end to growthism is not just an ecological and climatological imperative, it is from the point of view of wellbeing, a desirable civilizational change. Hence the title of this essay, "Degrowth: necessary, urgent and good for you". Degrowth then, embraces an ethos of "doing less with less", of "slower by design", but aspires to "high living standards based on lower resource use" – improving rather than sacrificing life expectancies, basic care services and quality of living.[14] Intrinsic to this is controlled lower throughput and the overwhelming likelihood of lower GDP (at least if we use current priorities and ways of measuring value as the benchmark). However, for its advocates degrowth is not just one change, it is many, degrowth looks to historic alternative patterns of living and organization *and* the potentials created by science, technology etc. for inspiration. This brings us to Kallis et al's *The Case for Degrowth* and its main themes.

[14] To labour the point, advocates of degrowth are not the only ones to argue for this and use this language. Julia Steinberger, for example, discussed this at a recent panel bringing together ecological economists and degrowth activists at the September 2020 "Economy and Livelihoods after Covid-19" event, hosted by Manchester University and administered by Mark H. Burton https://www.resilience.org/resilience-author/mark-burton-2/

The Case for degrowth

The first two chapters of *The Case for Degrowth* deal with the issues I have just set out, but do so in a ranging and conversational rather than concise and systematic sense. This is in keeping with the overall purpose of the book, which is to provide an engaging and readable introduction to key themes (the book is published in Polity's "Case for" series and these are all similarly accessible). The underlying purpose of the book, however, is to emphasise the constructive potential of degrowth (why we might prefer different ways of living) and the many practical policies and changes to how we live that can be turned to its primary goals (since many changes do not necessitate degrowth but are claimed to be compatible with it). As such, the book is conceived as a working document intended to encourage organising and positivity, rather than dwell on the many problems that are the reasons why degrowth is now of interest (for reading and comment on that see the previous section). This, of course, makes the book a discursive (in the Gramscian sense of "war of position") counter to the grip the ideology of growthism has on contemporary thinking, a point intrinsic to the opening statement of Chapter Three, "Narratives that dominate contemporary life make it easier to imagine the end of the world, even the end of capitalism, than the end of growth" (Kallis et al., 2020: 44), as well as the main material of the chapter and the next, which explore how degrowth can be built from the "ground up". Statements from the final chapter reinforce the point:

> "[I]n relation to other scenarios on the horizon, we are convinced that degrowth is a more humane and equitable path forward… [But] You still might not be convinced that a politics of degrowth is feasible. We have our doubts too… [Still] There is no technological or policy fix that can generalize to nine billion people the material standard of living currently enjoyed by a minority at high cost to others… [and] The most immediate case for degrowth that we try to communicate in this book is that a modest life based on cooperation and sharing is desirable in and of itself… The case for degrowth is not about martyred self-denial or constraining human potential; it is about reorienting socio-economies to support collaborative and creative construction of lives that are pleasurable, healthy, satisfying and sustainable for more people and more places" (Kallis et al.: 106 and 108-109)

The authors emphasise that it is important to avoid self-righteous climate "purist" accusations of "hypocrisy", since this may inadvertently lead to reactionary reinforcement of the status quo i.e. demanding all actions are fully consistent may paralyse progress: "Short of abandoning everything to live in a cave, none of us can try out options without contradicting existing lifestyles designed to facilitate growth" (Kallis et al. 2020: 49). Chapter Three makes several main points:

- "Taking personal action is a first step toward building societies that implement needed changes in policies and institutions," (Kallis et al., 2020: 51). However:
- Some options may not be initially available or widely available, but changes initiated by a few can create grounds for changes for the many, either by local organic adoption or by cumulative change, which places pressure on authorities to respond through changes to regulation, planning, finance and resource priorities. So, local communal cooperative initiatives affect land use and attitudes (cultivating garden

spaces for food, distributing locally, organising access and localised transport options, such as cycleways etc; Kallis et al., 2020: 53).[15] These initiatives can:

- Coevolve as an increasingly co-ordinated set of mutually supportive changes (a degrowth conducive community ecosystem). For example, the creation of credit unions, adoption of local currencies that can be exchanged locally for goods and services, which, in turn, can broaden the scope for small scale employment opportunities that can be specifically focused on identified local need.

In this way more of the sum of activity can be focused on local scale provisioning, meaning that a wider range of things that matter to people are actualised – care and community and so forth. Clearly, none of this is particularly original. Much of it is familiar from anarcho-syndicalism and similar community-oriented projects. But originality is not the point – plausibility and persuasion are the intention. For advocates of degrowth there are immediate and feasible (hence realistic) options that start to shift the balance from private propertied activity overwhelmingly focused on profit, to "commons" activity that foregrounds collective wellbeing and support. It is perhaps also worth noting (though Kallis et al do not) that according to the International Co-operative Alliance in September 2020:[16]

- More than 12% of humanity are part of the 3 million cooperatives in the world.
- The largest 300 cooperatives and mutuals report a total turnover of 2,034.98 billion USD, according to the World Cooperative Monitor (2019).
- Cooperatives contribute to the sustainable economic growth and stable, quality employment, employing 280 million people across the globe, in other words, 10% of the world's employed population.

As the statement suggests, cooperatives are not by definition degrowth, nor are they necessarily all unequivocally oriented on climate and ecologically beneficial activity. But as Kallis et al. argue, whilst cooperatives, commons &c activities are not necessarily degrowth-focused, they are, arguably, far more conducive to its concerns and realisation.[17] Many initiatives produce less negative socio-ecological impacts (lower material and energy use etc.) because they are intrinsically slower by design, localised, and focused on quality of living. Moreover, whilst such activity is radically different from the ideological core of capitalist market economy and may be absent in some places, it is *not* totally new.[18] Though advocates

[15] A suggestion compatible with the concept of the "15 minute city".
[16] https://www.ica.coop/en/cooperatives/facts-and-figures
[17] Degrowth then, is definitely critical of contemporary capitalism, but it is more questionable whether it is necessarily anti-capitalist. Clearly, many adherents are liable to be anti-capitalist, but whether in fact the *implication* of degrowth is fundamentally contra-capitalism depends on whether a hybrid system with smaller scale capitalist relations and a steady state focus is possible (and this seems to be something of an open question in degrowth circles). For example, advocates of degrowth sometimes argue the question is moot – "capitalism as it currently is seems incompatible and it is this with which we must contend to solve the climate crisis" – what evolves from this will depend on how solutions develop and thus on what emerges – solving the problems seems more important than worrying about what we call this. This, of course, is a reasonable response, but not a theory articulated answer. There is also an organising imperative here – do degrowth advocates want to alienate potential allies (an issue currently plaguing Extinction Rebellion, which is experiencing a concerted media campaign to delegitimise them based on the "fellow traveller" and co-option-subversion by "sinister forces" accusation)? See conclusion.
[18] "[G]lobalization of one monoculture based on selfish competition seems to have undermined myriad forms of mutual aid that have propelled social evolution throughout history." (Kallis et al., 2020: 55). However, one should not romanticise established or past practices just because they are community-oriented (they may still be hostile exclusionary, oppressive to members, racist sexist and classist… (Kallis et al., 2020: 60-1)

argue that the intention is to create cross-fertilising cumulative effects (self-sustaining community ecosystems) the types of projects and activities engaged in do not need to be invented anew every time. There are actually existing examples that are already working somewhere in the world (reinforcing the point that how people live does not and need not necessarily coincide with the archetype of the capitalist individuated consumer primed to participate in a growth system). The book highlights many examples that can be drawn on. Since several of the authors live and work in Barcelona the book pays particular attention to the Catalan cooperative movement, but also highlights Latin American agroecology organizations, traditional community activity and the possibilities created by new technology: Farmhack, Wikihouse, OpenBionics, RepRep etc. The book notes examples rather than explores any in detail and is intended to be illustrative rather than comprehensive (and there are numerous other contexts, practices, problems and discussions around the world one might refer to; see, for example, on degrowth, Lockyer, 2017; Nirmal et al., 2019; and more generally, Schiffer, 2020a; 2020b; Schiffer et al., 2019).

The authors are also clear that they do not expect to solve all problems with these localised community changes.[19] The point is to begin to realise changes where communities "rather than addressing grievances to distant power-holders, they become participants in building conditions in which they want to live" (Kallis et al., 2020: 63). This is not instead of political pressure at greater scales, but in conjunction with it. The main material set out in Chapters Three and Four is oriented by the perspective that systemic change can be based on multiple, incremental and experimental changes that shift the balance of activity within currently existing societies, providing exemplars and momentum for transformation of those societies. Activity can be personal, communal and more traditionally macro-political (advocating and working for changes at *all* scales). Chapter Four sets out five "policy packages" that collectively facilitate "path-breaking" reform:[20]

1. Green New Deal programs (GNDs): advocates of degrowth add the caveat that these must abandon GDP growth as a primary goal, ensure that GNDs are consistent with material activity measures (a "less with less" approach) and ought to place emphasis on decent wages and conditions, since this is one way to achieve a more general possibility of:
2. Reduced working hours per worker: a goal that recognises that stagnating wages, reduced collective rights, enduring precarious conditions and periodic austerity and crisis lead to longer working hours in ostensibly wealthy countries, which reduces the potential for populations to work less and differently; moreover, much of current work is not needs based in a social provisioning sense, it is administration for administration's sake, planned obsolescence and overproduction for superfluous consumption. Fewer working hours per person allows more employment without necessarily more output in a context where "The less we work, the less we produce and consume, and the more time we have for non-monetized activities – including leisure, caring and community engagement – that help to establish healthy and resilient societies" (Kallis et al., 2020: 77). Furthermore, there is scope to assimilate Artificial Intelligence, automation etc. beneficially, *if* the socio-economic context of these does not reduce to competitive displacement, but rather liberates people from

[19] They ask the question: "Are we proposing to feed [a future] nine billion people with urban gardens, lodge everyone in co-housing and raise the world's children in neighbourhood circles?" (Kallis et al., 2020: 58) and reply "no".
[20] NB: I have reordered the five to facilitate concise linking of content and claims.

work.[21] This, in turn, may create scope for and depend to some degree on the development of:

3. Commons prioritising government policy: instead of (only) facilitating traditional marketised commerce and business, government could do more to encourage the community ecosystems set out in Chapter Three (the previously suggested scope for changes to regulation, planning, finance and resource priorities of government – subsidies, tax breaks, seed capital, resource transfer, contract prioritisations etc).[22] Both reduced working hours and preference for "commoning" can be supported by (which can be included in GNDs for the purpose of):
4. The introduction of "universal" mechanisms to support provisioning as alternatives to market mechanisms: Universal Basic Income (UBI), Universal Basic Services (UBS – universal education, healthcare, housing and public transport) and Universal Basic Care (UBC – recognition of the social and economic value of otherwise unpaid activity that is fundamental to any adequately functioning society).[23] This, in turn, can be facilitated by:
5. Reform to public finance: a focus on fiscal priorities and forms of financing that greens and equalizes.

It should be clear that these five are conceived as mutually supportive. The intent is to shift the focus towards livelihoods and quality of life. Public finance is perhaps the critical lever, since what money "is", how money is "created" and what it is created "for" or to "do" are core issues that divide economics in terms of theory and in terms of practical possibility. The authors do not give any detail here, but it is worth noting that radical GND proposals are supported by proponents of Modern Monetary Theory (MMT) and variants of "post Keynesian" finance. These reject the mainstream loanable funds theory of money and finance (see Fullbrook and Morgan 2020). The authors of *The Case for Degrowth* do, however, make reference to "positive money" in a statement that summarises some financing and spending commitments:

> "Fundamental among these are proposals for changing money systems by limiting the domain of general purpose money, creating positive (or public) money, forbidding private banks to create new money through loans, and supporting community currencies and time-banks. Also basic are policies for the transformation of food systems to reduce waste, transitions away from meat-heavy diets, and the promotion of agroecology and community-supported agriculture" (Kallis et al., 2020: 82).[24]

And, of course, there are various matching statements regarding what the authors wish to *prevent* through policy, notably they advocate a moratorium on new fossil fuel development, a ban on fossil fuel advertising, and a phase out of fossil fuel production, matched to "just

[21] For background see Morgan (2019).
[22] Focusing especially on sanitation, health and social care and education and housing. Also including, for example, the strategic use of government procurement options and also anchor institutions such as universities, as well as investment in public buildings and social housing.
[23] As the authors' note, UBI could be provided to OECD country adults set at 15-22.5% of average per capita income funded by moderate tax increase to richest 10-15% plus benefit reductions replaced by UBI; according to London University Global Prosperity Institute, UBS provision of housing, food, internet and transport would require 2.3% of UK GDP.
[24] For some discussion of positive money and ecological issues etc. see Barmes and Boait (2020) and Mark H. Burton's response: https://steadystatemanchester.net/2020/06/30/taking-the-imperative-out-of-growth/

transition" policies.[25] Finally, this brings us to the authors views on strategy in Chapter Five. Here the book draws on Erik Olin Wright's 3 strategies of transformation: "interstitial" (building alternatives *within* the current system as opportunity allows); "symbiotic" (working *with* available systems to reform them) and "ruptural" (working *against* and thus disrupting dominant systems). It should be clear that these follow from and support the general direction of travel advocated by the authors: multiple, incremental, cumulative change with the goal of creating momentum for socio-economic transformation (essentially a tipping point approach).

Conclusion

No single work can possibly make *the* case for degrowth and *The Case* as a book is more by way of a preliminary "a case", but is no less important for that. Kallis et al. do however succeed in presenting an accessible argument that achieves two important things. First, as with much of the degrowth literature (and growth sceptic literature in general) it brings to the fore just how aberrational our idea of normal is. *Continual growth* (as we currently conceive of this) as the systemic "normal" is *abnormal*, our "common sense" is *insane*. The truth of this hides in plain sight and it is an uncomfortable truth.[26] As such, *The Case for Degrowth* provides a useful campaigning text for groups like Extinction Rebellion or Stay Grounded.[27] Second, the book is a timely reminder, as the Covid-19 pandemic diffuses around the world with likely terrible social, economic and human cost, that there is a positive case for degrowth, not just a climate and ecological imperative. As such, *The Case for Degrowth* (noting its pandemic focused Preface) might usefully be read in conjunction with Jason Hickel's recent paper summarising the difference between crisis/recession and degrowth. As he suggests:

> "We have different words for recession and degrowth because they are different things. Recessions happen when growth-dependent economies stop growing: it is a disaster that ruins people's lives and exacerbates injustices. Degrowth calls for a different kind of economy altogether: an economy that does not require growth in the first place, and which can deliver justice and well-being without growth" (Hickel, 2020a: 4).

He highlights 6 related contrasts (Hickel, 2020a: 4):

1. Recessions are unintended, degrowth concerns planned, coherent policy.
2. Degrowth targets less necessary and more harmful economic activity, recessions do not.
3. Recessions create unemployment and damage livelihoods, degrowth redirects resources and seeks just transitions, whilst generally focusing on improved livelihoods.
4. Recessions tend to exacerbate inequality (wealth and income), whilst degrowth seeks to reduce inequality, sharing national and global income more fairly.
5. Recessions typically lead to austerity in which public goods and services suffer, degrowth looks to "decommodify" foundational goods.

[25] All issues compatible with addressing inequality and achieving Paris Agreement goals (see Cabello and Gilbertson, 2015; Morgan, 2017; 2016).
[26] There are many persons and groups undertaking parallel research or involved in campaigns and activism directed at the fundamental issues. For example, Anderson and Goodman (2020); Anderson and Shuttleworth (2020); Ganguly et al (2018); Dale (2020); Brand-Correa and Steinberger (2017).
[27] Stay Grounded campaign to reduce the aviation sector and "build a climate-just transport system" https://stay-grounded.org. See, for example, Smith (2019). On issues of electric transport see Morgan (2020).

6. Degrowth advocates rapid transition to renewable energy and reversal of ecological breakdown, recession typically cause such policy to be abandoned based on short term overriding concern to "get growth going".

Clearly, degrowth and similar projects may be our best alternative to unplanned socio-economic breakdown as the century progresses. Much of the onus for this change lies with the wealthiest countries, since they are responsible for the vast majority of resource use (either directly in domestic use or indirectly based on outsourced supply chains etc.). This is a subject that advocates of degrowth explore, but the mechanics of this and many of the main issues are not the subject of *The Case for Degrowth.* It is not intended as a detailed programmatic book in that sense. The book does acknowledge there is one world with different lived experiences around that world, but does not develop systematically how degrowth might differ because of that difference based on place and placing i.e. how geography and socio-economic location within systems matter to outcomes, responsibility and scope for alternatives. For inquiring readers there is more to be said here regarding the merits or otherwise of capitalist "development" and again Hickel's work is a good place to start with this subject.[28]

If *The Case* is read as "a case" then it offers an important contribution targeting the interested general reader. There is, however, further comment that might be made regarding what the book is not and this is likely a consequence of its intended readership and focus on the positive. The book is not, strictly, a defence of degrowth if by this we mean a detailed response to possible areas of critique. There are a series of critical questions that remain open issues regarding degrowth as both a movement and a source of theory, which, again, is not to downplay the importance of either the issues or degrowth and by no means suggests advocates of degrowth lack possible responses. Degrowth started as a movement organised around a "missile word" and in making a case necessarily invites comment regarding its theoretical tenets and commitments. As a movement it faces the standard problem of strategic communicative efficacy – the persistent problem of misinterpretation of "degrowth" based on ordinary language expectations in societies primed for economic growth (whether this can "backfire", see Drews and Antal 2016; but consider Lackoff 2010). This, however, invites the equally standard counter that changing the terminology dilutes the impact (a problem that has been particularly notable in terms of climate and ecological breakdown – the mainstream choice to refer to climate crisis using the less alarming term "global warming", the preference for "doughnut" metaphors etc. – as Clive Spash notes, "Presumably opposing the nasty side of humanity – slavery, violence, torture, rape, pollution – should never be conducted in oppositional terms (e.g. against, anti, non) for fear of empowering the perpetrators?" (Spash, 2018: 215)).

Moreover, one might reasonably describe degrowth as still a work in progress, an evolving coalition. This notwithstanding, there can still be differences regarding prognosis and what should be done. Ted Trainer, for example, shares much of the community ecology approach to change, but in conjunction with the "Simpler Way" project (Trainer, 2020a; 2019), he is notably more downbeat regarding the feasibility of macro-political pressure, given the urgency of the situation and the structural forces arrayed against major change (Trainer, 2020b). The nature of structure may also be an area of dispute. Advocates of degrowth clearly acknowledge that the structures of capitalism matter, but this is not quite the same as an agreed structurally-informed theory. Is growth *necessary* to capitalism? Is it an internal

[28] And for argument regarding the "environmental state" see Koch (2020).

relational consequence or merely a conditional or contingent consequence? In either case, is growth caused by dynamics or needs of financing systems or by competitive production imperatives or by both? Such questions may seem relatively esoteric, but each bears on underlying questions regarding causation, consequences and transformations. Each ultimately matters for the adequacy of explanation and thus for where and how policy pressure is most adequately applied. There is no single position on these matters within degrowth circles and perhaps this is a strength of the movement. Equally, however, claims of vibrant diversity and pluralism can invite counter criticism to the effect that diversity is eclecticism that dissolves into incoherence (even if the practical policy focus seems to cohere; though Kallis does address some of these issues of theory and capitalism in a more sustained way in Kallis 2018a and 2018b).[29] Where one sits on this is, to some degree, determined by one's approach to what the world is and what it allows for (how relativistic we are about people and their place in the world and the knowledge they have and apply). This "ontological" issue is, for understandable reasons of urgency and of focus on practical matters, not necessarily an immediate concern for the majority of advocates of degrowth, but is, nonetheless, of theoretical interest and of interest because it bears on adequacy of theory. Still, it would be to do a disservice to the work of Kallis et al. and the many other advocates of degrowth to conclude with seemingly negative comment regarding a work intended to highlight the positive. *The Case for Degrowth* provides an important antidote to the more technocratic version of optimism to be found in mainstream circles and should be widely read.[30]

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[29] At the most general level it seems unlikely that a system of capital accumulation, whatever term we use for it, is compatible with the combined goals inherent to degrowth (see Spash 2020c).
[30] There is, for example, something curiously desperate about the growing interest in geo-engineering and technological "solutions" to climate change and it is odd that these are considered "future science" whilst degrowth is dismissed as pejoratively utopic (despite that it involves demonstrable and currently practical solutions, and noting that advocates of degrowth also use the term utopia in the social science sense of realisable or concrete utopia). For a sense of the general direction of travel of techno-optimism see Klaus Lackner's Centre for Negative Carbon Emissions, which is developing "artificial trees" – essentially carbon absorption units for "carbon farming". See https://cnce.engineering.asu.edu.

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Minimum wages and the resilience of neoclassical labour market economics. Some preliminary evidence from Germany

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Abstract
This paper argues that minimum wage research has become an important case of what Ludwik Fleck has termed the "harmony of deception" in neoclassical labour market theorizing explaining the resilience of a theoretical approach with appears not to be reconcilable with empirical evidence.

Key words Minimum wages, neoclassical labour market theory, philosophy of science

JEL codes B 40, J 30, J 40, Z 10

1. Introduction

Although the discussion about what heterodox economics is has yet to be settled (see e.g. Mearman 2012; Mearman/Berger/Guizzo, 2019), it appears safe to say that all non-mainstream approaches are united in their rejection of neoclassical economics, addressing unemployment as a failure of real-wage-driven labour markets to clear at the equilibrium wage rate determined by marginal productivity and marginal utility. In this theoretical exposition, unfettered labour markets will always show a tendency towards market clearing – excluding involuntary unemployment as a substantial phenomenon beyond temporary (cyclical) disequilibrium or frictional occurrence. The existence of long-term mass unemployment in all highly developed capitalist economies over most periods of their recent history, i.e. the obvious divergence of theoretical *ex ante* predictions from real-world experience, can be considered one of the very driving forces behind the establishment of alternative theories: according to Thomas S. Kuhn (1962), the failure to pass the empirical test of theoretical prediction classified as an "anomaly" can trigger scientific revolutions in the sense that, eventually, new theoretical approaches – paradigms – will take over[1] once they provide theoretical solutions that better explain (*ex post*) what was formerly an "anomaly". The publication of Kuhn's *Structure of Scientific Revolutions* in the early 1960s reinforced the motivation of many heterodox economists[2] to be part of such a revolution in their academic field.

Although Kuhn cannot be blamed for being overly naive about the willingness of protagonists of a "paradigm in crisis" to defend it by refining or marginally correcting it, his focus was on change, not continuity. Therefore, he might have underestimated or, at least under-emphasised the resilience of a paradigm – particularly in the social sciences, where the

[1] Sheila Dow (in: Merman/Berger/Guizzo, 2019: 28) nicely points out the fact that scientific "revolutions" should not be understood as immediate, sudden and dramatic break but rather a generational shift of paradigms "that if you look at a discipline or a school of thought of one point in time rather than look at it, say, two decades later, understandings, meanings, frameworks may have changed completely".
[2] Although the term "heterodox economist" had obviously been used as early as the 1930s (see Ayres 1936), it fell into disuse thereafter for a long time. Therefore, economists dissatisfied with neoclassical economics in the early 1960s would not have referred to themselves as "heterodox economists".

famous "Duhem-Quine" critique points to the impossibility of an outright empirical falsification of entire paradigms. Merely single causal statements can be rejected on empirical grounds demanding, at least, some defending "repair work" in the underlying structures (assumptions) of the paradigm. With respect to neoclassical labour market theory, myriads of attempts have been made to reconcile *ex post* theoretical prediction with empirical evidence. Assumptions have been rectified in order to render the simple supply-and-demand model of the labour market more realistic: skipping the assumption of perfect competition, for instance, allows the deviation of the real wage from its market-clearing level to be explained as rational maximisation behaviour in monopolies, "right-to-manage" or "insider–outsider" models. Lifting the assumption of perfect knowledge paves the way for "incomplete contract" models that give rise to the emergence of efficiency wages above the market-clearing level in order to prevent the workers from shirking. Finally, introducing transaction cost (e.g. mobility or information cost) enables economists to produce "job search" models that explain "equilibrium" unemployment, where unemployment co-exists with vacancies of equal magnitude. Although some of these revisions of the simple labour market model appear somewhat artificial, they have served its purpose: to reconcile theoretical prediction (*ex post*) with empirical reality.[3]

2. Change and continuity: minimum wages, predictions from neoclassical labour market theory and empirical reality

Having survived the real-world test of long-term unemployment, neoclassical labour market theory came under severe pressure after its theoretical (*ex ante*) prediction of the employment effects of the introduction of minimum wages was entirely nullified by empirical research:

> "Economists have conducted hundreds of studies of the employment impact of the minimum wage. Summarizing those studies is a daunting task, but two recent meta-studies analyzing the research conducted since the early 1990s concludes that the minimum wage has little or no discernible effect on the employment prospects of low-wage workers" (Schmitt, 2013: 22).

It has been argued that minimum wage research has put neoclassical labour market theorizing in a rather awkward position (see Heise, 2019): for a theoretical approach which either postulates clear and substantial negative employment effects of minimum wages (competitive model) or clear and substantial positive employment effects (monopsonistic model), these empirical findings – which are entirely replicated by the concomitant minimum wage research on the recent introduction of a statutory, economy-wide minimum wage in Germany in 2015[4] – can be seen as falsification in the worst case or, at least, as yet another severe "anomaly"[5] of neoclassical labour market theory demanding further re-consideration of its theoretical basis.

[3] This is, of course, not to say that these models correctly explain the real-world phenomenon of "unemployment", but only that the existence of unemployment does not objectively falsify neoclassical labour market theory. "Non-falsification" does not mean "proof".

[4] See the evaluation of the German Minimum Wage Commission, which was established in order to accompany the introduction of the minimum wage in Germany by conducting research on its own and commissioning and collecting concomitant minimum wage research: e.g. Zilius/Bruttel, 2018.

[5] The literature on monopsonistic labour markets has been put forward in order to cope with the "anomaly" of minimum wages having no discernible effect on employment. The idea was to show that minimum wages must not necessarily – as in the competitive model – produce negative effects. But the

In order to better understand and rate the efforts of labour market economists faced with the situation at hand, it appears helpful – particularly given the historical resilience of neoclassical labour market research noted above – to rely not on the theorist of change, Thomas Samuel Kuhn, but rather on the theorist of scientific resilience: the Polish bacteriologist and sociologist of science Ludwik Fleck. According to Fleck (1979), there are three potential paths[6] for dealing with anomalies such as that facing neoclassical labour market theorizing: the most common would probably be to supplement the existing theoretical body in order to reconcile theoretical prediction with empirical evidence (*thought style supplementation*). Bruttel/Baumann/Dütsch (2019) hint at such a strategy when they mention other "channels of adaptation" to minimum wages than quantity (employment) adjustments: (1) an increase in labour productivity to keep higher (minimum) wages profitable; (2) a reduction in working hours to keep employment constant at lower activity level and (3) an increase in prices to keep real wages unaltered. Yet neither theoretical reflection nor empirical investigation support this kind of defence: (1) theoretically, the productivity increase appears to be something of a *deus ex machina*, since any such productivity reserve should have been teased out of the production process by competition anyway without necessitating minimum wages as a trigger. Moreover, empirical studies show no increase in productivity due to the introduction of a minimum wage in Germany after 2015 (see Bossler/Gürtzgen/Lochner et al., 2018) or elsewhere (Sabia, 2015). (2) Reducing working hours could potentially overcome the anomaly in question when it is not the number of jobs (employment) but the number of hours that is reduced as a consequence of the increase in the hourly real wage rate. And, although there is reported evidence that companies reduced the contracted working hours of low-paid workers after the introduction of minimum wages in Germany, there is no evidence of a reduction in the actual performed hourly volume of labour in the economy after the introduction of minimum wages in 2015. (3) Of course, if the increase in hourly wages could simply be rolled over into prices, the real (hourly) wage would remain constant and no quantity adjustment would need to follow. And although there is evidence that this is what we have actually experienced in Germany, this is hardly reconcilable with neoclassical labour market theory: here, companies are modelled as "price takers" and "quantity adjusters". The price of each good is determined in the commodity market under given conditions of supply and demand. If the commodity market is taken as perfectly competitive, no single company can set the price. If the commodity market is taken as imperfect, the price will be set at a level above marginal productivity, including a mark up reflecting the degree of market imperfection.

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prediction of the monopsonistic model is one not of a neutral employment effect but rather of employment effects depending on the level of the minimum wage: a minimum wage only slightly higher than the wage rate set monopsonistically will produce significant positive employment effects. A minimum wage much higher than the monopsonistically set wage rate will produce substantial negative effects, and only a very specific wage rate that is not too high and not too low will produce neutral employment effects. That is to say, in order to explain the manifest empirical result of a neutral employment effect, either the minimum wage must just be set at a very specific level if we assume monopsonistic labour markets to be the rule or an even more specific level if we assume labour markets to be competitive in some sectors and monopsonistic in others. In that case, the minimum wage must just reach a level at which the positive employment effects of the monopsonistic labour markets compensate the negative employment effects of the competitive labour markets. Assuming "monopsonistic" labour markets merely to mean not a single employer in the literal sense of the word "mono" but a low wage-elasticity of labour supply giving employers a limited amount of wage-setting power ("quasi-monopsony") and assuming that elasticities will be different in every quasi-monopsonistic sector (see e.g. Bachmann/Frings 2015 for Germany), the specificity of a minimum wage exclusively producing neutral employment effects must be even higher. The likelihood that any minimum wage has ever just met these specificities cannot be rated as high; the likelihood that the minimum wages around the globe have all been set just at that specific level is surely close to zero.

[6] There is one more path which will not be considered here, as it appears to be the most stubborn, least constructive approach: denying the empirical invalidation of the theoretical prediction (in the case of Germany, this approach is taken by Knabe/Schöb/Thum, 2020).

After all, as long as the commodity market's structure does not change, there is no way companies could simply increase commodity prices without inhibiting profit maximisation.[7]

To summarise, we are inclined to follow Ludwik Fleck (1979:27), who anticipated such "repair work" on the paradigm and would have considered it to be merely "laborious efforts (…) to explain an exception" in order to stabilise and defend a "paradigm in crisis".

A much deeper cut could be expected from a paradigmatic shift in approaching the problem at hand (*thought style transformation*), such as taking a heterodox perspective (see e.g. Heise, 2018; Heise/Pusch, 2019; Herr/Kazandziska, 2011) radically challenging conventional wisdom ("the mainstream" or "standard economics") and thus potentially triggering a scientific revolution in the Kuhnian sense. However, assuming, to cite Ludwik Fleck, strong "*thought style compulsion*", this approach will be considered very risky by most economists and only serve as a last resort after other, more thought style-compatible approaches have been pursued.[8]

Hence a third avenue may be taken: extending the "simple" model in order to match it closer with reality (*thought style extension*).[9]

3. A labour market model including frictions – a useful extension for rescuing neoclassical labour market economics?

In a recent paper, Braun/Döhrn/Krause et al. appear to have set themselves exactly this kind of task when they state:

> "There is […] a consensus among labor economists that these neoclassic models are an overly simplistic representation of the economy" (Braun/Döhrn/Krause et al., 2019: 3).

In a very stylized, yet thorough way, Braun/Döhrn/Krause et al. (2019) extend the "simple" neoclassical model of the labour market into a complex two-sector model allowing searches and matching frictions. The gist of the extension can be summarised as follows: the level of actual employment is not only determined by real wage-driven labour supply and demand, but also by job searches, vacancy creation and corresponding activities.

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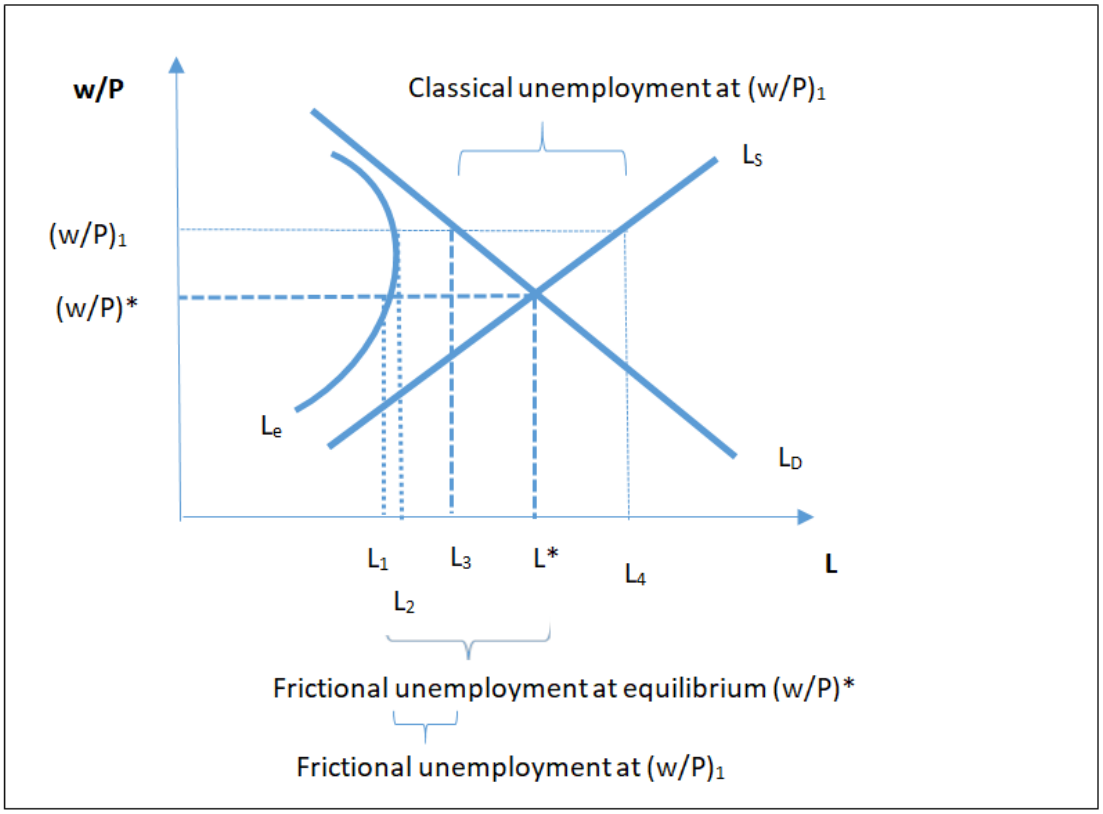
[7] Alan B. Krueger (2018: 267) points out that in the "real world" most companies act within imperfect markets and should rather be taken as price-setters; however, he refers to labour, not commodity markets and thus "price-setters" means "wage-setters" in this context. If the power of setting wages is restricted by minimum wage legislation, this does not simply translate into higher power to set prices in the commodity market.

[8] Interestingly, the literature evaluating employment forecasts of minimum wages mentions these heterodox studies only in passing and entirely neglects them when drawing conclusions from their evaluations; see e.g. Bruttel/Baumann/Dütsch 2019.

[9] The idea of basing a model on labour market imperfections – i.e. the monopsonistic labour market model exposed in footnote 5 – must also be included in the type of scientific reaction dubbed "*thought style extension*". However, for the reasons given in footnote 5, it cannot really be considered a successful extension convincingly reconciling theoretical prediction with empirical evidence, but is rather seen as being merely a variant of the ordinary model. For instance, Knabe/Schöb/Thum (2014) – in an influential study for opponents of the introduction of a minimum wage in Germany – based their predictions on both variants: assuming a competitive labour market environment in Germany, they predicted job losse of around 900,000 (or about 2.5% of the German work force), while in a monopsonistic setting, the predicted job loss would still be substantial but clearly lower: about 420,000 (or 1.2% of the German work force).

In this setting (see figure 1), employment depends not solely on aspects of productivity and utility (L_D and L_S as in the simple model), but also on a complex interaction between job searches and corresponding activities by the labour market actors (effective job contracts L_e) explaining vacancy creation, separation and finding rates. As a result, even when the wage rate happens to be at the market-clearing level ((w/P)*), the actual number of job contracts effectively closed at any time (L_1) will be lower than at the potential full employment level (L*), leaving some job seekers unemployed alongside the same number of vacancies at the company level ($L^*–L_1$). This type of frictional unemployment – which will always occur when we assume imperfect information about the characteristics and distribution of jobs and job seekers in the labour market[10] – is entirely compatible with the "Beveridge definition" of full employment.[11]

Figure 1 The neoclassical labour market with frictions



If we assume the job search and vacancy creation activities to be positively correlated with the real wage rate[12] and the real wage rate to be negatively correlated with labour demand (or job offers), it is unclear how many job contracts become effective – and thus how many workers are without a job. Likewise, the effect of introducing a minimum wage exceeding its

[10] This is not at all new to labour economics (see Reder, 1969), but has not been related to the minimum wage literature before.
[11] According to William Beveridge (1945: 18), a situation of full employment is reached whenever the number of unemployed workers is matched with the number of vacancies available.
[12] Job search and vacancy creation combine to determine effective job contracting. A rise in the real wage rate will increase opportunity cost of unemployment and therefore positively relate the real wage rate with workers' job search activities, while it may increase opportunity cost of vacancies and therefore negatively relate the real wage rate with vacancy creation by firms.

equilibrium level ($(w/P)_1$) also remains uncertain[13]: real-wage-related employment offers will fall (L_3 and "classical" unemployment will rise to L_4–L_3), yet effective job contracting may rise (L_2 and thus frictional unemployment will fall to L_3–L_2), leaving the actual employment (and unemployment) impact of minimum wages dependent on the relative strength of both reactions.[14]

In order to decide on the impact of the introduction of a minimum wage of the magnitude experienced in Germany in 2015, Braun/Döhrn/Krause et al. therefore run simulations based on a one-sector and a two-sector labour market model[15] with frictions using calibrations for those parameters determining the relative strength of both reactions – the calibrations are drawn from the literature. The results are compared with simulations based on a "simple" neoclassical labour market model without frictions.

It is one thing to scrutinise the results of complex simulations, but another to draw conclusions from such simulations. It is the latter which requires some qualification in the case of the Braun/Döhrn/Krause et al. article: they conclude that the results of the two models – the simple neoclassical one and the extended model including frictions both in the 1-sector and the 2-sector variations – are similar in terms of the unambiguity and substantiality with respect to the negative employment effect of introducing a minimum wage, although the magnitudes differ slightly: in the 2-sector labour market model with frictions, employment after 5 years will be 2.7% lower after the introduction of a minimum wage, while it will be 3.4% lower if a simple 2-sector neoclassical model is used. This result is due to the dominance of the ordinary price-quantity channel over the other possible channels of influence, such as the job search or vacancy creation channels.

4. Concluding comments

Of course, once the complexity of a model is increased, the number of possible effects of introducing a minimum wage is also increased – at best opening the model for real-world phenomena which had previously been neglected. However, the fact that the extensions of the simple neoclassical model do not substantially modify the negative employment effect of minimum wages as its most important feature renders this kind of thought style extension futile: it cannot "heal" the empirical falsification of its model prediction. Or, to put it differently: the only merit of the Braun/Döhrn/Krause et al. article is to show that extensions of the simple neoclassical labour market model in a direction incorporating real-world frictions still cannot deliver what is promised: a more useful representation of the economy in line with empirical evidence. Moreover, if the core prediction of a model is drawn into doubt, all other insights of the model – i.e. the alleged importance of labour market and social policies for the effect of minimum wages – must also be treated with great care and scientific reservation.

Therefore, the main conclusion from the Braun/Döhrn/Krause et al. paper is that the long-term macroeconomic effects of the German minimum wage should not be evaluated on the basis

[13] Hence, Braun/Döhrn/Krause et al. (2019: 20) state: "The effects of introducing a binding minimum wage on equilibrium outcomes are too complex to analytically analyze. Hence, we turn to a quantitative analysis."
[14] In fig. 1, classical unemployment $L_4 – L_3$ plus frictional unemplyoment $L_3 – L_2$ in a minimum wage setting appear to be substantially higher than frictional unemployment $L^* - L_1$ in equilibrium without a minimum wage. But clearly, the result is different if the slopes of the curves would change.
[15] The two-sector model distinguishes between a sector using high qualified labour (i.e. low exposition to minimum wages) and another sector using low qualified labour (i.e. high exposition to minimum wages).

of an extended 1-or 2-sector neoclassical labour market model, whether it includes frictions or not. From a political perspective, this implies that no policy recommendations should be drawn from a theoretical basis which differs so alarmingly from real-world experiences. From a scientific perspective, researchers should be prepared to more radically question a thought style which – even if supplemented and extended – cannot be brought in line with reality unless they are prepared to fall victim to what Ludwik Fleck has called a "harmony of deception". However, this would be even more unacceptable, as there are alternative approaches which appear to be far better "representations of the economy" than any supplementation or extension of neoclassical labour market economics.

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Prelude to a critique of the Ricardian Equivalence Doctrine

Leon Podkaminer [The Vienna Institute for International Economic Studies]

Abstract
Granger non-causality tests applied to data for a large set of countries indicate that public debt/DGP ratio is not a good "leading indicator" for the tax burden placed on the private sectors. The "rational" private sectors learning from experience have had no reason to trust - and follow in practice - the Ricardian Equivalence Doctrine.

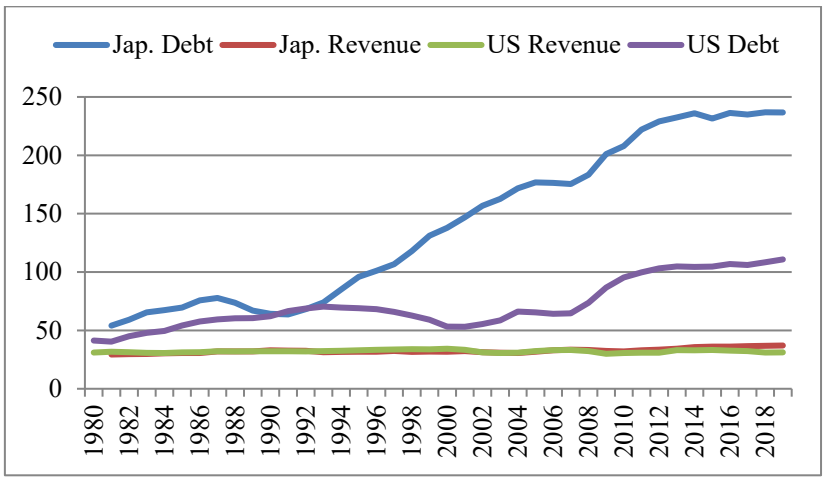
JEL Codes E13, E61, A11

The Ricardian Equivalence Doctrine still haunts the mainstream macroeconomics. The doctrine purports that fiscal deficits must (may?) be offset (more or less immediately) by cuts in spending by the private sector "rationally expecting" higher compensatory taxes to be levied in the future.

But how can the private sector ever come to such a belief? My guess is that the answer is "by learning". Of course, by learning from experience rather than from the mainstream macro treatises (though of course the latter may have some corrupting educational impact through the opinions held by "well educated" politicians or broadcast by the media).

If the practical experience were to teach the general public that there is no "free lunch" then it should have been true that public debt is inevitably followed, sooner or later, by "penalising" taxation.

Figure 1 Public debt/GDP and public revenue/GDP (%): Japan and USA, 1980/81-2019



Source: AMECO.

Is this the case? Not quite, as is now preliminarily documented. Figure 1 shows the longer-run trajectories of two items: public debt/GDP and public sector revenue/GDP for two countries: the USA and Japan. Data, coming from AMECO, start from 1980 and 1981 respectively. Public sector revenue includes all kinds of taxation levied on the private sector (and some

other minor items such as e.g. privatisation proceeds). Evidently, the revenue/GDP ratios have been essentially constant all along. The tax burden has not risen since the early 1980s. But the public debt/GDP ratios have been very dynamic: public spending in excess of public sector revenue has been a constant feature of the long-term performance of both countries. Clearly, the private sectors sensitive to the reality (and not the doctrines of the long defunct economists) cannot be assumed to be oblivious to the empirical facts such as illustrated by Figure1.

Perhaps it could be counter-argued that it is an *increase* in public debt that is reflected in the tax burden placed on the private sector. To check the validity of this hypothesis I conducted the Granger non-causality tests whose outcomes are summarised in Table 1.

Table 1 P values for Granger non causality tests for Japan and the USA
(years 1980/81 -2019)

	Japan	USA
Revenue does not Granger cause Debt	0.0894	0.8188
Debt does not Granger cause Revenue	0.1769	0.1453
Revenue does not Granger cause Increase in Debt	0.0387	0.2243
Increase in Debt does not Granger cause Revenue	0.7562	0.2131

Source: Own calculations (via Toda-Yamamoto Procedure) based on AMECO data.

The two first rows in Table 1 contain the P values for the Granger non-causality tests for Debt/GDP and Revenue/GDP ratios (as in Figure 1). The last two rows contain the P values for the Granger non-causality test for *increase* in Debt/GDP and Revenue/GDP ratios. Only one Granger non-causality hypothesis is rejected (at 5% level). This is the hypothesis that Revenue/GDP does not Granger cause increase in public debt/GDP in Japan. It is likely (at 5% significance level) that in Japan the causality runs from Revenue/GDP to Debt/GDP. Non-causality is detected for all other hypothesis. In particular, there is no reason to claim that higher Debt/GDP must be reflected, sooner or later, in the tax burden level.

For a much larger set of countries AMECO supplies the Debt/GDP and Revenue/GDP data starting in 1995. It is possible to conduct the Granger non-causality tests for all these countries (though for a shorter time span).

The resulting P values for the Granger non-causality tests are in Table 2. The marked cells in Table 2 suggest *presence* of Granger causality (with the conventional 5% critical level).

It turns out that Debt/GDP level is likely to “cause” revenue/GDP (or tax burden level) in only a few, largely marginal, countries (Column 2). These include 1) countries running very conservative fiscal policies with very low levels of public debt (Column 3); 2) euro area countries kept fiscally on short leash (Greece, Italy and Portugal).

Increase in Debt/GDP ratio can be similarly claimed to affect the Revenue/GDP (or tax burden level) in a few marginal countries (and in Greece and Italy).

Summing up, the evidence of the public debt/GDP (or a change thereof) being a reliable “leading indicator” for the tax burden placed on the private sector is very weak - actually non-existent in most cases. This fact may not have gone unnoticed. The “rational” private sectors

learning from experience have had no reason to trust – and follow in practice – the Ricardian Equivalence Doctrine.

Table 2 P values for Granger non-causality tests (years 1995-2019)

	Revenue does not Granger cause Debt	Debt does not Granger cause Revenue	Debt/GDP 2020 (%)	Revenue does not Granger cause increase in Debt	Increase in Debt does not Granger cause Revenue
Belgium	0.2872	0.1157	100	0.5468	0.0313
Bulgaria	0.1870	0.0000	21	0.0014	0.0000
Czechia	0.1009	0.0311	31	0.0005	0.5225
Denmark	0.8837	0.7792	33	0.3051	0.5872
Germany	0.2449	0.8675	59	0.5088	0.1148
Estonia	0.3184	0.6311	9	0.2085	0.5432
Ireland	0.0002	0.5754	59	0.0073	0.3117
Greece	0.9847	0.0005	175	0.7171	0.0436
Spain	0.0000	0.9324	97	0.0001	0.7038
France	0.5374	0.7444	99	0.5324	0.2925
Italy	0.5967	0.0000	136	0.8239	0.0393
Cyprus	0.5614	0.1229	94	0.6667	0.1123
Latvia	0.2885	0.8539	36	0.1452	0.8102
Lithuania	0.8592	0.0053	36	0.5728	0.0001
Luxembourg	0.0006	0.3599	20	0.0002	0.9493
Hungary	0.8004	0.1727	68	0.5342	0.2585
Malta	0.0058	0.4557	43	0.0019	0.0186
Netherlands	0.0164	0.7627	49	0.0328	0.7617
Austria	0.8804	0.7142	70	0.2897	0.3379
Poland	0.2278	0.0080	47	0.6487	0.0121
Portugal	0.0183	0.0348	120	0.2503	0.5047
Romania	0.0747	0.9344	35	0.1840	0.8011
Slovenia	0.7452	0.8778	67	0.2018	0.2047
Slovakia	0.0377	0.5964	48	0.0135	0.5277
Finland	0.9348	0.8341	59	0.6820	0.0000
Sweden	0.6499	0.4886	35	0.3734	0.6783
UK	0.6381	0.3307	85	0.7530	0.6645
Iceland	0.2671	0.0882	39	0.2988	0.0262
Norway	0.0829	0.0040	37	0.0152	0.2574
Japan	0.5339	0.6760	237	0.0459	0.3528
US	0.8639	0.3070	111	0.9104	0.1210

Source: Own calculations (via Toda-Yamamoto Procedure) based on AMECO data.

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Public debt "causing" inflation? Very unlikely

Leon Podkaminer [The Vienna Institute for International Economic Studies]

Abstract
Granger non-causality tests applied to data for a large set of countries indicate that public debt/GDP ratio is, generally, a poor "leading indicator" for the price level and the growth rate of the public debt/GDP ratio is, generally, a poor "leading indicator" for the inflation rate. Moreover, in a few cases the rising debt/GDP ratio appears to have depressed inflation. The widespread conviction that expanding public debt must sooner or later lead to higher inflation is empirically unfounded.

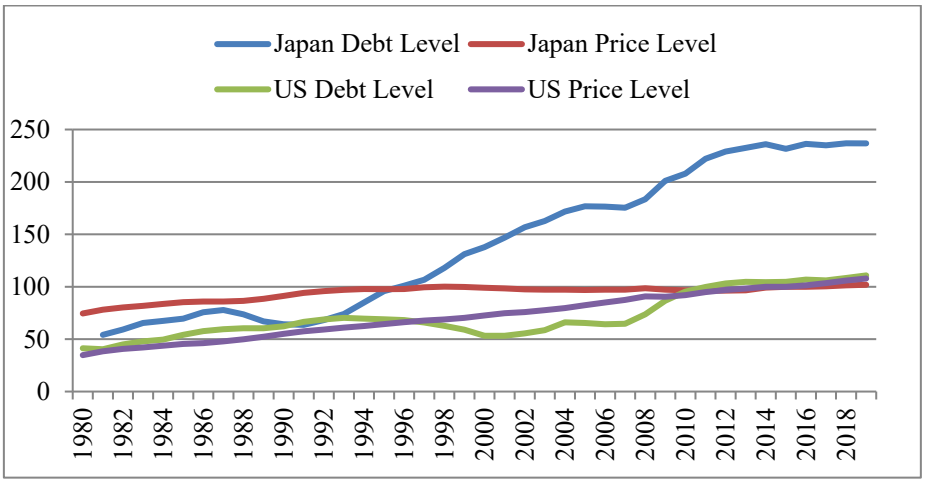
JEL Codes E31, E62

Keywords public debt, price level, inflation

The idea that rising levels of public debt must, sooner or later, lead to higher inflation still haunts many economists - amateurish as well as professional[1]. The massive "deficit spending" currently necessary in view of the global recession due to the "corona" epidemics may be less than adequate - also because of the instinctive fears of ensuing inflations (or hyperinflations).

Massively rising public debt/GDP ratios during and after the Great Recession have left inflation depressed. Yearly inflation averaged 1.1% for the Euro Area (12 core countries) over the ten year period 2008-2018. The average for Germany was 1.2%, for the USA 1.6% and for Japan 0.4%. Certainly, it is possible to claim that eventually, in some indefinite "long run", the pent up inflation will have to come back (or be brought back to deal with the public debt).
The longer-term data on price levels and debt/GDP are currently available (from the AMECO database) for the USA and Japan. These are shown in Figure 1.

Figure 1 Public debt/GDP (%) and Price Level (2015=100): Japan and USA, 1980/81-2019



Source: AMECO.

[1] An esoteric "Fiscal Theory of the Price Level", developed by Leeper, Woodward, Cochrane and others, sought to link the price level to fiscal (and not merely monetary) policies. Buiter (1999) showed the Theory "fallacious". More recently Farmer and Zabczyk (2019) offered a "requiem" to it.

Evidently, since 1994 Japan's strongly expanding public debt hasn't had much of an observable impact on the price level. If anything, the fast rise in Japan's debt/GDP ratio after 2008 could be linked to a slight deflation prevailing from 2008 through 2013. Things are less obvious for the USA: both have tended to increase secularly and the "plain eye" does not offer any clue as to the direction of eventual "causality".

However, it is possible to statistically test for the presence of Granger causality. Since both items for the USA and the debt/GDP for Japan are non-stationary, testing for Granger non-causality may be executed using the Toda-Yamamoto (1995) Procedure. Table 1 reports the P values for the Granger non-causality tests, applied to the price and debt/GDP levels. The hypothesis that debt level does *not* Granger cause price level is rejected (at the conventional 5% significance level) only for Japan. All remaining hypotheses (including for the US debt level not Granger-causing price level) cannot be rejected. There is statistical evidence that the US public debt level is a poor "leading indicator" for the US price level - while Japan's public debt level is a good leading indicator for Japan's price level. But, paradoxically perhaps, the "impact" in question appears to "negative": high debt level is followed, in due time, by stagnating, or even lowered price level.

Table 1 P values for Granger non-causality tests for Japan and the USA (years 1980/81-2019)

	Japan		USA
price level does not Granger-cause debt/GDP level	0.3901		0.1959
Debt/GDP level does not Granger-cause price level	0.0203		0.0830

Source: Own calculations (via Toda-Yamamoto Procedure) based on AMECO data.

Granger non-causality tests conducted to the *growth rates* of both items are in Table 2. It appears that Granger-causality runs here both ways in Japan: inflation Granger-causes the rate of growth of debt/GDP ratio and growth rate of debt/GDP ratio Granger-causes inflation. For US only one Granger-causality holds: from the inflation rate to the rate of growth of debt/GDP ratio. Of course, the Granger-causality does not, per se, say anything about the strength and direction of the "causal impacts".

Table 2. P values for Granger-non-causality tests applied to the growth rates for Japan and the USA (years 1980/81-2019)

	Japan		USA
inflation rate does not Granger-cause growth rate of the debt/GDP level	0.0275		0.0067
growth rate of the debt/GDP level does not Granger-cause inflation rate	0.0036		0.4821

Source: Own calculations (via auxiliary VAR analyses) based on AMECO data.

Figure 2 Impact Response Functions for Japan

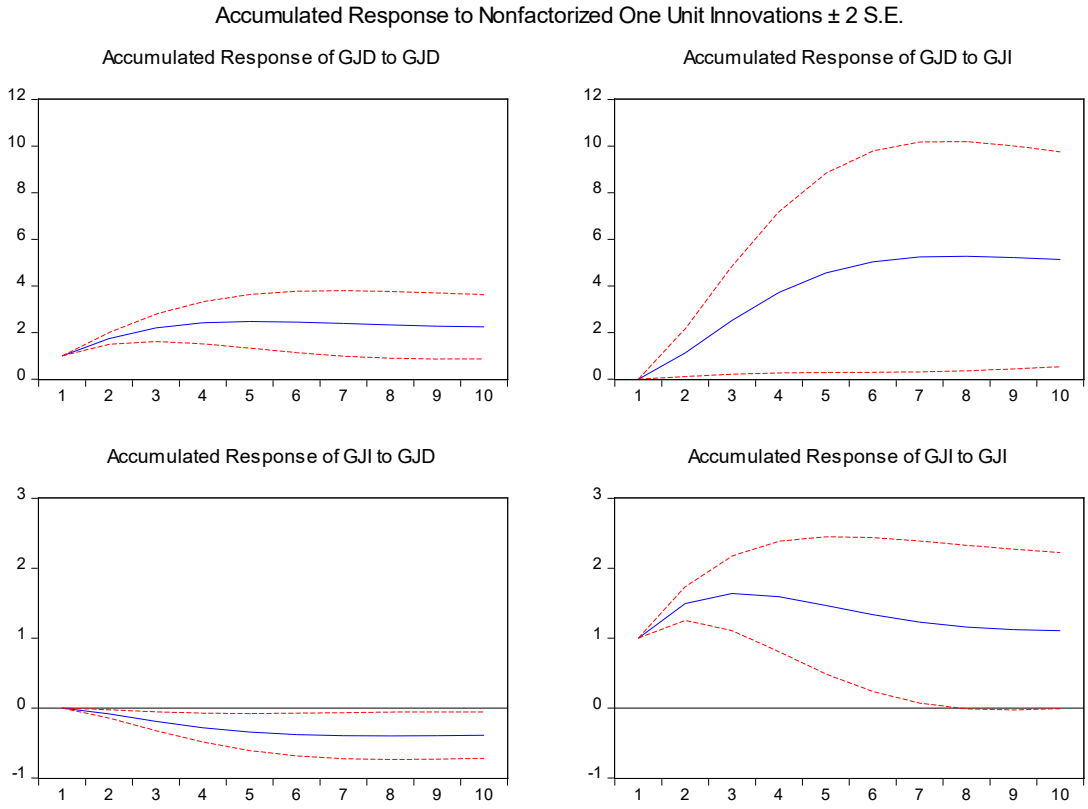
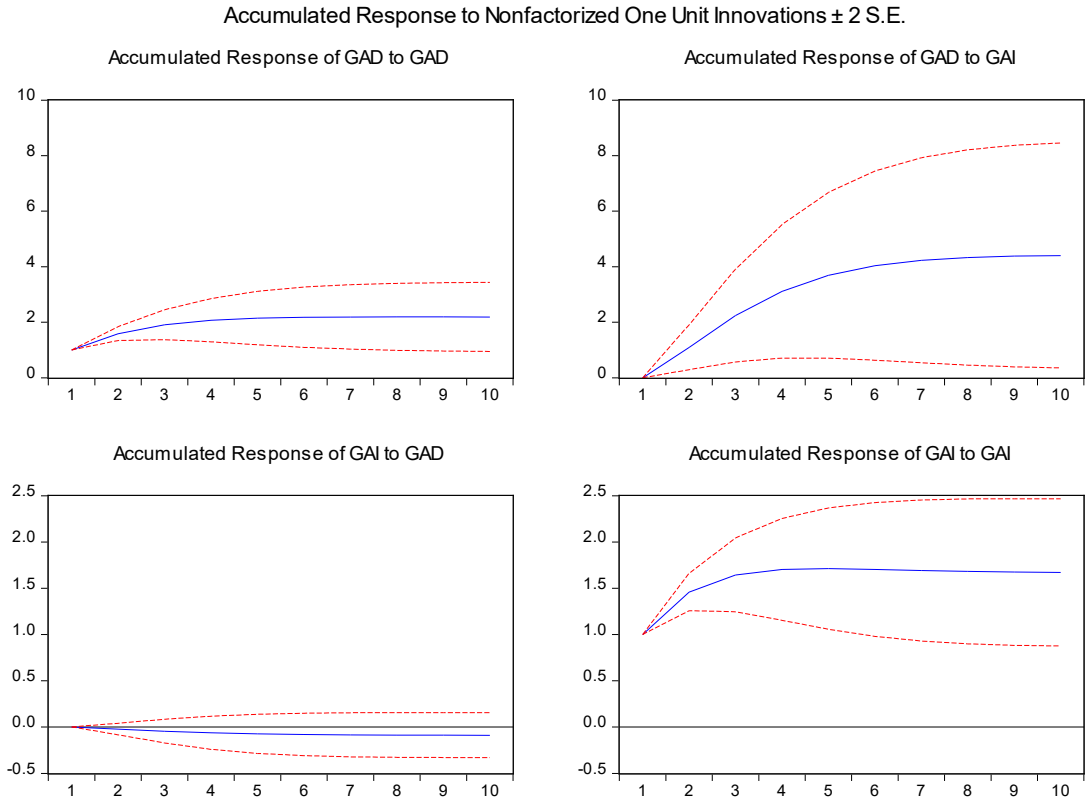


Figure 3 Impact Response Functions for the USA



To learn more about the strengths and directions of "causalities", as contained in the data, one may resort to the VAR (vector auto regression) analysis of the data.[2] Figures 2 and 3 sum up the properties of the VARs calculated for Japan and the USA. Of particular interest are bottom left-hand-side panels, showing the accumulated responses of inflation (GJI for Japan in Figure 2; GAI for the USA in Figure 3) to of one-off "shock" to the rate of growth of the debt/GDP ratio (GJD for Japan in Figure 2; GAD for the USA in Figure 3).

As can be seen, the accumulated impacts to inflation of one-off increase in the rate of growth of debt/GDP ratio are *negative* in both countries. An increase in the rate of growth of the debt/GDP ratios has – on average – been depressing inflation during the period under consideration. On average, such impacts have died out after about 7 years, in both countries. But the two countries have differed on the size of the impact which was much stronger in Japan – and close to nil in the USA. Besides, the two-standard deviations range of impacts for Japan is located below zero. That range for the US is located around zero – the sign of the impact is here much more ambiguous.

The upper right-hand-side panels indicate that the impacts to the rate of growth of the debt/GDP ratio of "shocks" to the inflation rate are unambiguously *positive* in both countries. This suggests that inflation has been *supporting* growth in the debt/GDP ratio – rather than acting to erode it. This is inconsistent with the idea that inflation is a "method" of getting rid of public debt. Observe, that the impact response functions agree with the findings from Table 2. For Japan the data indicates Granger-causality running in both directions while for the USA the Granger-causality runs only from the inflation rate to the rate of growth of the debt/GDP ratio.

For a much larger set of countries AMECO supplies the debt/GDP and the price level data starting in 1995. It is possible to conduct the Granger non-causality tests for all these countries (though for a much shorter time span).

The resulting P values for the Granger non-causality tests are in Table 3. The marked cells in Table 2 suggest *presence* of Granger causality (at the conventional 5% critical level).

It turns out that debt/GDP level is likely to "cause" the price level in only a few, largely marginal, countries (Column 2). These include (i) countries running very conservative fiscal policies with very low levels of public debt (shown in Column 3); (ii) high-debt euro area countries kept fiscally on short leash by the European Commission: Greece, Italy, Portugal and Spain (Ireland had its portion of "trauma" during and after the Great Recession too).

The hypothesis on the growth rate of the debt/GDP ratio Granger-causing inflation rate is invalid in 19 out of 27 counties (for which conclusive inferences can be drawn). In only 8 cases there is evidence of Granger-causality running from the growth rate of the debt/GDP ratio to the inflation rate (last column in Table 3). 4 of these cases (Ireland, Greece, Italy and Latvia) have had hard times since 2007 and two have been fiscally conservative (Luxembourg and Sweden). Of course, here the presence of Granger-causality does not mean that a positive "shock" to the rate of growth of the debt/GDP ratio is followed by positive increments to the inflation rate. As demonstrated earlier (Table 2 and Figures 2-3) the responses in

[2] Inflation and growth rates of the debt/GDP are both stationary for both countries, over the period 1980/81-2019. The use of VAR analyses is therefore legitimate here.

question may be *negative*. Actually, the responses of inflation rates to rising debt/GDP ratios appear negative for Luxembourg and Sweden.

Table 3 P values for Granger non-causality tests (years 1995-2019)

	Price Level does not Granger cause Debt Level	Debt Level does not Granger cause Price Level	Debt/GDP 2019 (%)	Inflation does not Granger cause Growth rate of Debt	Growth rate of Debt does not Granger cause Inflation
Belgium	0.7677	**0.0432**	100	0.9292	0.1282
Bulgaria	0.3900	0.6780	21	0.5001	0.1747
Czechia	0.2157	0.5249	31	**0.0000**	0.9123
Denmark	na	na	33	na	na
Germany	na	na	59	**0.0000**	0.2684
Estonia	**0.0036**	0.1812	9	**0.0008**	0.1043
Ireland	0.8244	**0.0332**	59	0.3491	**0.0007**
Greece	**0.0066**	**0.0000**	175	0.0705	**0.0029**
Spain	0.0679	**0.0002**	97	**0.0102**	0.2303
France	**0.0072**	0.3359	99	**0.0003**	0.9693
Italy	0.3893	**0.0118**	136	**0.0050**	**0.0413**
Cyprus	na	na	94	na	na
Latvia	na	na	36	0.0820	**0.0000**
Lithuania	**0.0250**	**0.0441**	36	**0.0003**	0.5711
Luxembourg	0.4851	**0.0001**	20	0.9310	**0.0008**
Hungary	0.2867	0.1617	68	0.0602	0.8680
Malta	0.4375	0.7673	43	0.4836	0.7677
Netherlands	na	na	49	0.8379	0.0974
Austria	na	na	70	0.0579	**0.0329**
Poland	na	na	47	0.5140	0.4598
Portugal	0.6714	**0.0000**	120	0.1355	0.4633
Romania	0.2083	0.9646	35	0.1840	0.8011
Slovenia	0.0754	0.6824	67	0.1922	0.5922
Slovakia	0.7392	0.7392	48	0.3392	0.8558
Finland	**0.0000**	0.4952	59	**0.0100**	0.9253
Sweden	0.4835	**0.0078**	35	0.1224	**0.0088**
UK	na	na	85	0.6798	0.1531
Japan	0.9872	0.1260	237	0.3302	**0.0456**
US	0.6145	0.1469	111	0.8019	0.1264

Source: Own calculations (via auxiliary VAR analyses and Toda-Yamamoto Procedure) based on AMECO data. (na: not available - time series too short (Denmark) or unstable auxiliary VARs).

For the remaining 6 countries the VAR analysis from which the impact response functions are derived cannot be legitimately conducted. For these countries at least one of the growth rate series is non-stationary. (This does not preclude the application of the Toda-Yamamoto procedure to test the Granger-causality, but invalidates simple VAR analyses.)

Concluding, the Granger non-causality tests applied to data for a large set of countries indicate that public debt/GDP ratio is, generally, a poor “leading indicator” for the price level and the growth rate of the public debt/GDP ratio is, generally, a poor “leading indicator” for the inflation rate. Moreover, in a few cases the rising debt/GDP ratio appears to have depressed inflation. The widespread conviction that expanding public debt must sooner or later lead to higher inflation is empirically unfounded.

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