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China's drivers and planetary ecological collapse

Richard Smith [System Change Not Climate Change]

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Abstract

Can China lead the fight against climate change? If not, why not? Richard Smith, drawing on his forthcoming book *China's Engine of Ecological Apocalypse* (Verso, 2018) argues that the built-in drivers and barriers of China's hybrid bureaucratic-collectivist capitalism severely limit President Xi Jinping's options, rendering his ambitions impossible and reinforcing China's role as the world's leading driver of global warming and thus planetary ecological collapse.

Since President Trump pulled out of the Paris climate accord, there has been speculation that China could take the lead in the fight against global warming. China's leader, Xi Jinping, has certainly been eager to assume this role just as at Davos in January he championed globalisation and free trade against Trump's nationalist posturing.

At first glance, this might seem improbable. After all, China is by far the leading emitter of CO₂, pumping out more emissions per year than the US, the EU, and Japan combined. Moreover, China wastes staggering quantities of energy in its inefficient industries: According to the US Energy Information Administration, China's industries consume 7.9 times as much energy per US dollar of GDP as Japan, 5.8 times as much as the UK, and 3.9 times as much as the US.¹ Though China's GDP is still only two-thirds that of the United States, the country's disproportionate resource consumption and out-of-control pollution mean that "China has now passed America and is now the most physically important country on the planet. No other country has a more important influence on the biosphere, whether in terms of what we take from it or what we dump in to it."²

Yet while China is the world's leading polluter by far, it is also, ironically, the world's leading producer of both wind turbines and solar panels. China also leads the world in installed capacity of both wind and solar. So Xi Jinping's ambition is perhaps not entirely implausible.

Trump trashes the United States while Xi tries to build a "sustainable China"

What's more, Xi's public persona – his calm, serious demeanour and his rational, comprehensive and progressive environmental agenda – could scarcely be more opposite to those of the rampaging *enfant terrible* Americans elected president. Where I live, Trump is trashing the country, championing pollution for the sake of pollution, coal for sake of coal regardless of economics or climate science, wrecking regulation for the sake of wrecking any restraint on ruling-class greed. He has freed coal power plants to spew out more toxins, freed coal miners to dump toxic waste in rivers and streams, slashed the Environmental Protection Agency (EPA) budget, suppressed EPA enforcement, appointed cretinous know-nothings and

¹ Brian Wingfield, 'China's Power Problem', *Forbes*, 7 July 2007, and the sources cited therein: https://www.forbes.com/2008/07/03/energy-efficiency-china-biz-energy_cx_bw_0707efficiency_china.html.

² Robert Wilson, 'America Versus China: The New Reality of Global Energy', *Energy Collective*, 12 May 2014: <http://www.theenergycollective.com/robertwilson190/380971/america-versus-china-what-difference-decade-makes>.

fossil-fuel-industry hacks to run regulatory agencies, dismissed science advisers and slapped gag orders on climate scientists, approved the Keystone XL pipeline, ordered offshore drilling expanded, taken steps to scrap the Clean Power Plan and the Mercury and Air Toxics Rule, thrown open national parks to oil drilling rigs, abandoned endangered-species protection for whales and other creatures, loosened ozone standards, shrinking and privatising national parks – and, not least, pulled the United States out of the Paris climate accord.

By contrast, since taking office in 2012, President Xi Jinping has increasingly stressed his government's commitment to building an "ecological society", to cleaning up pollution, building "beautiful cities",³ most of which have been rebuilt over the past two decades with new housing, schools, hospitals, public parks, impressive new subway systems, and more. In addition, most of China's cities are now connected via the country's incomparable network of ultra-smooth high-speed trains. Xi's government has promised to reduce China's dependence on coal and declared its intention to phase out all fossil-fuel-powered cars in the next decades. It has already invested more money in renewable energy and electric vehicles than the rest of the world combined. And it has now banned the import of electronic and other toxic waste that poisoned Chinese recycling communities for decades.⁴ In his address to the Nineteenth Congress of the Communist Party in October 2017, Xi spoke like an eco-socialist:

"Man and nature form a community of life; we, as human beings, must respect nature, follow its ways, and protect it. Only by observing the laws of nature can mankind avoid costly blunders in its exploitation. Any harm we inflict on nature will eventually return to haunt us. This is a reality we have to face...

We must realise that lucid waters and lush mountains are invaluable assets and act on this understanding, implement our fundamental national policy of conserving resources and protecting the environment, and cherish the environment as we cherish our own lives. We will adopt a holistic approach to conserving our mountains, rivers, forests, farmlands, lakes, and grasslands, implement the strictest possible systems for environmental protection, and develop eco-friendly growth models and ways of life. We must pursue a model of sustainable development featuring increased production, higher living standards, and healthy ecosystems. We must continue the Beautiful China initiative to create good working and living environments for our people and play our part in ensuring global ecological security...

The modernization that we pursue is one characterised by harmonious coexistence between man and nature. In addition to creating more material and cultural wealth to meet people's ever-increasing needs for a better life, we need also to provide more quality ecological goods to meet people's ever-

³ Xinhua, State Council of the CPC Central Committee, 'Overall Plan for the Reform of Ecological Civilization System' (Zhonggong zhongyang guowuyuan yinfa 'shengtai wenming tizhi gaige zongti fang'an'), Central Government Portal, 21 September 2015, http://www.gov.cn/guowuyuan/2015-09/21/content_2936327.htm; Li Liafang and Huang Yan, 'Xinhua Insight: President Xi Sets the Pace on a Better Environment', *People's Daily*, 21 March 2017, <http://en.people.cn/n3/2017/0321/c90000-9192976.html>.

⁴ Michael Standaert, 'China's Notorious E-waste Village Disappears Almost Overnight', *Bloomberg*, 17 December 2015, <https://www.bna.com/chinas-notorious-ewaste-n57982065266>; Zhuang Pinhui, 'China's Most Notorious E-waste Dumping Ground Now Cleaner but Poorer', *South China Morning Post*, 22 September 2017, <http://www.scmp.com/news/china/society/article/2112226/chinas-most-notorious-e-waste-dumping-ground-now-cleaner-poorer>.

growing demands for a beautiful environment. We should, acting on the principles of prioritising resource conservation and environmental protection and letting nature restore itself, develop spatial layouts, industrial structures, and ways of work and life that help conserve resources and protect the environment. With this, we can restore the serenity, harmony, and beauty of nature.”

To give force to his policy initiatives, Xi elevated China’s State Environmental Protection Agency to ministerial rank: it’s now the Ministry of Environmental Protection (MEP), with powers equal, in theory, to the big industrial ministries. At the Congress, he announced,

“We will establish regulatory agencies to manage state-owned natural resource assets and monitor natural ecosystems, and improve environmental management systems. These agencies will, in a unified way, perform the duties of the owner of public-owned natural resource assets, the duties of regulating the use of all territorial space and protecting and restoring ecosystems, and the duties of monitoring the discharge of all pollutants in urban and rural areas and conducting administrative law enforcement.”

He further pledged that his government,

“will complete work on drawing redlines for protecting the ecosystems, designating permanent basic cropland, and delineating boundaries for urban development... we will promote afforestation, take comprehensive steps to control desertification... and soil erosion, strengthen wetland conservation and restoration... We will improve the system for protecting natural forests... rigorously protect farmland”, and more.⁵

Finally, as Trump walked away from the Paris climate accord, Xi announced his intention to “take the driver’s seat in international cooperation to respond to climate change”. Not only that but Xi’s government has also pledged to wipe out the last vestiges of poverty in China by 2030 and turn China into a “moderately prosperous society” where the basic needs of all including jobs, housing, and healthcare, are met. Trump, as we know, has different priorities: tax cuts for the rich.

In short, the contrasts between Donald Trump and Xi Jinping could hardly be more striking. Little wonder, then, that more and more people around the world look to China to take the lead to save us from climate collapse.

Systemic drivers of destruction

Alas, that is not going to happen. I don’t doubt Xi’s earnest intentions. But for all of that, I’m going to argue here that Xi Jinping cannot lead the fight against global warming because he runs a political-economic system characterised by systemic growth drivers – the need to maximise growth beyond any market rationality, the need to maximise employment, and the need to maximise consumerism – which are, if anything, even more powerful and even more eco-suicidal than those of “normal” capitalism in the West, but which Xi is powerless to alter.

⁵ Xinhua, ‘Full Text of Xi Jinping’s Report at the 19th CPC National Congress’, http://news.xinhuanet.com/english/special/2017-11/03/c_136725942.htm.

These drivers are responsible for China's irrational "blind growth", "blind production" and out-of-control pollution, what Xi himself describes as "meaningless development at the cost of the environment".⁶ But Xi cannot systematically compel his subordinate officials to stop squandering resources in useless overproduction and overconstruction, and stop polluting the country and the planet because for all of his nominal authority as head of the most powerful and ferocious police state in history, in reality, power is widely shared throughout the 88-million-member ruling party. This means that most of the time, he cannot force officials to give up their ruinous practices when to do so would undermine their economic interests.⁷ Furthermore, I contend that for all his eco-socialist rhetoric, Xi does not try very hard to suppress these destructive practices because Xi Jinping himself is the leading driver of "meaningless growth at the expense of the environment." Xi's priority is not to build an "ecological society." His overriding priority, like Mao and Deng before him is to make China rich and powerful, to achieve superpower status equal to if not superior to the United States, to "Make China Great Again" and reclaim its role as the centre of the world economy.⁸ These achievements are the *sine qua non* of ruling-class reproduction and guarantor of the communist party's grip on power. The problem with Xi's vainglorious ambition is that the hyper industrialization required to realize this China Dream of great power status compels him to break the "harmonious coexistence between man and nature", to let the polluters pollute, pump China's CO₂ emissions off the chart, and thereby bring on the ecological collapse not just of China but the whole planet. Why is that?

Here's why: In capitalism, competition is the motor that drives growth like a perpetual motion machine. It's automatic: Competition forces producers to cut costs systematically, find cheaper inputs, wider markets, bring in new technology – in short, to constantly revolutionise the instruments and processes of production on pain of failure and extinction in the marketplace. Growth is built in and cannot be exorcised. All efforts to date to "green capitalism" – cap-and-trade, carbon taxes, the dematerialisation of production, and so on – have foundered on the brutal reality that no government or industrialised economy will accept binding limits on greenhouse-gas emissions because no one has yet found a way to staunch emissions without staunching economic growth.⁹

Yet in capitalism there is a one built-in, if temporary, limit to growth: profits. If companies can't make a profit, they will cease production and lay off workers, sometimes masses of workers. Now and again, economic recession or collapse brings growth to a halt, at least temporarily, until sufficient value has been destroyed such that the cycle can begin all over again on an enlarged scale. Hence the business cycle. Further, in capitalist democracies, there is still some freedom to organise, so environmental organisations have been able to impose some restraint on pollution – gains which, as we know, are now under unprecedented assault.

But most of this does not apply in China state-sector economy because China's rulers are not private capitalists – at least not with respect to their state economy (though plenty of them have private businesses on the side, not to mention millions and billions stashed away in

⁶ *People's Daily*, 'President Highlights Importance of Protecting the Environment', 21 April 2017, <http://en.people.cn/n3/2017/0421/c90000-9206085.html>.

⁷ See my 'China's Communist-Capitalist Ecological Apocalypse', *Real-World Economics Review* 71 (May 2015): 19–63.

⁸ See Howard W. French, *Everything Under the Heavens* (New York: Alfred Knopf, 2017).

⁹ Richard Smith, *Green Capitalism: The God That Failed* (Bristol, UK: World Economic Association Books, 2016).

Panama and other hideaways).¹⁰ China's rulers are bureaucratic collectivists who run a hybrid bureaucratic-collectivist capitalist economy, a system largely – though, of course, not entirely – exempted from the laws of capitalism. It's difficult to make generalisations about the "Chinese economy" because what's true of the state-owned sector (about half the economy) is not necessarily true of the foreign-invested joint-venture sector (about a third of the industrial economy) or the domestic private-capitalist sector. Here I'm mainly concerned with the state-owned, state-controlled, state-planned economy because this is the main engine of the economy and because it over-determines the rest as well. China's State-Owned Enterprises (SOEs) do not live and die by the rules of the market. For all the market reforms since 1978, the government has not allowed a single major SOE to fail and go bankrupt, no matter how inefficient, no matter how indebted, because those industries serve a different purpose. They do not exist just to make money. They exist to fulfil the wishes of China's Communist Party rulers, especially as they contribute to import substitution and national industrialisation. China's statist economy thus abides by different laws of motion, different drivers, which I shall try to elucidate in what follows.

I. China's drivers

Capitalist economies are driven by a single maximand: profit maximisation. China's state-led economy is driven by a different maximand: maximising the security, power, and wealth of the Chinese Communist Party (CCP) bureaucracy. This driver isn't automatic like the motor of competition in capitalism. In China's state-owned economy, growth is driven by the conscious decisions of party authorities: if the leaders choose to develop (or not develop) an industry, it will be developed (or not).¹¹ Central planning replaces market competition to shape economic development. Given the massive foreign-exchange (forex) surpluses of China's export economy over the past three decades, its rulers are positioned to lavishly fund strategic priorities; build up their industrial "national champions" like China National Petroleum, China Telecom, State Grid and others; hothouse new high-tech and import-substitutionist industries; spend monies to smooth out global recessionary crises, as in 2008-09, and so on – all prompting grudging admiration and concern about the threat of China's "state capitalism" from the business press like the *Economist*.¹²

Making China Great Again

Since China's rulers are state-based, they must first and foremost be nationalists. They used to be socialists and internationalists in the 1920s when the party consisted almost entirely of industrial and commercial workers. But after the workers' revolution was crushed in 1927, Mao built an entirely new party in the 1930s and '40s out of déclassé elements: student revolutionaries, nationalist intellectuals, defecting Guomindang soldiers, bandits, and

¹⁰ Stuart Lau, 'Chinese Dominate List of People and Firms Hiding Money in Tax Havens, Panama Papers Reveal', *South China Morning Post*, 10 May 2016, <http://www.scmp.com/news/hong-kong/article/1943463/chinese-dominate-list-people-and-firms-hiding-money-tax-havens-panama>; Patti Waldmeir and Tom Mitchell, 'Panama Papers: Top Officials Tied to Offshore Companies', *Financial Times*/CNBC News, 7 April 2016, <https://www.cnbc.com/2016/04/07/panama-papers-top-china-leaders-tied-to-offshore-companies.html>.

¹¹ China's leaders are in the enviable position of having the freedom to plan their economic development more or less as they choose because of their triumphant success in turning their export bases into an engine of growth, the workshop of the world for more than three decades – a feat no other bureaucratic collectivist regime, notably the Soviet Union, could match. On China's unique developmental model, see Richard Smith, 'The Chinese Road to Capitalism', *New Left Review* 199 (May–June 1993): 55–99.

¹² *Economist*, 'The Rise of State Capitalism', 11 August 2016; Michael Wines, 'China Fortifies State Businesses to Fuel Growth', *New York Times*, 30 August 2010.

peasants. This surrogate party-army was explicitly nationalist, elitist, and deeply anti-democratic. It functioned as a proto-ruling class in its rural base areas and consolidated itself as a bureaucratic collectivist ruling class with the revolutionary victory in 1949. In so doing, Mao's surrogate party-army substituted not for China's proletariat but for its enfeebled national bourgeoisie.¹³ As nationalists, and in particular as "communist" nationalists, they faced Cold War hostility, blockades, and other threats from the first days of the People's Republic under Mao, so they had little choice but to self-industrialise. Partly by circumstance and partly by choice, Mao sought to build China as a more or less fully autarkic economy, though he had some help from the Soviets in the 1950s. Hostile to markets and lacking capitalist technology and methods of economic development, he tried to drive the economy to "surpass Britain and catch up with the US" by means of political campaigns based on heroic "revolutionary" self-sacrifice and voluntarism. That didn't work out so well.¹⁴ After Mao's death in 1976, Deng Xiaoping abandoned politics for economics and, under the banner of "market reform and opening up", invited Western companies to set up in China, initially in an archipelago of coastal Special Economic Zones (SEZs), where foreign companies partnered with state-owned industries to exploit China's vast pool of ultra-cheap migrant labour in exchange for technology and know-how transfer from the West.

The three "must dos"

From Deng Xiaoping to Xi Jinping, China's leaders have sought to build their nation into a modern industrial superpower, but one which is still largely self-sufficient in order to prevent the return of foreign domination.¹⁵ Thus, while introducing capitalism, the government has systematically maintained state supremacy and induced foreign companies to hand over technology and intellectual property for market access. It has also restricted foreign investors to limited sectors (auto manufacturing, electronics, export industries, some retail, and others) in order to prevent their taking over key sectors and the commanding heights of the economy.¹⁶ Since the advent of market reform, the party's strategic goal of comprehensive economic development has obliged it to rely on three main levers, or what here I'm going to call drivers: state-led import-substitutionist industrialisation, employment generation, and consumerism. All these have had enormous environmental consequences.

1. Maximise economic growth and national self-sufficiency

First, profitable joint-venture partnerships brought in mountains of forex earnings which enabled the party to renovate, modernise, and greatly expand its state-owned industries from the 1990s. In the 1970s, no company from the People's Republic of China was counted among the Fortune Global 500 list. By 2016, 128 of the Global 500 companies were Chinese (versus 110 American companies, down from 138 the year before), including three of the top

¹³ On the transformation of the CCP during the course of the revolution, see my 'Mao Zedong and the First Party-Army Revolution', *Against the Current* 1, no. 1 (Summer 1981), <http://www.richardanthonymsmith.org/mao-rev-1>.

¹⁴ Yang Jisheng, *Tombstone: The Great Chinese Famine 1958–1962* (New York: Farrar, Straus and Giroux, 2012).

¹⁵ E.g., Keith Bradsher and Paul Mozur, 'China Has a Plan to Be Nearly Self-Sufficient by 2025. Global Rivals Call It Unfair', *New York Times*, 8 March 2017.

¹⁶ E.g., Tom Mitchell, 'The Door to China's Real Investment Riches Remains Locked', *Financial Times*, 31 March 2015, <https://www.ft.com/content/719b1134-d763-11e4-94b1-00144feab7de>.

ten, and nearly all of them – and all the big ones – were state-owned. The government also modernised and monetised its central planning apparatus.¹⁷

China's Five-Year Plans have spelled out strategic goals of comprehensive development and import-substitutionist industrialisation plans and funded priority and “pillar” industries, from basic steel, coal, power generation and so on in the 1950s up through the highest-tech aspirations today: smart manufacturing, robotics, cloud computing, 5G internet, AI, big data, new materials, renewable energy, hybrid vehicles, and more, detailed in the Twelfth and Thirteenth Five-Year Plans (2010-20).

With his call for “national rejuvenation” (*fuqing*), centred on his Made in China 2025 initiative and New Silk Road project, Xi Jinping is taking all this to a new level. He aims not just to make China the world's leading high-tech manufacturer but also to bring much of Asia, Africa, and even Europe under the sway of Chinese market domination and political hegemony in order to construct a New World Order in which China regains its “rightful” place as the centre of the world economy and a dominant superpower equal if not superior to the United States.¹⁸ So this is the first driver: the need to compete and succeed as a *national economy* against Western, especially US domination.

2. Maximise employment

Second, the Chinese leadership must maximise growth to generate jobs to keep up with its population growth and create new jobs for workers in sunset industries like coal. In capitalist economies, corporations don't care about the unemployed. If workers, even masses of workers, get laid off, that's not the capitalists' problem. It's not even the government's problem either – except in severe downturns like the Great Depression when the US government, for example, was obliged to create Civilian Conservation Corps and WPA-type jobs programmes or face unrest if not revolt. But because the CCP was once a workers' party and because the party claims its legitimacy, its very *raison d'être*, as the (self-appointed) representative of the working class for whom it led the revolution, it cannot completely ignore the workers as capitalists can do in the West.

The CCP has been very cruel to China's workers, as when it subjected them to merciless exploitation at the hands of foreign corporations in the SEZs. But it must still strive to keep them employed to keep the peace. Since the 1990s the government has faced hundreds of mass protests across the country every day, more than 160,000 “mass incidents” a year by official count, including strikes and protests against unpaid back pay or overtime, land grabs, pollution, and corruption.¹⁹ The government cannot afford to have masses of unhappy unemployed workers milling about. That's why, in November 2013, prime minister and economic czar Li Keqiang said: “Employment is the biggest thing for well-being. The

¹⁷ Sebastian Hellmann and Oliver Melton, ‘The Reinvention of Development Planning in China, 1993-2012’, *Modern China* 39, no. 6 (November 2013): 580–628.

¹⁸ Bai Yang, ‘China to Become a “World Space Power” by 2045: Expert’, *People's Daily*, 22 October 2017, <http://en.people.cn/n3/2017/1022/c90000-9283262.html>.

¹⁹ Max Fisher, ‘How China Stays Stable Despite 500 Protests Every Day’, *Atlantic*, 5 January 2012, <https://www.theatlantic.com/international/archive/2012/01/how-china-stays-stable-despite-500-protests-every-day/250940>; Hou Liqiang, ‘Report Identifies Sources of Mass Protests’, *China Daily*, 9 April 2014, http://www.chinadaily.com.cn/china/2014-04/09/content_17415767.htm.

government must not slacken on this for one moment... For us, stable growth is mainly for the sake of maintaining employment.”²⁰

This explains why the Twelfth and Thirteenth Five-Year Plans have insisted that the government will do all it can to keep unemployment below 5 percent, declaring that it will create some 15 million new jobs each year if necessary. This is the main reason, apart from import substitution and their contribution to national industrialisation, that the government keeps its “zombie” steel companies, aluminium companies, coal mines, and construction companies in business year after year, rolling over their debts rather than letting them fail and close down as Western economists are always admonishing them to do.²¹

3. Maximise consumerism

Third, after the collapse of communism in East Europe and Russia and the Chinese communists’ own near-death experience with the Tiananmen uprising of 1989, the party leadership determined to prioritise the creation of a mass consumer economy and also gradually raised incomes to focus people’s attention on consumption instead of politics. This is why, ever since the early 1990s, successive Five-Year Plans have prioritised new consumer industries and the government has promoted one after another consumer craze: the car craze, the house-building / “condo-mania” craze, the shopping-mall craze, the tourism craze, the golf-course craze, the theme-park craze, the glass-bridge craze, the bike-sharing craze, the cruise boat craze, and more. The government reports that tourism, mostly Chinese, now accounts for 11 percent of the GDP and the government is keen to grow this sector.

The government has also partnered with and backed private capitalists, including Jack Ma’s Alibaba (China’s eBay) and other consumer-oriented industries to promote shopping, video gaming, plastic surgery, social media, and more shopping. State newspapers including the *People’s Daily*, flagship of the Communist Party, read like the shopping news and devote front page space to bragging about how many billionaires ‘socialist’ China has produced this year.²² In recent years, state banks created a consumer credit industry from scratch and went into the mortgage business to spur consumption and drive economic growth. But shopping has certainly been a smash hit for Xi and the CCP. China’s 2017 Singles’ Day grossed more than America’s Black Friday and Cyber Monday combined (of course). After centuries of privation and decades of Maoist austerity, it seems the Chinese have gone in for consumerism with a vengeance. As many say, “It’s our turn now”.²³ Greenpeace China has sharply criticized the environmental consequences of all this pointless overconsumption.²⁴

²⁰ Quoted in Keith Bradsher, ‘China’s Leaders Confront Economic Fissures’, *New York Times*, 5 November 2013.

²¹ Frank Tang, ‘Beijing Can Boost Economic Growth if it Beats the Corporate “Zombies”, IMF Says,’ *South China Morning Post*, 29 November 2017: <http://www.scmp.com/news/china/economy/article/2122159/beijing-can-boost-economic-growth-if-it-beats-corporate-zombies>.

²² Shi Futian, ‘Video Gaming Hitting New Highs’, *China Daily*, 8 November 2017. Xu Junqian, ‘Chinese girls dazzle at Victoria’s Secret Fashion Show’, *China Daily*, 25 November 2017. Editor, ‘Top 10 Chinese Billionaires’, *People’s Daily*, 9, March 2015: <http://en.people.cn/business/n/2015/0309/c90778-8860134.html>. Xin Wen, ‘Hansome future for beauty sector’, *China Daily*, 24-26 November 2017 (on the plastic surgery craze among young, not older, women (!)

²³ Cindy Sui, ‘What the World’s Largest Shopping Day Says about China’, *BBC News*, 11 November 2011, <http://www.bbc.com/news/world-asia-china-41954591>.

²⁴ Lu Yen Roloff, ‘Why You Shouldn’t Buy Anything on Single’s Day,’ *Greenpeace China*, 10 November 2010: <http://www.greenpeace.org/international/en/news/Blogs/makingwaves/overconsumption-buying-singles-day-fashion-shopping/blog/60678/>

There are further drivers, below the top leadership. Industrial ministries led by the oil ministry, the coal ministry, the steel ministry, the railroad ministry, state construction companies, and others are all mighty drivers of growth in their own right. They employ millions and contribute billions in GDP growth and tax revenues. They compete fiercely for centrally allocated resources. And as China's growth has slowed since 2012, they've resisted efforts by the central government to force them to cut back.

Then there are the local drivers. When Deng Xiaoping introduced market reforms in local governments and state industries, he cut various profit-sharing deals with local officials and SOE bosses. He insisted that SOEs fulfil their planned production as previously (government planners still impose numerous quotas and targets), but gave them the right to sell over-quota output on the new free markets, to reinvest their retained profits as they saw fit, and to initiate new lines of production for market.

With the rise of Poland's Solidarność trade union in 1980 and the Tiananmen uprising and collapse of communism in 1989, Deng saw China's opportunity in stark Manichaeian terms: China's communists were presented with a once-in-an-epoch opportunity to catch up with the West – to use capitalism to save communism – or join their Soviet comrades in the dustbin of history. In 1980, Deng ordered China's officials and managers to rev their engines and double per capita GDP to \$500 by 1990, then double it again to \$1,000 by 2000, then once more by between 2030-50 to achieve a national GDP of \$1 trillion. In 1992, he invited local officials and SOE bosses to *xia hai* ("jump into the sea of commerce") and exhorted them to grow the economy or get out of the way: "Any leader who cannot boost the economy must leave office".²⁵

GDP "tournaments", investment manias, and redundancy

Local officials didn't need to be told twice. Deng's exhortations led in short order to GDP "tournaments" as overachieving local officials competed to generate higher growth rates to win promotions and more government largesse. Thus, the Eleventh Five-Year Plan (2006-10) set a national GDP target of 7.5 percent. But all of China's thirty-one provinces set targets higher than this. The average was 10.1 percent, with the highest 13.0 percent and the lowest 8.5 percent.²⁶ Local officials pursued "blind production," "blind investment" and "blind growth", squandering resources and profligately wasting energy in all these processes in full confidence that the government would continue to bail them out, which, so far, it continues to do.

What's more, for the most part, the introduction of market reforms has amplified (instead of reducing) tendencies in the old bureaucratic economy toward redundant investment. Officials in, say, inland Sichuan Province can't invest in industries in coastal provinces like Guangdong or Shanghai like capitalist investors in a market economy. They're more or less stuck with what they've got, what they control, what they "own". In this circumstance, every local official sees his or her neighbour as a competitor in a zero-sum game of competition for central disbursements, market profits, and promotions. Thus the incentives and penalties discourage cooperation, efficiency, and economies of scale and encourage redundancy, inefficient plant,

²⁵ Quoted in Michael E. Marti, *China and the Legacy of Deng Xiaoping* (Washington, D.C.: Brassey's, 2001), 87, 94.

²⁶ Mark A. DeWeaver, *Animal Spirits with Chinese Characteristics* (New York: Palgrave MacMillan, 2012), 81. I am much obliged to Mark for this example and for his insights into and analyses of the complex motivations of local officials regarding economic growth.

and small-scale backward technology.²⁷ So if local officials out in Sichuan or up in Henan or down in Yunnan want to profit off central government initiatives to boost auto or solar or windmill production, the way to do so is to build their own – DIY. So local officials have built thousands of redundant, mostly small- to medium-sized enterprises (SMEs) across the economy. As a result, today China has at least 140 auto plants (versus 45 in the US), some producing fewer than a thousand cars per year, one even producing fewer than a hundred. It has more than a hundred wind-turbine producers, most operating at less than 50 percent capacity; more than 200 electric-car makers, none of which make money; and so on.²⁸ Every mayor wants his or her city to be a Detroit or a Wall Street or a Silicon Valley. But instead of large-scale, efficient, specialised plants dominating production, what one more often finds is enormous numbers of SMEs surrounding China's cities. "In Jiangsu province, which surrounds Shanghai, roughly one such enterprise can be found per square kilometer".²⁹ Same with power plants. And local SOEs not infrequently build their own small-scale but "captive" power plants to ensure regular supplies of power.³⁰ Little wonder China's industrial regions are blanketed in coal smog and dust.

In the urbanisation drive the government has promoted since the 1990s, local officials have expropriated land from hundreds of millions of peasants, uprooting some 400 million farmers and selling their farmland to developers building masses of apartment blocks, industrial parks, shopping malls, infrastructure, and useless "blingrastructure" and "ghost cities" across the country.³¹ Real estate development has accounted for 20 percent or more of GDP growth since the 1990s.

Redundant development, in turn, helps overdrive the national GDP. Since the beginning of market reform in 1978, China's Five-Year Plans have never called for national GDP growth rates higher than 8 percent per year, yet this target has been regularly exceeded: in 1983-88, GDP growth averaged 11.9 percent per year. In 1985 the economy grew at 15.2 percent, nearly double the target. Over two decades, from 1992 to 2011, GDP growth averaged 10.5 percent, hitting 13 and 14 percent on the crest of the boom in 2006 and 2007. In this way, China's competitive, overachieving officials easily soared past Deng's targets to a GDP that exceeded *11 trillion dollars* in 2016.

This is why, with just 19 percent of the world's population and a GDP equal to just 63 percent of the US's in 2016, China has nevertheless become by far the world's biggest consumer of

²⁷ DeWeaver, *Animal Spirits*, chapters 5 and 8. I explored the persistence of bureaucratic economic irrationality in the face of market reforms during the first decade of market reform in my dissertation, *Class Structure and Economic Development: The Contradictions of Market Socialism in China* (Los Angeles: UCLA History Department, 1989), chapters 3 through 5, <http://www.richardanthony-smith.org/class-structure-and-economic-development>.

²⁸ Alexandra Ho, 'Too Many Car Factories in China?' *Bloomberg*, 12 February 2015: <https://www.bloomberg.com/news/articles/2015-02-12/china-s-car-factory-binge-risks-hurting-automakers-margins>; Reuters, 'China to Clamp Down on New Car Plants in Fight against Capacity Glut, Pollution', 12 June 2017, <http://www.reuters.com/article/us-china-autos-overcapacity/china-to-clamp-down-on-new-car-plants-in-fight-against-capacity-glut-pollution-idUSKBN19314U>; Li Fusheng, 'New Energy Vehicles – a Case of Too Many, Too Soon?' *China Daily*, 30 October 2017.

²⁹ Elizabeth C. Economy, *The River Runs Black* (Ithaca, NY: Cornell University Press, 2004), 70-71.

³⁰ 'The central government has tried to consolidate energy suppliers into large-scale power plants, where environmental technologies are easier to enforce. But local governments have encouraged the proliferation of small (under 50 megawatts [MW]), inefficient, and highly polluting coal-fired power plants to meet growing local energy needs. The smallest of these plants (12 MW) release three to eight times more particulates, consume 60 percent more coal, and are 35-60 percent more costly to operate than plants of 200 MW or more' (Economy, *River Runs Black*, 73).

³¹ Wade Shepard, *Ghost Cities* (London: Zed, 2017); Tom Miller, *China's Urban Billion* (London: Zed, 2012).

marketed primary-industrial raw materials (cement, metal ores, industrial minerals, fossil fuels, and biomass). China consumes more than 32 percent of the world's total of these resources – nearly four times as much as the United States, the second-largest consumer. China is the leading producer and consumer of steel, with 50 percent of world output. It consumes just over half the world's coal and a third of the world's oil.³² It also consumes 60 percent of the world's cement. Technology analyst Vaclav Smil published the astonishing statistic that, in building and over-building its infrastructure, China poured more cement in just the three years from 2011 to 2013 than US builders poured *during the entire twentieth century* to build all US cities, ports, road and rail systems, airports, and more.³³

China has also become the world's largest consumer of lumber and forest products, levelling forests from Siberia to Southeast Asia, New Guinea, Congo, and Madagascar. Thanks increasingly to China's voracious consumption, Greenpeace has warned that "future generations will be living on a planet without ancient forests".³⁴ This is also why China surged past the US to become the world's largest consumer of energy in 2009 and, given present trends, will soon be consuming fully twice as much energy as the United States with an economy less than two-thirds as big.³⁵

To be fair, some of these resources – roughly 20 percent – are embedded in the production of goods for export to the West. But these exports are partially offset by China's own imports of embedded resources in the form of Boeing airplanes, soybeans, beef, pork, and other commodities the country imports in large quantities. The rest is consumed in domestic production, overproduction and waste.

The logic and necessity of "blind growth", "blind demolition" and "blind construction"

"Out with the old, in with the new; out with the new, in with the newer"
(Wade Shepard).³⁶

Given these drivers, in China's statist economy it becomes rational to regularly overproduce – to produce mountains of steel and aluminium that can't be sold at home, that can only be dumped overseas at below cost. It becomes rational for state construction companies to build empty airports all over the country, near empty high-speed trains, empty expressways, and empty bridges.³⁷ It's likewise sensible, if bizarre and stupendously wasteful, to build hundreds of surreal "ghost cities" and "New Areas" all over the country where almost no one lives. Indeed, right now, China's planners and builders are reported to be in the process of building 3.4 billion new homes – in a nation of 1.4 billion people, most of whom have already been

³² Elizabeth C. Economy and Michael Levi, *By All Means Necessary* (Oxford: Oxford University Press, 2014).

³³ Ana Swanson, 'How Did China Use More Cement between 2011 and 2013 than the US Used in the Entire 20th Century?', *Independent*, 25 March 2015, <http://www.independent.co.uk/news/world/asia/how-did-china-use-more-cement-between-2011-and-2013-than-the-us-used-in-the-entire-20th-century-10134079.html>.

³⁴ Craig Simons, *The Devouring Dragon* (New York: St. Martin's, 2015).

³⁵ Malcom Scott and Cedric Sam, 'China and the United States: A Tale of Two Giant Economies,' *Bloomberg*, 12 May 2016, <https://www.bloomberg.com/graphics/2016-us-vs-china-economy>.

³⁶ Shepard, *Ghost Cities*, 17.

³⁷ Chris Buckley, 'China's New Bridges: Rising High, but Buried in Debt,' *New York Times*, 10 June 2017: https://www.nytimes.com/2017/06/10/world/asia/china-bridges-infrastructure.html?_r=0.

rehoused since the 1990s.³⁸ Since 1995, China has levelled and rebuilt a huge percentage of its housing stock. Some 40 percent of all its homes have been built since 2000.³⁹

Worse, because housing construction in China is often so shoddy, it's soon torn down and replaced, over and over again, with all the waste that entails. As Wade Shepard writes,

“Li Dexiang of Tsinghua University told the *China Daily* that ‘what we see nowadays is the blind demolition of relatively new buildings, some of which have only been standing for less than 10 years’. Modern Chinese buildings are essentially disposable; they stand for one, two, or three decades and are then requisitioned and demolished, whereupon bigger, better and more expensive buildings will go up in their place. This fits in well with the country’s broader economic structure: houses that can last a century are not nearly as profitable as ones that can be demolished, rebuilt and sold three times over within this span of time. As 40 percent of construction land in China is created every year by the demolition of older buildings, the financial incentives for these urban upgrades is evident. Demolition, too, increases the GDP. Under this strategy there is no limit on development, as once all the available construction land is used it will be high time to start tearing down what was just built to build it again.”

Who says the Chinese can’t innovate?

The Chinese have applied the economic stimulus of consumer culture to urbanization; these shiny new cities that are going up across the country are like new refrigerators which are designed to break down after a few years of use so you have to go out and buy a new one – built-in obsolescence in urban planning.⁴⁰

Voilà: disposable cities! And with them disposable culture, disposable communities, universal alienation.⁴¹ This is how, in what can only be described as industrial-scale architectural vandalism, Beijing’s ancient *hutong* (alleyway) neighbourhoods with their courtyard homes dating back to the Ch’ing and Ming dynasties, have been levelled, their close-knit families and communities broken up, and replaced with ugly shopping malls, gargantuan and garish hotels, and pompous SOE headquarters skyscrapers filled with suited drones dozing over their teacups while the former residents are dispersed to shabby suburbs far from the city centre. The same happens in Shanghai and other cities.

³⁸ *Shanghaiist*, ‘Chinese Local Governments Are Planning Enough Housing for 3.4 Billion People by 2030’, 19 July 2016, http://shanghaiist.com/2016/07/19/too_many_houses.php. This can happen because China’s rich and middle classes have few other legal investment options. Bank interest is nil. Ordinary Chinese can’t buy stocks in New York or even Hong Kong. So they invest in property. Middle-class families often own two or three or extra apartments – not to live in, not vacation homes, just investments, like “gold bricks” as the Chinese say, bought purely for speculation.

³⁹ Shepard, *Ghost Cities*, 15.

⁴⁰ Shepard, *Ghost Cities*, 16.

⁴¹ For a sense of the alienated life of Beijingers today, see Zhang Wumao’s biting essay ‘Beijing Has 20 Million People Pretending to Live Here’, *What’s On Weibo*, 26 July 2017: https://www.whatsonweibo.com/beijing-20-million-people-pretending-live-full-translation/?utm_campaign=Revue%20newsletter&utm_medium=Newsletter&utm_source=What%27s%20on%20Weibo. Or the migrant worker essay that also went viral in China: “I am Fan Yusu”, trans. in China Digital Times, 2 May 2017: <https://chinadigitaltimes.net/2017/05/translation-fan-yusu-part-1/>.

Exporting over-production, over-construction, and surplus labour

Since 1999, when the government ordered its large SOEs to “go out, go global, in search of new markets, they have been building hundreds of infrastructure-for-resources (and/or for loans) projects across Southeast Asia, Africa, Latin America, and even Europe and the US.⁴² In most cases, China compels its weaker neo-colonies, like Britain and Cambodia, to use Chinese companies, Chinese finance, and Chinese labour.⁴³ Today, with China already massively overbuilt, Xi Jinping’s New Silk Road initiative is pushing this imperialist venture to a new level, to expand China’s economic empire around the world to contest the United States for global hegemony.⁴⁴

China’s nonstop construction frenzy is, at bottom, the world’s largest ever make-work project, though it’s also a mighty engine of cadre corruption – one of many means for officials to loot the state.⁴⁵ It’s also a mighty engine of global ecological collapse; cement and steel production are among the largest contributors of greenhouse gas emissions.

II. Built-in barriers to change

The foregoing overview summarised the built-in drivers of excessive growth, over-production, over-construction, resource and energy waste, and pollution in China. Now what about the built-in barriers to change? And how are these different from capitalism elsewhere?

First of all, China’s formidable police state brooks no opposition. Trade unionists, environmentalists, democrats, feminists, and their lawyers are all routinely arrested and imprisoned, sometimes tortured or even killed. Chinese activists risk their lives to fight the social and environmental destruction of their country and yet, astonishingly, many brave⁴⁶ly fight on as best they can. Things have not yet reached that stage in the remaining democratic capitalist states, though who knows for how long?⁴⁷

Second: China’s ruling class owns the state economy collectively, not privately like capitalists, and this gives the Chinese economy a radically different character and trajectory from “normal” capitalism elsewhere. The party-state owns the whole economy, all the land and natural resource as well as the profits of its industries, tax receipts, foreign-exchange surpluses and more. But no party member owns any of this personally. In this system, economic power is dispersed throughout the party-state bureaucracy, though concentrated in nodes of power, especially family-based and factional sections of the party bureaucracy. This

⁴² Ouyang Shijia, et al., ‘US Workers Learn How to Make Chinese Subway Cars’, *China Daily*, 31 May 2017.

⁴³ Howard French, *China’s Second Continent* (New York: Random House, 2015); Emily Gosden, ‘China to Build Nuclear Reactor in Essex after Hinkley Deal Approved’, *Telegraph*, 15 September 2016. Thanks to Thatcher’s anti-industrial policies, Britain is so deindustrialized today that besides nuclear power plants, the Brits even have to import basic steel from China. Even the London Taxi Company is now owned by a Chinese company that produces London’s taxis in Shanghai. Tycho De Feijter, ‘London’s Iconic Black Cab to be Replaced with Chinese Automaker Geely’, *Forbes*, August 17, 2016: <https://www.forbes.com/sites/tychodefeijter/2016/08/17/geely-to-replace-londons-iconic-black-cab-with-a-hybrid/#537a7b3a396c>.

⁴⁴ Tom Miller, *China’s Asian Dream* (London: Zed, 2017); Howard French, *Everything Under the Heavens*.

⁴⁵ Smith, ‘China’s Communist-Capitalist Ecological Apocalypse’; DeWeaver, *Animal Spirits*, chapter 5.

⁴⁶ Paul Huang, ‘Chinese Regime Sentences Taiwan Activist to Five Years in Prison for Discussing Democracy on Facebook and WeChat,’ *Epoch Times*, 1 December 2017.

⁴⁷ Michael Safi, et al., ‘You Can Get Killed: Journalists Living in Fear as States Crack Down’, *Guardian*, 29 November 2017.

collectivist power and property has major implications with respect to Beijing's effort to control and direct the economy and to enforce its own environmental rules and regulations.

In the West it's often argued, "Well, China may be a dictatorship, but at least a dictator should be able to get things done. So it should be able to force a transition to solar and wind power quickly". Indeed, China's government gets things done like no other nation on Earth – "at China speed", as the *People's Daily* likes to brag.⁴⁸ A new airport? Consider it done. A new high-speed train line? Done. A new fifty-seven-story skyscraper? One was recently put up in nineteen days. An entirely new city like Xiongan now under construction south of Beijing? That might take a couple of years or so. But it's a whole city, and it's planned to be triple the size of New York City.⁴⁹ The government has little trouble forcibly evicting hundreds of millions of people to use their lands for dams, developers, industrial parks, shopping malls, highways, airports, or anything else it wants to build. Thousands of migrant workers were just evicted in November from Beijing, their homes demolished, in the latest gentrification push.⁵⁰

But when it comes to halting over-construction, over-production, and pollution, not to mention corruption, the central government can't seem to enforce its will. It can't systematically discipline the people in its own ranks. When the government orders local officials to stop over-building or over-producing, to obey state environmental laws, to stop dumping pollutants into waterways, to turn on the sewage-treatment plants or power-plant coal-desulphurisation equipment, or to suppress coal production and shift to solar and wind, strangely, its orders often fall on deaf ears, ignored or defied.

These bureaucratic obstructionist practices are so universal and long established that they've given rise to a raft of popular aphorisms, including:

- Xi Jinping is master of nothing;
- Orders don't leave Zhongnanhai [the compound adjacent to the Forbidden City in Beijing, where the top CCP leaders have lived and worked since 1949];
- Above are orders, below are counter-orders;
- Complying in public but opposing in private;
- Glancing left and right.⁵¹

⁴⁸ *People's Daily*, "'China Speed' Amazes World', 30 November 2015, <http://en.people.cn/n/2015/1130/c90000-8983488.html>.

⁴⁹ Tom Phillips, 'China Plans to Build New City Nearly Three Times the Size of New York', *Guardian*, 4 April 2017, <https://www.theguardian.com/world/2017/apr/04/china-plans-build-new-city-nearly-three-times-the-size-of-new-york>; Wade Shepard, *Ghost Cities*, chapter 3.

⁵⁰ Chris Buckley, "Why Parts of Beijing Look Like a Devastated War Zone," *New York Times*, 30 November 2017: <https://www.nytimes.com/2017/11/30/world/asia/china-beijing-migrants.html>. Also, Ian Johnson, 'China's Great Uprooting: Moving 250 Million into Cities', *New York Times*, 15 June 2013, <http://www.nytimes.com/2013/06/16/world/asia/chinas-great-uprooting-moving-250-million-into-cities.html>; and Miller, *China's Urban Billion*.

⁵¹ These are extensively discussed in Zhang Linshan and Sun Fenyi, *The Phenomenon of Reform Obstruction in China: Performance, Origin, and Solution* (Beijing: Social Sciences Academic Press, 2017), 5–7ff (in Chinese). See also *China Quarterly* 231 (September 2017), Special Section: Central-Local Relations and Environmental Governance in China, particularly: Sarah Eaton and Genia Kosta, 'Central Protectionism in China: The 'Central SOE Problem' in Environmental Governance'; Benjamin van Rooij, et al., 'Centralizing Trends and Pollution Law Enforcement in China'; Christine Wong and Valerie J. Karplus, 'China's War on Air Pollution: Can Existing Governance Structures Support New Ambitions?'; and Xuehua Zhang, 'Implementation of Pollution Control Targets in China: Has a Centralized Enforcement Approach Worked?' The CQ articles explore systematic resistance up and down the bureaucratic hierarchy to Beijing's environmental initiatives. They more or less all conclude that, as Xuehua Zhang writes: '[C]entralized enforcement . . . is arguably ineffective in addressing China's long-standing problem of weak environmental policy implementation' (749).

What these expressions mean is that CCP leaders are dependent upon subordinate officials who are not powerless themselves and often have ample means to ignore or defy orders from above. As a local official I quote in my book said, “We don’t think those orders [to stop polluting] apply to us”. He doesn’t *think* they apply to him? Imagine a division chief of a major US corporation saying he doesn’t think the CEO’s orders apply to him. How long would he keep his job?

But in China, ministerial officials, provincial governors, local officials, and SOE bosses mostly need not worry. Why is that? How is it that a highly centralised neo-totalitarian police state cannot force its own subordinate officials to obey its own orders, laws, rules, and regulations? This is a most interesting question. The answer, I suggest, is to be found in the collective nature of China’s ruling class. Beijing can’t systematically enforce its writ against resistance from below because it can’t systematically fire subordinates for insubordination: they’re not just employees, as in capitalism. They’re Communist Party members, members of the same ruling class as the leaders in Beijing. So they’re not necessarily “subordinates”. Of course, all party officials are ranked in the hierarchical *nomenklatura* system, which assigns rank, responsibilities, duties, salaries, housing assignments, and so on. Cadres have bosses and bosses have bosses. But since there’s no rule of law in China, formal rank and position are not absolute and not the only determinant. As they say in China, “Without the rule of law there is only the rule of men”. This means that in this formally hierarchical system, the day-to-day reality is that all relations are intensely *personal*, governed by what the Chinese call *guanxi* (connections or relations). If you’ve got good *guanxi*, good connections with higher-ups (especially all the way to Beijing), and a solid base of supporters below, then you can be reasonably sure that you “own” your job; you can ignore orders from above; and you can keep making money on your polluting factory, buy off your superiors, pay your taxes, and carry on. (If you’re unsure, just stuff cotton in the monitoring devices, fake your emissions data, and hope your superiors turn a blind eye.)⁵²

If you’re head of a ministry or an SOE, especially a big “national champion” SOE that Beijing wants to forge into a world-beating industrial competitor, then Beijing is willing to overlook your pollution. In fact, what Sarah Eaton and Genia Kostka found in their research is that the bulk of reported air and water pollution violations are caused by big national champions, such as state-owned oil and gas giants Sinopec and China National Petroleum Company and electricity-generation giants, such as National Grid and its subordinates: “Central SOEs have been the source of a large number of environmental rule violation as well as serious pollution incidents within China. Large SOEs in the electricity generation and oil and gas industries are particularly culpable, with six firms alone accounting for 62 percent of all 2,370 reported violations in the database.”⁵³

China’s coal and oil ministries and its giant SOEs are very powerful and profitable, with millions of party bureaucrats and employees. Heads of large SOEs have ministerial rank. Of the 120 SOEs directly managed by the central government, fully fifty-four heads of those firms enjoy ministerial rank.⁵⁴ They like things the way they are and they intend to keep them that way. They resist efforts to suppress pollution at the expense of profits or dismantle coal or oil

⁵² Yuan Suwen, et al. ‘Northern China Fakes Emissions Data’, *Caixin*, 6 April 2017, <http://www.caixinglobal.com/2017-04-06/101075101.html>; Edward Wong and Vanessa Piao, ‘When China Wants Better Air Readings, Cotton Does the Trick’, *New York Times*, 28 October 2016, <https://www.nytimes.com/2016/10/29/world/asia/china-xian-air-pollution-data.html?mcubz=1&r=0>.

⁵³ Sarah Eaton and Genia Kosta, ‘Central Protectionism in China: The ‘Central SOE Problem’ in Environmental Governance’, *China Quarterly* 231, September 2017, 686.

⁵⁴ Eaton and Kostka, Central Protectionism, 693.

and replace them with wind and solar, and, as members of the ruling class and “co-owners” in the economy, they have so far largely prevailed. For all these reasons, across the country, officials can and do often ignore or defy Beijing with impunity.

Last winter (2016-17), for example, the government sent a team of environmental inspectors to see how effectively local officials were implementing the leadership’s orders to clean up the environment in three of China’s largest cities. Here’s what they found:⁵⁵

Beijing

- The city planned to clean up nineteen heavily polluted waterways last year, but work on only one was completed.
- Three mining companies continue to operate near the Miyun Reservoir, one of the city’s main sources of drinking water, even after they were ordered to close in 2008.
- None of the fourteen planned facilities to deal with waste from sewage-treatment plants was built . . . resulting in 630,000 tonnes of waste being dumped in temporary sites near residential areas for years.
- The city’s upmarket Shuyi district has failed to meet its goal for reducing a cancer-causing PM2.5 (particulate matter) in its air for two consecutive years from 2014.

Shanghai

- Only ten of 50 sewage treatment plants met the required standards. These ten were small plants that accounted for just 4 percent of the city’s sewage-handling capacity.
- 46 landfill sites built before 2008 didn’t have facilities to treat wastewater.
- Water quality in the city’s Baoshan district has continued to deteriorate since 2013; all sixteen samples taken from local waterways were heavily polluted.

Chongqing

- 39 of the 54 sewage-treatment facilities the city government promised to build between 2011 and 2015 were still under construction.
- The city gave the green light to build 98 large chemical plants near the Yangtze River, including 62 that would handle hazardous materials, threatening water quality.

Local authorities, the inspectors reported, “had failed to meet environmental goals, and lax government oversight had led to widespread violations of environmental protection laws”. Inspectors “upbraided” city officials for dodging responsibility by “trying to blame air pollution on pollutants from neighbouring cities and provinces”. And so on.

But the investigators couldn’t really do much about these insubordinate officials because they don’t have much power. Pollution controls and environmental clean-ups subtract from profits, so local authorities routinely ignore them. Thus, in her sensational documentary *Under the Dome*, Chai Jing queries the director of the MEP’s Vehicular Pollution Research Institute about why his agency doesn’t enforce anti-pollution laws and regulations. He told her that regardless of the law, his agency had no real power to enforce it: “Nowadays, I don’t dare open my mouth out of fear that [the polluters] will see that I have no teeth”.⁵⁶ Since the government can’t systematically threaten to fire its subordinates, its hands are often tied. All Xi’s enforcers can do is unleash terror campaigns, as in Mao’s day: send down discipline

⁵⁵ Zhou Chen and Li Rongde, ‘Cities’ Pollution Violations Have Inspectors Fuming’, *Caixin*, 13 April 2017, <http://www.caixinglobal.com/2017-04-13/101078097.html>.

⁵⁶ Chai Jing, *Qiong Ding Zhi Xia* (Under the Dome), 2015 (at 48:19).

inspection teams, issue rebukes, and levy fines. But fines tend to have little effect because the government that's levying the fine also owns the polluters. It's just fining itself.

Of course, here and there the government has been able to suppress pollution, at least temporarily.⁵⁷ Often, in response to mass protests, governments intervene to close down polluting plants or delay construction of some incinerator. For the Olympics and big conferences, the Beijing forced factories in the capital region to close. Xi just ordered steel plants around Beijing to shut down from November to March 2018 in hopes of preventing a repeat of the “airpocalypses” that have smothered the region in recent winters when the coal-fired heating systems are turned on. As of this writing (6 December), the prospects don't look good.⁵⁸ In any case, temporary shutdowns do nothing to solve the systemic problems while cutting production threatens jobs and undermines other central priorities.⁵⁹ Beijing's threats, interventions and campaigns tend to be short-lived and ineffectual: Polluters reopen after the inspectors have left, incinerators are relocated to despoil some other location, and so on.⁶⁰ This is why for all Xi's talk, his government is still losing its five-year-old “war on pollution”.⁶¹



“What have you just gone through?”⁶²

⁵⁷ For one in-depth study, see Bryan Tilt, *The Struggle for Sustainability in Rural China* (New York: Columbia University Press), chapter 6.

⁵⁸ Le Rongde, ‘Beijing Area Sees Fewer “Blue-Sky Days” This Year’, *Caixin*, 17 November 2017, <https://www.caixinglobal.com/2017-11-17/beijing-area-sees-fewer-blue-sky-days-this-year-101172743.html>. ‘China admits it will struggle to meet smog reduction targets’, *South China Morning Post*, 1 September 2017: <http://www.scmp.com/news/china/policies-politics/article/2109307/china-admits-it-will-struggle-meet-smog-reduction>.

⁵⁹ Shen Fan et al., ‘China's Sweeping Pollution Crackdown Puts Chill on the Economy’, *Caixin*, 22 September 2017: <https://www.caixinglobal.com/2017-09-22/chinas-sweeping-pollution-crackdown-puts-chill-on-economy-101148891.html>.

⁶⁰ For examples, see Smith, ‘China's Apocalypse’.

⁶¹ Smith, ‘China's Apocalypse’; *Caixin*, ‘Air Pollution in Jing-Jin-Ji Worsened in First Half of 2017’, 20 July 2008, http://k.caixinglobal.com/web/detail_19528; Li Rongde, ‘Beijing Area Sees Fewer “Blue-Sky” Days’; AP, ‘Four-Fifths of China's Water from Wells “Unsafe Because of Pollution”’, *Guardian*, 12 April 2016, <https://www.theguardian.com/environment/2016/apr/12/four-fifths-of-chinas-water-from-wells-unsafe-because-of-pollution>; Zheng Jinran, ‘Lax Anti-Pollution Efforts Highlighted’, *China Daily*, 2 August 2017, http://www.chinadaily.com.cn/cndy/2017-08/02/content_30325231.htm; Zhang Chun, ‘Hebei's Lung Cancer Spike Raises Questions about Role of Pollution’, *China Dialogue*, 15 February 2016. Etc.

⁶² *South China Morning Post*, “What Have You Just Gone Through?": Photos of China's Smog-Covered High-Speed Trains Go Viral’, 5 January 2017, <http://www.scmp.com/news/china/society/article/2059576/what-have-you-gone-through-photos-chinas-smog-covered-high-speed>.

Third: The fact that subordinate local, provincial, and ministerial authorities can defy central government orders to reduce pollution is bad enough. But this problem is compounded by the fact that Xi himself still refuses to subordinate growth to environmental protection. For all his talk about building an ecological society, Xi's government is still systematically prioritising growth over the environment. In their 2017 study of central-local relations, Eaton and Kostka found that the central government systematically protects its SOE polluters:

Officials in the central bureaucracy, principally SASAC (State-owned Assets Supervision and Administration Commission – the nominal owner/manager of government-owned enterprises), provide a measure of shelter for chronic polluters within SASAC's ranks by incentivizing senior SOE managers to look upon the achievement of traditional industrial policy goals such as profitability, scale, market share and efficiency – and not compliance with environmental regulations – as the *sine qua non* of a positive enterprise performance evaluation and possible promotion for managers themselves.⁶³

Why? Because the central government's overriding concern is to build up its "national champions":

As subjects of a long-standing industrial policy programme that aims at creating global players in key sectors, central SOEs face tacit, yet nonetheless strong, incentives to shirk on environmental rules that would harm their economic performance... [Enterprise groups] are relentlessly called upon to go "go bigger and go stronger"... via scaling up and striving to attain global standards of competitiveness... maintaining and increasing the value of state assets.⁶⁴

Given this priority, it comes as no surprise that, despite its formal elevation from agency to ministry, the MEP under Xi Jinping remains very much a second-class ministry. It is severely underfunded and understaffed, it lacks properly trained inspectors and monitoring equipment, it has no enforcement power, and its local regulators are often subordinate to the officials they're supposed to regulate. As a result, it is frequently ignored, as Chai Jing discovered.⁶⁵

The Chinese Communist Party versus planet Earth

I don't doubt that Xi Jinping sincerely wishes to build an "ecological society". But the fact remains that his options are severely limited by the imperatives of ruling-class reproduction: He can't prioritise environmental protection over economic growth because given the pressures he faces to grow the economy, build all those new industries to "make China great again", to produce jobs, to bring mass consumerism to a billion and a half Chinese, to sell his economy's overproduction and employ the country's surplus workers overseas, he has no choice but to prioritise growth over the environment.⁶⁶

As the people of Beijing last winter suffered through the worst bout of smog in the city's history, the government called on people to "be patient" and "wear respirators" (!) "It will take

⁶³ Eaton and Kostka, *Central Protectionism*, 694.

⁶⁴ Eaton and Kostka, *Central Protectionism*, 694.

⁶⁵ Eaton and Kostka, *Central Protectionism*, 690–91.

⁶⁶ Jiang Je, 'China to Pour Trillions into Belt and Road Projects', *People's Daily*, 13 July 2017, <http://en.people.cn/n3/2017/0713/c90000-9241409.html>.

time to solve this complicated problem.” Since the government couldn’t suppress the bad news, it shot the messenger: it ordered local forecasters to stop issuing smog alerts.⁶⁷ The prospects for winter 2017–18 don’t look much better. Beijing was smothered in a foul smog with the air quality index hitting the 280s in mid October when I snapped the picture below, while up in Harbin, capitol of Heilongjiang Province, the readings were over 500. (The World Health Organisation advises limiting exposure to PM2.5 particulates to no more than 20ppm, or parts per million.)⁶⁸ The government’s chronic inability to solve its pollution problems, especially the most visible problem of air pollution, is why more and more of China’s upper and middle classes are voting with their feet: fleeing China’s northern cities, even emigrating en masse abroad to Sydney, Vancouver, New York, Los Angeles, and beyond.⁶⁹ As the government paper *Global Times* put it during the most recent bout in October: “Despite the warnings, many Beijing residents were seen not wearing masks in public. And some netizens posted photos of their grey cities accompanied by statements like “So eager to flee this city”.”⁷⁰



October sun through 245 ppm
PM2.5 smog over Kunming Lake,
Summer Palace (after Monet).

Photo by author

⁶⁷ Sidney Leng, ‘Heavy Smog Back to Choke Northern China over Three-Day New Year Holiday’, *South China Morning Press*, 31 December 2016,

<http://www.scmp.com/news/china/society/article/2058439/heavy-smog-back-choke-northern-china-over-three-day-new-year>; Reuters, ‘China Orders Local Forecasters to Stop Issuing Smog Alerts’, 1 January 2017, <http://www.dw.com/en/china-orders-local-forecasters-to-stop-issuing-smog-alerts/a-37170575>.

⁶⁸ Tian Xuefei and Zhou Huiing, ‘Smoggy Days Arrive Early in Northeastern Regions’, *China Daily*, 3 November 2017.

⁶⁹ Tom Phillips, ‘Smog Refugees Flee Chinese Cities as “Airpocalypse” Blights Half a Billion’, *Guardian*, 21 December 2016.

⁷⁰ Zhang Hui, ‘Heavy Smog Hovers over North China’, *Global Times*, 28–29 October 2017.

III. What does all this mean for global warming?

What this means that Xi Jinping has no chance of leading a global fight against global warming. It means that, instead, China's economy is likely to continue leading the drive towards planetary ecological collapse. Short of nuclear war, China's economic engine poses the greatest threat to life on Earth. While the US, Europe, and Japan limp along at 1 to 3 percent annual GDP growth, China's supercharged communist-capitalist economy is still barreling along at just under 7 percent GDP increase per year. To be sure, this is down from its rate of 10 percent or more during the two decades leading up to 2011. But it's still double and triple the growth rates in capitalist countries. China's breakneck growth is driving global planetary collapse and yet for all his police-state powers and ecological ambitions, Xi Jinping is unable or at least unwilling to try to reverse those priorities.



Artist's rendering of Shanghai c. 2100, with 4°C warming.⁷¹

He can't have it both ways

Xi's problem, like our problem, is that there's just no way to grow an industrialised economy without growing resource consumption and pollution because, so far, no one has come up with a way to "dematerialise" production.⁷² That's why year after year, decade after decade, UN climate negotiations collapse in failure and acrimony: no industrial economy will accept finite caps on pollution because that would mean caps on growth. And that's why as economic growth has picked up this year, global emissions are accelerating again – driven mainly by China's emissions, which are projected to rise this year by 3.5 percent.⁷³

⁷¹ Climate Central, 'New Report and Maps: Rising Seas Threaten Land Home to Half a Billion,' 8 November 2015, <http://sealevel.climatecentral.org/news/global-mapping-choices>. Used with permission.

⁷² Richard Smith, *Green Capitalism*.

⁷³ Bob Berwyn, 'Global CO2 Emissions to Hit Record High in 2017,' *Inside Climate News*, 13 November 2017, <https://insideclimatenews.org/news/12112017/climate-change-carbon-co2-emissions-record-high-2017-cop23>.

More growth has to mean more fossil-fuel consumption – lots more. The fact that China reduced coal production by a few percentage points between 2014 and 2016 raised hopes in the West that China would soon reach “peak coal”. But, in truth, this slight drop of 2-4 percent hardly matters, since coal is still king in China and is set to remain so for decades to come. It still accounts for 75 percent of China’s electricity generation, and even the most optimistic official Chinese government projections foresee renewable energy (hydro, solar, wind, biomass) contributing no more than 20 percent by 2030. Xi’s government has promised to shut down a hundred coal-fired power plants at home. But China’s state-owned companies are building some 700 coal-fired power plants abroad, driving coal consumption far beyond China itself.⁷⁴

Yes, China is also building solar and wind power plants at a furious pace. But it’s building new fossil fuel capacity, especially natural gas, almost as fast. And though China leads the world in installed capacity for wind and solar, these still only account for a trivial share of its electricity generation. In 2015, China spent a record \$102 billion on wind, solar, geothermal, and other low- or no-carbon renewable energy. Yet in 2016 wind turbines produced just 4 percent of China’s electricity generation, and solar barely reached 1 percent. By comparison, the US invested just \$44 billion in 2015 but in 2016 wind produced 6.9 percent of its electric generation – nearly double China’s production with less than half the investment. The reason China produces so little renewable energy despite all the investment is that so much of its renewable energy is “curtailed” (wasted). Nationally, the government concedes that about 21 percent of wind energy is curtailed, as much as 40 percent in some provinces and even more than 60 percent in Xinjiang (ironically, the province with the most installed wind power).⁷⁵

Why? Again, the answer is to be found in the system of ruling-class reproduction in China. Ever since the founding of the People’s Republic, its economic administration has been highly decentralised, fragmented, and compartmentalised, with each locality striving to be largely self-sufficient, in effect mirroring Mao’s national economy. For all the market reforms since 1978, this remains largely true today for much of the economy. China doesn’t have a national electric grid. It has many local grids. Many wind and solar farms have been built in good locations, but then not connected to any grid.⁷⁶ Further, as noted above, local officials can normally profit only from enterprises in their bailiwicks. So to maximise their income they must maximise their output and sales, including power generation in their own locality. Wind and solar aren’t suitable for every location, and they’re intermittent. So rather than buy wind and solar power from distant locations at higher prices (when possible at all) and face the inevitable problem of intermittency and possibly “market blockades,” local officials prefer to build and protect their own coal-fired power plants. Thus even in Xinjiang Province with all its installed wind power, still:

A stunning 60 percent of all electricity generated... comes from captive coal-fired power plants, which factories operate to meet their own requirements.

⁷⁴ Hiroko Tabuchi, ‘As Beijing Joins Climate Fight, Chinese Companies Build Coal Plants’, *New York Times*, 1 July 2017.

⁷⁵ Kate Gordon and Anders Hove, ‘How China Wastes Its Renewable Energy’, *Wall Street Journal*, 13 September 2016, <https://blogs.wsj.com/experts/2016/09/13/how-china-wastes-its-renewable-energy>; China Electricity Council, *China Energy Portal*, 2017, <https://chinaenergyportal.org/en/2016-detailed-electricity-statistics>; Simon Göss, *Energy BrainBlog*, 9 February 2017, <https://blog.energybrainpool.com/en/power-statistics-china-2016-huge-growth-of-renewables-amidst-thermal-based-generation/>.

⁷⁶ E.g., Javier C. Hernandez, ‘It Can Power a Small Nation. But This Wind Farm in China Is Mostly Idle’, *New York Times*, 15 January 2017.

This is putting the region's electricity grid at risk and making the transition to renewables harder... The availability of cheap coal is a major driver in the northwestern Chinese province for energy and resource intensive enterprises, such as coal chemicals and electrolytic aluminium plants... these factories can cut their electricity cost by more than half by building their own captive power plants. In 2016, such coal plants generated 63 percent of all electricity in Xinjiang.⁷⁷

In effect, local officials and the coal ministry sabotage renewable energy to keep their coal-fired plants in operation. Yet, because they're all members of the ruling class and have responsibility for employing hundreds of thousands of workers, they very often do so with Beijing's tacit approval, despite public government pronouncements to the contrary.

"Irrational" coal-to-gas is dooming the planet

Worse, in the effort to clear the air in China's northern cities, Xi Jinping's government is building vast "coal gasification" bases out west in Shanxi, the Ordos Basin, Inner Mongolia, and other remote areas. These plants will burn coal directly on site to generate electricity and convert coal to liquid fuels like "syngas", which will then be transported to the cities to be burned in power plants, factories, and cars, basically, moving the smog to Western China.⁷⁸ These huge bases, some encompassing areas larger than the states of Delaware and Connecticut, will be the largest fossil-fuel development projects on Earth and will consume so much coal-fired energy that they will generate almost twice as much CO₂ emissions as if the coal were just directly burned in Beijing power plants. Scientists tell us that if these plants come online they will "doom the climate". Some already have and are adding to the recent global surge in CO₂ emissions.⁷⁹

Finally, if all this weren't awful enough, "climate fight leader" Xi Jinping is putting pedal to the metal to frack the country like the US in a bid to enforce his higher priority: making China relatively self-sufficient in oil and natural gas production to reduce coal consumption⁸⁰ and fuel his country's ever-growing fleet of useless cars, mostly stalled in traffic jams in China's smog-choked cities.⁸¹

And all this for what purpose? China overproduces electricity like everything else. Even as the Three Gorges, the world's largest dam, can't sell all the power it produces, the government is

⁷⁷ *Jingji Cankao Bao* (Economic Information Daily), 2 February 2017, my translation.

⁷⁸ Zhang Chun and Tang Damin, 'Pressure Builds to Fight Smog in Western China,' *Chinadialogue*, 5 January, 2017 <https://www.chinadialogue.net/article/show/single/en/9531-Pressure-builds-to-fight-smog-in-Western-China->.

⁷⁹ William J. Kelly, 'China's Plan to Clean Up Air in Cities Will Doom the Climate, Scientists Say', *Inside Climate News*, 13 February 2014, <http://insideclimatenews.org/news/20140213/chinas-plan-clean-air-cities-will-doom-climate-scientists-say>; Greenpeace, 'China's Planned Coal-to-Gas Plants to Emit Over One Billion Tons of CO₂', 25 July 2014, <http://www.greenpeace.org/international/en/news/features/China-coal-to-gas-plants-to-emit-billion-tons-of-CO2/>;

Edward Wong, "'Irrational' Coal Plants May Hamper China's Climate Change Efforts', *New York Times*, 7 February 7, 2017.

⁸⁰ Jaeah Lee and James West, 'America's Fracking Boom Comes to China', *Atlantic*, September 2014; Sophie Beach, 'China's Fracking Boom and the Fate of the Planet', *China Digital Times*, 14 September 2014 (includes video): <http://chinadigitaltimes.net/2014/09/chinas-fracking-boom-fate-planet/>.

⁸¹ Eva Li, 'Drone Footage Showing Extent of Smog-Stricken Beijing's Traffic Jams Leaves Viewers Gasping', *South China Morning Post*, 3 January 2017, <http://www.scmp.com/news/china/society/article/2058926/drone-footage-beijing-smog-traffic-jams-leaves-internet-viewers>.

building the world's second largest dam downstream.⁸² The country doesn't need all this electricity: In 2016 Chinese households consumed just 800 terawatt hours (TWh) of electricity, while industry consumed 5,120 TWh.⁸³ Most of China's electricity is squandered on unsustainable resource-hogging, polluting, superfluous industries, superfluous construction, superfluous consumer goods and services the Chinese and we don't need – not to mention powering the ever-growing fleet of computer servers China's surveillance state needs to process the flow of data from its zillions of video cameras, facial recognition devices, finger print readers and internet censors in its relentless drive to police every waking moment of every citizen's life.⁸⁴

IV. Planned deindustrialization or unplanned ecological collapse

Given the foregoing, it's very difficult to see how China's drive to ecological collapse can be averted. One thing is for sure: the Communist Party cannot save China, let alone the world. The CCP is locked in a death spiral it can't pull out of: Xi can't cut industrial production enough to drastically suppress emissions without inviting mass strikes, the rise of a Chinese Solidarność, and perhaps even revolt. So he can't slam on the brakes and has every incentive to keep the engines of destruction at full throttle.

What can be done? It goes without saying that the Chinese have every right to modernise, industrialise, and improve their material standard of living. But they don't need a higher *standard of living* based on ever-growing consumerism, like that of Americans. That's one more thing they don't need to copy. They need a better *mode of living*: clean unpolluted air, water, and soil; safe, nutritious, untainted, unadulterated food instead of toxic water, polluted adulterated foods, junk foods, and cancer villages – the “lucid waters and lush mountains,” the “healthy ecosystems” and “beautiful environment” Xi promised them. They need safe, quality housing that doesn't fall down. They need a public transportation system centred on urban bicycles and public transit instead of private cars and ring roads. They need good public schools and universities that encourage free intellectual inquiry and critical thinking so they don't have to send their children abroad to get a decent education and access Google and Facebook and Twitter and so on like the rest of the world. They need socialised medicine – free public healthcare like they used to have, but better, instead of the massively corrupt, bribery-driven pay-for-service system they've had to endure since medical care was privatised in the 1990s.⁸⁵

But Xi Jinping and the Communist Party can't give them that better mode of living, that better life, because the industrial retrenchment necessary to maintain “a harmonious coexistence between man and nature” would undermine the CCP's dreams of economic supremacy,

⁸² Eg. Darrin Magee and Thomas Henning, 'Hydropower boom in China along Asia's rivers outpaces regional demand', *thethirdpole.net*, April 28, 2017: <https://www.thethirdpole.net/2017/04/28/hydropower-boom-in-china-and-along-asias-rivers-outpaces-regional-electricity-demand/>. Xinhua: 'Construction of World's Second Largest Hydropower Station Begins', *People's Daily*, 4 August 2017: <http://en.people.cn/n3/2017/0804/c90882-9251172.html>.

⁸³ National Energy Administration, "Total Energy Consumption in 2016 Increased by 5.0%" (2016 Nian quan shehui yong dian liang tongbi zenzhang 5.0%) 16 January 2017, http://www.nea.gov.cn/2017-01/16/c_135986964.htm. Gordon and Hove, 'How China Wastes Its Renewable Energy'.

⁸⁴ Coco Liu, "For China's Massive Data Centers, a Push to Cut Energy and Water Use," *Yale Environment 360*, 22 August 2016: <http://e360.yale.edu/features/for-chinas-massive-data-centers-a-push-to-cut-energy-and-water-use>.

⁸⁵ Manya Koetse, 'Another Hospital Scandal: Nanchang Doctor Asks Woman for More Money During Abortion', *What's On Weibo*, 12 April 2017, <https://www.whatsonweibo.com/doctor-asks-female-student-money-abortion>. Weibo has hosted numerous discussions of the horrors of China's capitalism-with-vengeance medical system since privatisation.

superpower status and Communist Party glory, while to encourage critical thinking in China's schools would open the floodgates to challenge the whole CCP narrative and its dubious claims for legitimacy. So instead, the party gives the masses more stuff, more bread and circuses, while producing this stuff is destroying the country and bringing the planet down with it. As many Chinese say today, "Who cares if we have the world's highest GDP if we can't live here?"

We all need to live better by consuming less and consuming rationally, fairly, and sustainably. Given the planet's desperate shape today, the only way humanity is going to survive this century is if developed countries and developing countries "contract and converge" our resource consumption around a sustainable global average that will permit all the world's peoples to live in acceptable material comfort while setting aside resources for future generations and for the other life forms with which we share this small blue planet.

Climate scientists tell us that given the failed promises, backpedalling, and soaring CO₂ emissions we now face a *climate emergency*. On present trends we're on course to a 4 to 6°C warming before the end of this century; if we don't radically suppress fossil-fuel burning over the next few decades to keep the warming below the 2° threshold, global warming will accelerate beyond any human power to stop it, and ecological collapse and the collapse of civilisation will be unavoidable. To have a chance of staying below 2°, the industrialised nations and China must cut carbon emissions by about 6 percent per year in order to reach a 90 percent cut in emissions by 2050 as compared to 2010.⁸⁶

Xi Jinping's government has promised to "flatten" its CO₂ emissions by 2030, to increase renewable energy's share to 20 percent, to introduce carbon taxes, and, most recently, to stop production and sales of fossil-fuel-powered cars in China. Climate scientists say this is too little and too late: China's emissions need not just to flatten but to "fall sharply" beginning *now* and keep falling by around 6 per cent per year through 2030 and beyond, whereas currently, they've resumed their long-term upward trend, growing by 3.5 percent this year.^{87 88}

⁸⁶ James Hansen et al., 'Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature,' PLoS ONE 8(12), 3 December 2013: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0081648>.

Ecofys, *WWF Report 2015: 'It's Time to Peak: Why China's Corporate Sector Needs to Set Ambitious Greenhouse Gas Reduction Targets'*, World Wildlife Federation, February 2015, 11, <http://www.ecofys.com/files/files/wwf-ecofys-2015-it-is-time-to-peak.pdf>.

⁸⁷ Brad Plumer and Nadja Popovich, 'Here's How Far the World Is from Meeting Its Climate Goals', *New York Times*, 6 November 2007, <https://www.nytimes.com/interactive/2017/11/06/climate/world-emissions-goals-far-off-course.html>.

⁸⁸ If China's economy keeps growing at its current annual rate of about 7 percent, its GDP will overtake America's in the 2020s to reach US\$38 trillion by 2030 (as against \$23.5 trillion for the US in that year with the US economy growing at 3 percent p.a.). Even if coal consumption continues to fall as a share of energy generation, tripling the GDP by 2030 is going to mean more coal consumption – a lot more – and a lot more oil and gas too. According to projections by British Petroleum (BP) and the IEA, China's coal and oil and natural gas consumption will continue to rise steadily, "notwithstanding the Paris agreement". China's coal-fired generation capacity is projected to grow by as much as 19 percent in just the next five years. China is closing down older inefficient plants, but then opening new plants. It's closing marginal coal mines, but coal production is still up 5 percent this year over last year, and coal imports are also growing. Steel production was up 1.2 percent in 2016 over 2015, and right now steel is at an all-time high in China. Same with aluminium. These metals are heavy consumers of coal.

Sources: PricewaterhouseCoopers, *The World in 2050*, February 2017, <http://www.pwc.com/gx/en/issues/economy/the-world-in-2050.html>.

Luo Guoping and Fran Wang, 'China Expected to Step Up Use of Natural Gas', *Caixin*, 18 August 2017: <https://www.caixinglobal.com/2017-08-18/101132543.html>.

Xi's government has promised to introduce a carbon tax. But this is just Potemkin environmentalism. Carbon taxes are just a sham to delay or avoid cutting emissions. They don't impose a cap on output, the cost can be passed onto consumers, and the companies can pose as good citizens contributing to the "solution". That's why lots of oil and even coal companies *support* carbon taxes: they're not looking to put themselves out of business.⁸⁹ In China the whole charade is manifestly fake: since the government that would be imposing the carbon taxes also owns the polluting power plants, steel and aluminium mills, auto plants, airlines, ship builders and shippers, it would just be taxing itself. If the government wants to keep those companies in business producing the coal, steel, aluminium, robots, telecom equipment, big data computers and servers, and more to fulfil the government's Five-Year Plans, build its Made in China 2025 industries and build the highways, rails, ships and ports, and telecommunications along the New Silk Road and the Maritime Silk Road, then it's going to have to "lend" the polluting companies the money to pay the carbon taxes. And so it goes.

Xi's widely hailed plan to replace gasoline- and diesel-powered cars with electric cars is another charade. Electric cars are only as clean as their power source. In China this is going to be mainly coal for decades to come. Official Chinese government projections as well as those by BP and the IEA all show fossil fuels supplying the bulk of China's electric power, at least 60 to 80 percent, from now through to 2050 – by which time it will too late to matter. That's why one study showed that for coal-dependent China and India, switching from gasoline-powered to electric-powered vehicles would actually result in *more* CO₂ emissions than if they just stick with the gasoline-powered cars they've got.⁹⁰

Contradictions abound: Xi wants to cut pollution but since he also wants China to be an "air travel superpower" he's ordering up 7,240 new, mostly Boeing, airliners over the next 20 years, worth \$1.1 trillion, the largest airplane purchase in history, so that he can distract millions of Chinese into pointless package weekend vacations like the Brits to Spain.⁹¹ The problem is, aviation is the fastest-growing source of CO₂ emissions in the world. And every gain in jet engine fuel economy is rapidly outstripped by production of ever more new planes. *So if we don't have a magic tech fix for this problem, the only way to suppress aircraft emissions is to stop flying them, ground most planes, shut down most aircraft production, and ration air travel.* That's what Xi, and we, would have to do if we want an "ecological civilization."

Or consider this: Cruise ships are by far the most polluting mode of tourist travel ever invented: Large ships can burn more than 150 tons of the filthiest diesel bunker fuel per day, spewing out more emissions, and massively more toxic emissions than *five million cars*. Imagine. And all this to ferry a few thousand boozy passengers about bashing coral reefs.⁹²

Institute for Energy Research, 'China and India Will Continue to Increase Oil and Coal Consumption, Paris Agreement Notwithstanding', 26 May 2017, <http://instituteforenergyresearch.org/analysis/china-india-will-continue-increase-oil-coal-consumption-paris-agreement-notwithstanding/>.

Fang Hao, 'Efforts to Cut Steel Capacity Not Working', *ChinaDialogue*, 3 February 2017, <https://www.chinadialogue.net/article/show/single/en/9642-Efforts-to-cut-steel-capacity-not-working>;

Bethany Allen-Ebrahimian, 'Chinese Steel Output Hits All-Time High', *Foreign Policy*, 19 July 2017, <http://foreignpolicy.com/2017/07/19/chinese-steel-output-hits-all-time-high/>.

⁸⁹ Richard Smith, 'Green Capitalism: The God that Failed', *Real-World Economics Review* 56 (2011): 131–33, <http://www.paecon.net/PAEReview/issue56/Smith56.pdf>.

⁹⁰ Smith, 'Green Capitalism', 119–22 and sources cited therein.

⁹¹ Zheng Xin, "Plane purchases expected to top trillion-dollar mark in 20 years," *China Daily*, September 7, 2017.

⁹² John Vidal, "The world's largest cruise ship and its supersized pollution problem," *Guardian*, May 21, 2016: <https://www.theguardian.com/environment/2016/may/21/the-worlds-largest-cruise-ship-and-its->

Five million is about the number of cars registered in Beijing today. Xi wants to replace those five million gasoline- and diesel-powered cars with five million electric cars in an effort to make Beijing a “beautiful city.” But as part of his vaunted “Made in China 2025” initiative, Xi’s government also announced that the State Shipbuilding Corp. in Shanghai is going to break into the global cruise ship market and begin building a fleet of Chinese cruise ships, one a year from 2019, and send 4.5 million Chinese out to sea by 2020.⁹³ One might reasonably ask Mr. Xi, “Why bother pulling the fossil fuel-powered cars off the road if you’re just going to replace their pollution with even dirtier pollution from ships – if your priority is to build an ‘ecological civilization’ as you say? After all, the atmosphere doesn’t care where the pollution comes from, only how much.” *Here again, since there’s no tech solution on the horizon, the only rational solution to this industry’s immense pollution is to shut it down, or in China’s case, forego building it altogether.*

China Dream, China Nightmare. Will the Chinese people stand up?

When all is said and done, the irreducible fact is that, in the absence of some miracle *deus ex machina*, there’s just no way to radically suppress China’s CO₂ emissions that’s compatible with continuing economic growth. Xi Jinping can create an ecological civilization or he can build a rich superpower. He can’t do both. As I’ve argued elsewhere, the only way to effectively meet the climate emergency we face is with an *emergency shutdown* of useless, superfluous, unnecessary and harmful industrial production around the world, but most particularly in China and the United States, the biggest polluters. The only way the Chinese can suppress greenhouse gas emissions by anything like what they need to do to would be to impose a drastic across-the-board economic contraction, including radical retrenchments and shutdowns of most of the industries that have been built up in the last four decades of market mania.⁹⁴ That sounds extreme, no doubt. But the 4 to 6° rise in temperatures that’s coming our way unless this growth is halted will be a lot more extreme. What’s more, if China were to retrench and shut down its unsustainable industries, then it would have to find or create new jobs for all those displaced workers. That’s a problem too. But unbreathable air, undrinkable water, toxic food, polluted farmland, the cancer epidemic, soaring temperatures, melting glaciers, collapsing agriculture and sinking coastal cities are bigger problems. The heat and drought and melting are already coming in China.⁹⁵ If the Chinese don’t organise a rationally managed retrenchment and shutdown of unsustainable industries, Mother Nature is going to shut those industries down for them and in a much less pleasant manner. There’s just no way around this very inconvenient truth: Making too much stuff has to stop; stopping it will

[supersized-pollution-problem](#). For example, each gallon of bunker fuel contains 3,500 times more sulphur than diesel for cars and trucks.

⁹³ Xinhua, “Chinese cruise industry enters golden decade,” *China Daily*, November 7, 2017. *Bloomberg*, “Cruise boom as millions of Chinese take to the seas,” May 14, 2017:

<https://www.bloomberg.com/news/articles/2017-05-14/cruise-ships-navigate-hostile-sea-beauty-pageants-to-lure-china>. Brenda Goh, “Chinese Shipbuilders Tap Rising Cruise Demand, Rattle European Rivals,” *Reuters*, 15 June 2017: <https://www.reuters.com/article/us-china-cruise-ship-analysis/chinese-shipbuilders-tap-rising-cruise-demand-rattle-european-rivals-idUSKBN1A92QU>.

⁹⁴ Smith, ‘China’s Apocalypse’. Also, Richard Smith, ‘Six theses on saving the planet,’ *The Next System Project*, 2016: <https://thenextsystem.org/six-theses-on-saving-the-planet>.

⁹⁵ “Blistering heat waves sweep across China”, *People’s Daily*, 13 July 2017: <http://en.people.cn/n3/2017/0713/c90000-9241298-5.html>. Fang Tian, “Over half of NW China’s glaciers could vanish in 50 years,” *People’s Daily*, 19 July 2017: <http://en.people.cn/n3/2017/0719/c90000-9243785.html>. Liu Qin, “Source of Mekong, Yellow and Yangtze Rivers Drying Up”, *Chinadialogue*, 3 August, 2017: <https://www.chinadialogue.net/article/show/single/en/9654-Source-of-Mekong-Yellow-and-Yangtze-rivers-drying-up>. Edward Wong, “Drought in Northern China is Worst on Record, Officials Say,” *New York Times*, 29 June 2017.

unemploy tens of millions of workers; and other, nondestructive, low-carbon jobs have to be found or created for them.

Can the Chinese find a way to grab hold of the brakes and wrench their locomotive of destruction to a halt before it's too late? Can China's suppressed but incredibly brave human rights activists, labour unionists, democrats, lawyers, environmentalists, and authentic socialists come up with a viable, ecologically sustainable, socially fair, and democratic eco-socialist alternative to Xi's state-capitalist drive to ecological apocalypse?

At the moment there's certainly no hint of any revolutionary threat from below in the consumerist delirium of urban China. But appearances can be deceiving in China as in all dictatorships and radical upsurges can appear out of nowhere without warning, as the communists are very well aware from their experience in 1989. That's why Xi Jinping finds it increasingly necessary to shut his internet off from the rest of the world, and to arrest and imprison democrats, feminists, trade unionists, book sellers, and even Hong Kong high-school students and force confessions out of them in Stalinist-revival show trials. But Xi's intensifying repression is less a manifestation of his strength than of his fear: The relentless worsening of China's ecological crisis and the growing tensions and contradictions in Chinese society are setting the stage of history for a radical shock: the next Chinese revolution.

When Mao Zedong proclaimed the establishment of the People's Republic from the balcony of the Gate of the Forbidden City on October 1, 1949, he declared that "the Chinese people have stood up". At the end of her harrowing documentary *Under the Dome*, documentary filmmaker Chai Jing said something no one else has dared say on China's police-state monitored media: she called on her fellow citizens to take action, to organize from below, to report violations of environmental laws, to stand up and demand change. "It's tens of millions of ordinary people", she says. "One day they say 'no'. I'm not satisfied. I don't want to wait. I'm not going to shirk the responsibility. I'm going to stand up and do something. I'm going to do it right now. At this moment. At this place".⁹⁶

It's time the Chinese people stood up again. The fate of their nation and the fate of the planet depend greatly on them.

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⁹⁶ See Steven Mufson, 'This documentary went viral in China. Then it was censored. It won't be forgotten.' *Washington Post*, 16 March 2015.

The Saudi palace coup, the oil market, China and the US

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Trouble has been brewing in Saudi Arabia, the jewel of the US empire, under the very eyes of the imperialists. Since circa 1980, the socially stabilising economic redistribution mechanisms, the objective pillars holding society together, were neoliberally eroded. As for the subjective grounds, or the political US-backing that the Saudi monarchy enjoys, it so happens that until about 2011, the timing of the Arab Spring, the Saudi-comprador class' surreal social and political practice received low-key criticism. Saudi Arabia is the only place where the outstanding atrocities of the royal family, not just the beheadings, but the infusion and funding of pro-imperialist Islamist ideology across the world, became a sort of folk tradition pertaining only to "Saudi" culture. In its defence of its subject-state, American liberalism dropped the existentialist golden rule of ethics. The rule by which humanity's very existence, its state of physical being as such, imposes a shared set of values and morals. For the orthodoxy, working Saudis as human beings were reduced to just humans without their state of being. They existed as ideas, but not as real people. Absurdly, Arabs inhabiting the Arabian Peninsula, enduring grotesque physical and social torture under US-Marines supported monarchs, did not share the universal feeling of suffering. Instead, a peculiar form of imperialist-constructed Islam made them into a special sort of noble savage. For the reigning US empire, what the custodians of American oil under Arab sands do is their own tradition and their own business, not humanity's. The reconstruction of pro-imperialist Wahabi identity serving as an ideological tool, otherwise instigating a renaissance of the alleged despotism inherent in Islamic culture, became the fuel for the war on terror.

The ideological windfall to capital as a result of Saudi obscurantism has been significant. Just as the socialist culture of the cold war created a cross country competition for the betterment of social conditions, the Saudi stance of "obligations before rights" drags down world culture into a race to the bottom. History commanded by anti-humanist ideologies is the quickest doorway to the commodification of human beings. It propels capital, the social relationship and its corresponding social class, into its element: fascism.

As of 2011 however, the picture somewhat changed. Critiquing the Saudis for their political practice or Islamic *madrassa* funding became a pastime for the mainstream media. Suddenly the right of Saudi women to drive faced off against an American political correctness that intelligently masks over the unjust imprisonment of Leonard Peltier and the empire's structural racism.² Then came the "Justice Against Sponsors of Terrorism Act" (JASTA) with lawsuits threatening to swallow some of the oil revenues.³ With the palace coup of the tenderfeet

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<https://www.palgrave.com/de/book/9789811048210>

² Leonard Peltier is a Native American activist who has spent over 40 years in prison for a crime he did not commit. <https://www.whoisleonardpeltier.info/>

³ Saudi Arabia seeks to end U.S. lawsuits over Sept. 11 attacks
<https://www.reuters.com/article/us-usa-saudi-sept11/saudi-arabia-seeks-to-end-u-s-lawsuits-over-sept-11-attacks-idUSKBN1AH4RL>

prince, Mohammad bin Salman (MBS), however, the old mainstream love of Saudi Arabia has to some extent been rekindled. An article in the NY Times of November 23, 2007, heaps kudos upon the reforms of the spiteful prince; the author exclaims that he thought he would not live to see reform and progress in Saudi Arabia. Amusingly, a Qatari-based academic tweets with 70 years of NY Times clippings describing Saudi royals in the language of reform.⁴

In a similar manner to collapsing neighbouring states, the objective and subjective elements that corrode the underbelly of Saudi national institutions have intensified. Although the natural end of the ruling Arab comprador class is to weaken and then to set ablaze its own social formation at the behest of imperialism (as argued in Kadri [2016]), the Zionist-imperialist historical momentum can still opt for a bigger piece of the pie: war with Iran. Such war aligns Israel, the US and reactionary Arabs against Iran. In a region where violence and realpolitik mark the practice of the US-European-Israeli coalition, “war for war’s sake,” the chief instrument of global accumulation may reassert itself once again. The trajectory of war and its momentum, either within regional states or across states, are unrelenting. For now, the palace coup brokered the crisis and delivered an even more strategic US-asset and an “impulsive tyrant,” MBS, into power.⁵ In what follows, I will consider some aspects of the overbearing impact of instability in the kingdom of Saudi Arabia upon the oil dependent world, specifically China. I argue that although China exhibits an energy deficit, it has become far too big and powerful to be stopped.

A snapshot of the economy

In the late 1990s, Saudi Arabia needed a barrel of oil to be priced at slightly above 20 US\$ to break even or to not incur a budget deficit (SAMA, 2017). Between 2014 and 2016, the barrel had to sell at a range between 80 to 100 US\$ for Saudi Arabia to balance its budget (SAMA, 2017).⁶ The Saudi kingdom had become increasingly dependent on oil for its day-to-day spending, as opposed to other sources of income. Addiction to oil exports unequivocally signals the failure of its diversification policies. Just as it borrowed to redress its deficit between 1980 and 2002 as oil prices plummeted, it has also resorted to short term borrowing at high interest rate to offset the current deficit (in 2014 prices fell to around 50 US\$ per barrel). In addition to outstanding financing of many anti-Arabist and Islamist movements around the world, in 2011, it funded the mercenary-led aggression visited upon Syria and, later in 2015, it besieged Yemen and bombarded it – the war on Yemen is ongoing until the time of writing in December 2017. After Trump’s visit in May 2017, it had also committed to purchasing 350 billion US\$ worth of US weapons over the next 10 years, with about 110 billion US\$ upfront.⁷ Saudi Arabia may not yet be in a severe financial crisis, but with its high dependence on oil while oil prices remain low, the ongoing mild crisis may become one of state and economy together.

⁴ See <https://www.nytimes.com/2017/11/23/opinion/saudi-prince-mbs-arab-spring.html>, and the following reply:

https://twitter.com/anhistorian/status/934080718816399361?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Etweet

⁵ The adjective impulsive tyrant appeared in the “The Saudi System and Why Its Change May Fail.” <https://www.strategic-culture.org/news/2017/11/21/saudi-system-and-why-its-change-may-fail.html>

⁶ Saudi Arabian Monetary Authority, (SAMA), TABLE (2): Annual Government Revenues and Expenditures.

⁷ US-Saudi Arabia seal weapons deal worth nearly \$110 billion immediately, \$350 billion over 10 years. <https://www.cnbc.com/2017/05/20/us-saudi-arabia-seal-weapons-deal-worth-nearly-110-billion-as-trump-begins-visit.html>

Just like rest of the world under neoliberalism (a stage beginning circa 1980), the kingdom gradually parted with its state sponsored policies of the 1970s. It handed over the reins of investment and other resources to the private sector. The princes and their friends who owned the private sector liquidated much of their wealth and sent it abroad. In its West Asia report, the United Nations (2007) calculated the rate of capital flight over the neoliberal period to have been around a fifth of national product (GDP). Between 1980 and 2000, the Saudi rate of investment and, subsequently, economic growth declined. Real per-capita income fell by around two thirds (from around 18,000 constant US\$ in 1981 to about 8000 US\$ in 2000) (WDI, various years). By 2002, Saudi poverty rates rose and nearly a quarter of the population subsisted below the national poverty line. However, the increasing privatisation of development has also altered the resource allocation rules. Whether at high or low oil prices, private-led development redistributed income upward to the merchant-comprador class. As a case in point, despite high average oil prices between 2002 and 2013 (in the 100 US\$ range), in 2013 various news sources reported that a quarter of the Saudi population still subsisted at incomes below national poverty line.⁸

Since 2014, the kingdom had registered a significant deficit because of falling oil prices: from the undulating plateau of 90-110 US\$ per barrel to a lower one of between 30-55 US\$ per barrel. However, as the higher rates of return for the private sector must rise and the pool of excess dollars covering state activity diminishes, the monarchical canaille engages in more vicious forms of competition. The current coup's related imprisonment of leading Saudi billionaires and the shooting of two other princes are leading indicators.

I must stress that it is not only lower oil prices that dampen Saudi developmental performance; it is also the rate at which national wealth escapes abroad or moves up relative to the income share of the working population. Seen from an accounting perspective, the worsening Saudi balance sheet and attendant social problems could be and in fact were easily foreseen. It is almost a matter of straightforward arithmetic: if the price of oil falls below the breakeven point for long periods of time or (inclusive or) the income of the wealthy class and imperialist tribute rises at a faster rate than the share of wages, the Saudis' economic and social problems will intensify. Here is a caption from the foreword to the UN report about Western Asia, which predicts the current Saudi crisis (UN, 2007).

But only three years after the decline in oil prices in the first oil boom, per capita income fell drastically, and *certain states* resorted to short-term borrowing from private banks at high interest rates to redress their fiscal deficits. Recently, moreover, speculative elements have accounted for a significant proportion of the oil price. If speculative pressures subside, a fall could occur again, yet this time at a higher rate.

Of the *certain states*, Saudi Arabia is the only Gulf country to have borrowed significantly. Ludicrously, the United Nations (UN) omits mention of Saudi Arabia and uses certain states instead. The UN censors much criticism of the Kingdom and avoids showing it in bad light. The UN has appointed Saudi Arabia as the head of one of the Human Rights Council panels, and onto the UN women's rights commission.⁹ The UN as well as mainstream media invest

⁸ Saudi Arabia's riches conceal a growing problem of poverty: in a country with vast oil wealth and lavish royalty, an estimated quarter of Saudis live below the poverty line
<https://www.theguardian.com/world/2013/jan/01/saudi-arabia-riyadh-poverty-inequality>

⁹ US Welcomes News That Saudi Arabia Will Head UN Human Rights Panel
<https://sputniknews.com/middleeast/201509231027429010-US-Welcomes-Saudi-UNHRC/>

much effort to project the idea that the Saudi monarchy, which is key to sowing anti-women ideology across the world, is capable of reforming from within. The latest right to drive for women (late 2017) was unashamedly hailed by Amnesty International as a concession made by the Monarch in response to women's activism.¹⁰ It is incomprehensible how a step by step reform could take hold in a kingdom whose *raison d'être* is to instil social regression and cultural differentiation that serve as pretext for permanent war.¹¹

Currently, the Saudi sovereign fund is at 225 billion US\$,¹² the accumulated deficits (around 134 billion US\$) and the arms purchase deal taxes Saudi with an additional 110 billion US\$, *grosso modo* these shortages do not constitute a significant financial crisis. However, it is not the magnitude of the deficit in relation to the national debt that is damning, it is the amplified accent on private agency in resource allocation and income redistribution, which is of concern. The rates of imperial and comprador rents must grow at the expense of the war industry and its casualties and the immiseration of working people. Instead of rearranging the macro context to temper profit rates and limit the leakage, that is to roughly restrain the rate of usurpation from the public interest *qua* corruption, MBS embarked on a more radical privatisation plan, the 2030 plan.¹³ This plan enlarges the crucible for corruption as it deregulates all value transfers in favour of the King and international company. The degree to which the neoliberally imposed policy context dips into the wage bill and destroys national assets will roughly be determined by the risk in the national market and the freedom the capital class enjoys tapping into national resources and shifting assets abroad. Corruption is handed down by imperialism as macro policy measures to a receptive comprador class. The de-regulatory policy battery is the incubator of corruption. It is a testimony to capital's ideological victory how the mainstream, which re-regulates resource flows to the top one percent under conditions class-dependent institutions, and still parochially indicts "corrupt individuals" for the lost development opportunities.

The missing dimension of the coup

While the orchestrated Palace coup is afoot in Saudi Arabia, few are paying attention to the potential disruption that such a fiasco may entail for the global oil markets.¹⁴ At the present juncture, the US's stock of power has grown because of the rise of yet another more US-loyal and obedient Saudi prince (MBS). If the tragic prince manages to survive, the US will have in place a more trigger-happy anti-Iran asset than the deposed Epicurean – "what is in it for me"

<https://www.un.org/press/en/2017/ecosoc6824.doc.htm>

¹⁰ It is a testament to the bravery of women activists who have been campaigning for years that the government of Saudi Arabia has finally relented and decided to permit women to drive <https://www.amnesty.org/en/latest/news/2017/09/saudi-arabia-right-to-drive-is-a-long-overdue-step-forward-for-women/>

¹¹ In colloquial aphorisms traded amongst the youth in Arab cities, the Saudi royal family has justified the right to drone the children of *burqa* women by the right of women to wear makeup. Such is an example of the cultural differentiation.

¹² Figures vary according to source and some Arab sources place the fund at 700 billion US\$. The quoted figure is from the *Financial Times*. Saudi sovereign wealth fund aims to double its assets to \$400bn. <https://www.ft.com/content/e4d40b90-b99e-11e7-9bfb-4a9c83ffa852>

¹³ See this official link for details of the plan. <http://vision2030.gov.sa/en>

¹⁴ An internet search reveals one article written by a former NSA intelligence officer, which is aptly titled, "What the Saudi Shake up Means for China: The success or failure of Saudi Arabia's reform campaign will have huge ramifications for China." It is awry that only the intelligence services have an interest in such a topic. <https://thediplomat.com/2017/11/what-the-saudi-shake-up-means-for-china/>

– bunch.¹⁵ The rise of such war-inclined agent to power strengthens the US-led imperialist class relations accumulating by means of encroachment wars (Kadri 2014). If he does not ascend to the throne and Saudi Arabia capsizes, US-led capital will still reap war related profits arising from the wreckage he leaves behind. Contingently upon the degree and duration of violence, in case war erupts either across the Strait of Hormuz and or by an internally collapsing Saudi Arabia, the levels of global oil supplies may fall below demand. Oil shortages can be short-term serious or long-term chronic, which is nothing like the insignificant shortages experienced in 1973 whose exaggerated effects represented the trojan horse by which financialisation arose. It so appears that no matter what happens in Saudi Arabia due to the coup, China and many of the oil dependent states may incur a loss.

However, does the rise of such a US-marioneted prince offset the recent losses of America and its allies, in Syria, Iraq and Yemen? Furthermore, would it not be the case that any serious disruption in Saudi Arabia, the US's protégé nation that guarantees stability in the global oil market, would hold an increasingly grudging world hostage to the global hegemon? Questions of receding American power and imperialist racketeering come to mind. As they should.

Incidentally, whether MBS, the vengeful prince, can pull it off – given that he has eroded many of the outstanding sources of Saudi authority – or whether Saudi Arabia will fragment following in the path of neighbouring states, are issues that bedevil the stability of global oil supplies. This is a risk like no other in modern history. A protracted conflict either within Saudi Arabia or with Iran, one that is different from the ongoing Saudi aerial-bombardment of the resisting, but starving, Yemeni people, would be a first in recorded history, especially as it may entail chronic shortfalls in oil supply. Although the current oil market is buoyant, partly citing political uncertainty behind the higher prices, the mainstream's overrated “hypothesis of efficient markets” cannot envisage a scenario of strategic shortfalls in oil production.¹⁶ Such scenarios are said to be algebraic-time incoherent (the steady state or conventional time we use to predict the future); these would-be events (hypotheticals) are entwined with the uncertainty of history, or with the way dominant political forces undergo a *volte-face*. Although uncertainty is more about the dialectic of social continuity and discontinuity, let us just say that at some time in mid-stream, people organised and in a position of power suddenly change their minds and change the course of history. Fortunately, the actuaries of the mainstream cannot grapple with real or social time events (uncertainty), otherwise these pundits would be hired to predict the timing and abort the next revolution; the hope of billions around the planet for emancipation.

Playing with oil supplies is synonymous with the politics of brinksmanship. Oil is a strategic commodity for many reasons, foremost because it provides much of the energy required for sustaining world population growth. The high energy content and versatility of the black liquid supported the expansion of humanity from a little over one billion at the beginning of the twentieth century to more than seven billion now. As oil and energy from oil to sustain or improve upon production levels fall below consumption for periods that exceed the drawing

¹⁵ There are many strands within the Saudi ruling circles. The “what is in it for me bunch” are, as the term implies, the sections of the royal family and associates who seek a higher share of the rent for themselves, but are also unwilling to sacrifice the whole social formation in the process. There are also those with sentiments of distrust toward US policies that have emerged from the extension of Iranian power to Iraq.

¹⁶ OPEC sees evidence of oil market moving to balance.

<http://www.channelnewsasia.com/news/business/opec-sees-evidence-of-oil-market-moving-to-balance-9403148>

down of stocked reserves, the strategic impact of oil becomes all too clear for everyone to see.

It may be as well to recall that Saudi Arabia is peculiar in the world of oil production. It provides what is called a “production cushion” by its ability to quickly pump additional oil (around 2 million bpd) to balance abrupt global oil shortages. *Pari passu*, instability in the Saudi state infuses a higher risk premium into the oil price, which otherwise would not be necessary. The bravado positioning by the Saudis or the Iranians, the “I can bomb the hell out of you” cant may not all be to waste because it injects additional dollars into the oil price. The Saudis and Iranians can sell the oil, but neither Iran nor definitely Saudi Arabia command history. The Saudis and the Iranians cannot bear serious influence on the strategic character of oil. Ultimate control of oil is in the remit of the imperialist power and or the way history, the resultant of objective and impersonal forces, plays out. A scenario that includes a prolonged absence of such Saudi cushion *qua* safety valve and, possibly a decrease in Saudi oil supplies, the strategic side of oil, spells adversity for most oil dependent states.

China in the whirlwind of imperialism

Of all the oil dependent states, China is the world’s biggest importer of oil. On the face of it, China may be hardest hit. In a sense, a significant drop in Saudi oil supplies may more than just dent the high Chinese rates of growth (the effect of significantly high oil prices without oil shortages). The effect of longer-periods oil shortage may also bring a significant portion of China’s production capacity to a halt. As is well known, China’s inexorable rise is anathema to US empire. An empire is not simply a big economic power. China is a big economic power, but it is neither an empire nor imperialist. Defining imperialism by the exploitation of wage labour would make the grocery store next door imperialist. By way of short definitions: Imperialism is an extension of class exploitation by violence assumed under the agency of the nation state. Classes, the intermediates of political will in forms of social organisation, make history. The nation state is the ultimate intermediated structure of class.

The overly analytical minds of the orthodoxy employ such atomistic logic (grocery store imperialism) to define China as imperialist. But then again, the mainstream is paid to exonerate the imperialist or the dominant actual and ideological force in history. Imperialism is a real and historically specific form of exploitation that draws wealth from whole nations by coercion and violence. The state as a form of class organisation serves as the structure and conduit of “commercial exploitation.” Unlike the common form of exploitation, commercial exploitation is a process of depriving whole peoples of their will and ownership of resources. It emerged with the Marxist definition of the economic role of chattel slavery. Forms of slavery, the practice of commercial exploitation, have progressively come to involve the de-subjectification of whole nations. De-subjectification is the loss of effective agency in value forming relationships, as in people losing control of themselves and their resources to the imperialist power. As the crisis of capital deepens, commercial exploitation never ceases to serve as pedestal for northern wage labour. By the way, I am using Northern and Western as ideological and not geographic descriptors, which makes MBS a purely US-European product unrelated to the practice of Mecca’s ancient Caravan trade. With the progress of time, we must look for the forms of commercial exploitation in the imperialist wars that undo the states of the developing world and inflict a high degree of depopulation.

Initially, capital required limited forms of slavery, like chattel slavery. However, imperialism in the monopoly age, the state to state form of commercial exploitation, extracts more of the conquered peoples' wealth by commodifying their lives – turning people and the environment into cheapened commodities that serve the pursuit of higher profits. It literally must consume peoples' lives in a shorter time span relative to the historically determined living standards and life expectancies. Technological progress under capitalism improves the war related technology, and involuntarily, the means for the prolongation of life. Growth of technology, war technology and war are market processes alienated from social control under capitalism.

War, as a domain of accumulation, is the shortest route to premature life extinguishing and, therefore, the *furnace of surplus value* making. People are value. They are the labourers and the stock of labour power at once. People are not cheap, they are consumed as existing value and de-commissioned by a history of imperialist slaughter. This is quite different from the conventional notion of military Keynesianism, which measures monetary form, as opposed, to the value content of war.

China, in particular, bore tremendous losses at the hands of a history ushered by Western imperialism. An empire, on the other hand, is something like the US empire. It is heir to centuries of accumulated European colonial and imperialist plunder along with, and this is an oft-missing point in the analysis of imperialism, the culture of ideas that justifies expansion. Anouar Abdel-Malek was the forerunner of the ideas of Orientalism and the historical surplus value (Abdel Malek, 1963). The amassed culture (culture as the store of knowledge) of empire is crucial because often the mainstream treats wealth or things as things without the ideas that organise the making of wealth or things. Wealth and the social relations that produce wealth (object/subject), including their attendant forms of social organisation, are inseparable and must be treated together. The accumulated cultural wealth of the subject of history or empire, which expands the production of commodities by means of war, illustratively signals its strength by the extent to which the masses perceive imperialist aggression as a democratic or a human rights related practice.

China, which until two centuries ago was the leading civilisation of the planet, has arisen and grown. All else remaining constant, within a decade or so and at the present rates of growth, China will even be bigger than the US in nominal dollar terms GDP. It is already bigger in terms of purchasing power parity exchange rates. Recently, Chinese scientists and engineers are leaving the US to continue their studies or to work in China.¹⁷ Conditions of employment, salary scale, universities and research are becoming competitive. A bigger China heralds a *material rupture* (a break with the past in the global balance of economic power). As China becomes big enough, it also becomes inevitable for an *ideological rupture* to follow (Althusser, 1962). The rupture may not be socialist, but it will be a break with the past as US-dominant ideology loses grounds. That latter rupture, a dethronement of the dominant culture and ideology, of ways of knowledge and modes of social organisation, must follow either because of reasons related to a rising intrinsic ideology peculiar to China or because the rift that China creates leaves open the space into which new forms of political organisation and their corresponding novel ideas (ideologies) would grow. At any rate, it is *necessary* to apply the brakes on the mass of Western ideas and a logic whose money signification in the profit rates include war and forms of slavery as inputs.

¹⁷ China's 'Best And Brightest' Leaving U.S. Universities And Returning Home
<https://www.forbes.com/sites/kenrapoza/2017/04/17/chinas-best-and-brightest-leaving-u-s-universities-and-returning-home/#43d121751d41>

Although China is not a market economy by any stretch of the evidence and may not even be described as capitalist, because it is state-owned and controlled with investment and production state-directed, with profit secondary to growth as the objective (Roberts, 2017), internationalist working-class organisations sharing the universal value of socialism are also not in the waiting. Organisationally and ideologically, socialism is in its worst crisis since the mid-19th century. It has contracted the virus of liberal democracy as opposed to proletarian democracy, while the platitude that socialism was tried and failed continues to grip the popular imagination. Without exception, the apparatuses of imperialism continuously revise history and the numbers that Stalin supposedly killed, which are facetiously in the hundreds of billions, serve as the false front for the moral condemnation of communism. But what is particularly stultifying in capital's ideological assault is the personification of history, as in one person makes history. Capital spectacularises world events and perverts modes of perceptions such that "bad guys" like Saddam and Qaddafi exist outside a social context and must be destroyed along with their states. On the other side of the spectrum, the twentieth century experience of socialist forces cloning the Soviet model, initially via the "Comintern," imposing a prefab-universal model of socialism upon national liberation movements does not help either.¹⁸ Many Arab communist parties, for instance, blindly followed the edict of the Soviet Union and in 1948 recognised the colonisation of Palestine. That was a historical mistake from which they have never recovered. Subordinately to the dismal organisational showings of socialism, the "either good socialism or nothing" mode of thinking, a formal binary reared by Hollywood culture, undermines the formation of a revolutionary working-class consciousness that ties reform to revolution. Otherwise, revolutionary consciousness situates the cultural or national form of struggle at the service of internationalism.

Mao Zedong's socialism with national characteristics opposed a teleological understanding of socialism. Mao's (1937) definition of the philosophical universal, more appropriately the "general", as the historically unfolding realisation of "particular" struggles, which do not culminate into a preconceived form of communism, aligns the national dimension of the class struggle with internationalism. His was not a world of good and bad guys into which socialism will appear from nowhere. His was the real intercausal world dominated by belligerent imperialism opposed by weak anti-systemic liberation movements whose fights are shaped by cultural identities infused with class consciousness. This was an anti-dogmatic position in which not only and not always were Soviet-allied communist parties internationalist.

Just as capital counteracts its own homogenising forces via identity politics or labour differentiation, labour through the exercise of its "particularity", through national liberation movements, re-universalises the condition of production for labour and bridges global living standards. Capital integrates the world market, but as the less developed must become similar in level of development (homogenisation), it bludgeons them into inferior status (differentiation). By shifting the focus in the struggle on class as opposed to identity and, equivalently, on liberation as opposed to nationalism (in the oxymoronic term national liberation), the "general", as the condition of how close we are in our state of flux to equalising the production conditions/living wages for global labour, comes into view. The universal/general as a category is the restless mediation of all the different particulars.

Every song, dance, tradition and identity must be reasserted as political practice so long as the struggle targets the sphere of production as opposed to circulation. The imperialist form of

¹⁸ The Comintern is an abbreviation of the Communist International, <https://www.marxists.org/history/international/comintern/>

capital's practice shuns equal jobs for equal pay across countries (production sphere) and prefers to redistribute higher wages to one national working class over another (circulation sphere). The realisation of socialism as that "general" condition is contingent upon forms of organisation and consciousness that eschew Northern welfarism and homogenise returns per origin of production and working condition. Northern welfarism brings production-side wages across gender and other social constructs closer together, but it does so as the booster of imperialist armies. Better Northern living standards include an imperialist rent component and are not only wrought from the hijacked struggles of the Northern classes. The rent in Northern wages is the allocation of the historical surplus value or that share of the historically accumulated wealth mostly torn from humanity's labour by the exercise of violence and commercial exploitation (For similar arguments see Abdel-Malek,1981; Caldwell,1969).

In view of the preceding outline, why should China's rise be supported?

With the rise of China, there will be a change of power at the top of the global pyramid in the international division of labour and an eclipse of outstanding US-European culture. The realisation of socialism will be contingent on the class struggle. In any case, praxis is about exerting pressure on imperialism and should not be solely motivated by a yet to be instantiation of utopian socialism. Most liberal intelligentsia characterises China by the self-evident principle of "state capitalism" and follows through on the argument with anti-Chinese practice, re-asserting US-led imperialism, just as it did against the Soviet Union during the cold war. However, capitalism does not auto-negate into socialist utopia overnight, and the "ideal socialism or nothing" sanctimony of the Northern left reflects a deep-seated infatuation with bourgeois democracy/culture and is simply a pro-imperialist class position.

In the case of China, internationalism stood on stronger grounds until the coup against Lin Biao in 1971 and the rapprochement with the US. However, the current strength of China is a repositioning windfall for national liberation movements. An ideological big wall of China has arisen. One promising indication remains that the Chinese model principally reposes on socialism as opposed to neoliberalism. Even if socialism does not ensue from global power rebalancing, at least, the apparatuses that have historically accumulated the drivel of "let NATO bomb Libya, Iraq and Syria to liberate them from their tyrants," would flounder. At any rate, the degree of these global alternations potentially bears the long awaited civilizational turnaround: the elimination of genocide for the sake of progress, or put bluntly, the "kill the third-worlder and weep for him or her" ethos of the white man's burden, becomes likely. In a manner of speaking, humanist theory and, its ideological arm socialism, are at their nadir such that any motion unseating US-led capital and its dominant ideas must bear fruit. But, so far, one thing is for sure: "the East wind would have defeated the West wind," as per Mao Zedong.

Meanwhile, arresting the advance of China has become something of an American obsession. For those who stress that China is imperialist, they foresee a détente during which both imperialist powers (China and the US) would jointly feast on imperial tribute – a sort of super-imperialism in which the US and China cohabit and split the imperialist rents. Even were such a hypothesis true, that is, if China was imperialist, one is also reminded that inter-imperialist rivalry motivates warring because, under capitalism, all predatory parties take their cue from fetish-like market forces that are alienated from responsible social control. People fall victim to external market forces shaped by profit making. In such a world, objective circumstances that escape the command of reasonable people *systemically* lead capital, the class in control under capitalism, into war. There were always wars, but their frequency,

causes and modes of realisation vary according to the historical periods in which they occur. Even under the two-imperialisms assumption, the US and China will collide. However, the reality remains that China is not an imperialist power by any stretch of the imagination. China is still shedding the shackles of years of colonial loot and wars of depopulation.

Worse yet, the current mainstream's neurotic fixation with stymying the ascent of China has gotten to the point of recommending a pre-emptive nuclear strike either within the intermediate term (the window of opportunity) or while the US still enjoys "nuclear primacy" as one of the feasible political tools at the US's disposal (Gompert et al., 2016).¹⁹ A recent assessment posited that a "Pentagon computer model estimated that a U.S. counterforce strike against China's ICBM silos using high-yield weapons detonated at ground blast would still kill anywhere between 3-4 million people... this makes using nuclear weapons thinkable for the first time since the 1940s (Keck, 2015)."²⁰ The imperialist vernacular of nuclear war was never solely a veneer for power positioning. However, with Trump at the helm, there is something to somberly ponder about an inchoate president playing the role of madman at the pinnacle of an empire that contemplates the use of nuclear weapons as a first strike option.

Still, Trump is no exception to the streak of past US presidents. In the early 1980s, Bush Senior comforted himself with the thought that more Russians would die than Americans in case the US nuked the Soviet Union first. The theory with which conventional wisdom explains such mad presidential behaviour is dis-ingeniously called the "madman theory." Apart from having nothing to do with theory, this theory has little to do with the personality of the incumbent president. In the nuclear age, playing mad is practically part of the job description of all US presidents. What is connectedly disconcerting however, is that the madmen of America are faced off against a "thuggery" in Russia provoked by imperialist encirclement. As Tillerson noted, Russia, by virtue of its nuclear arsenal, imposes its will.²¹ In such a world of strategic alliances, no game theoretician can ingeniously draw up a mix of "thug and madman theories" and, all the while, pinpoint to a no first-strike equilibrium position.

Above all, the liberal bent of the empire and its presidents, including their overall culture of *selective* democracy (democracy for the few), regards as primary bourgeois rights and "negative freedom" (national defence and defence of interests in foreign territory) and only pays lip service to social rights or human lives. The proof for this is evidenced *ex post-facto* in the hundreds of millions of war and related deaths at the hands of liberal or social democratic Western regimes in the 20th century.

A Western social fascism breeding in a liberal or bourgeois democratic receptacle combined with a *primacy of politics* or, the premise that imperialist aggression has principally sociological causes, mean that no Chinese adage of "one tide lifting all boats" can write off the prospect of outright or surrogate confrontations with the US. The ongoing wars in the Levant and Ukraine may be considered as proxy wars that disrupt China's new Silk Road. Placing the pursuit of power for stability of capitalist rule before instantaneous economic gains is the sociological underpinning of imperialism. That is not to say that economics falls last.

¹⁹ For portentous or propaganda reasons, there are many articles that flaunt American nuclear primacy as an option with China. The Rand's study by Gompert, David C., Astrid Stuth Cevallos and Cristina L. Garafola entitled, *War with China: Thinking Through the Unthinkable*. Santa Monica, CA: RAND Corporation, 2016, https://www.rand.org/pubs/research_reports/RR1140.html, is one such example.

²⁰ Keck Z. (2015) "The Most Dangerous Nuclear Weapon in America's Arsenal", *The National Interest*, <http://nationalinterest.org/blog/the-buzz/the-most-dangerous-nuclear-weapon-americas-arsenal-13433>

²¹ In unusual criticism, Tillerson slams Russia's 'malicious tactics' ahead of trip to Europe. <http://www.latimes.com/nation/la-fg-tillerson-russia-20171128-story.html>

Economics is determining in the last moment or after working people have been coerced or commodified by violence to extract the most value for price out of them. In most cases such a process of objectification (turning people into objects), the most gruesome aspect of the law of value realised as imperialist or colonial practice, involves depopulation by war, hunger or severe austerity. The mainstream, including the western Marxists, de-abstract the higher rates of depopulation wrought as a result of imperialist violence from the workings or the totality of capital. For that line of thought, capitalism is the exploitation of the productive worker in the modern factory, while the death from hunger and wars are related to the age-old practice of imperialism.

However, capitalism has always been about factories interlocked with the global production chain producing commodities *en-masse* and factories (ideological apparatuses) producing the consciousness that suits the overproduction of commodities (Curcio, 1983). What we leave into the theory of exploitation and, what we tweak out of it (de-abstract), determines who we are ideologically. There is a class and ideological content to the concept of the factory: how widely encompassing it is and what it includes. There is also an ideological content to the concept of value: whether it is that share of labour employed from the total labour available to humanity or just the national labour force. There is an ideological content to war as economic practice: whether it is an extension to support central production units or not. Obviously, for Western academe living off the avails of imperial rent and incorporating Marx into its corpus, the factory is just the modern unit, value has national boundaries denominated by its own moneyed form and, war is a costly *mission civilisatrice*.

Such reductionism is theoretically inadequate because capital reconstructs the money form, not by productivity, but by class and power relations. Moreover, it has been customary in our globally integrated world, serving as one big factory, for the production of *suitable consciousness* to entail the coercion of people up to the point where they become unconscious of their interests. Defeating peoples into submission or into slave-like conditions, to de-subjectify them as in stripping them of their power to negotiate, is a principal characteristic of commercial exploitation. A commercial exploitation, whose foremost modern form is the deconstruction of states by war, is central to setting the global moneyed and non-moneyed terms of exchange.

Hence, the pursuit of power of which one speaks is not some presidential or royal psychological whim, it is the power that cements the rule of capital, the governing social relationship in the historical phase known as capitalism. The most ferocious side of capital is imperialism, or the social relationship by which private gains expand by commercial exploitation and its extreme forms of commodification *cum* consumption of man and the environment. Here even the semblance between free agents entering into an exchange contract disappears. De-subjectification by violence is the *sine qua non* to capital and intrinsic to imperialism. The necessary, but not exclusive, theoretical reason for the violence arising from the particular form of capitalist accumulation follows the value relations within the commodity itself. Violence specifically follows the contradiction between use and exchange value (public or social usefulness of commodities vs. the way value is torn from people and expropriated privately). The private category is set against the public via a process of coercive and violent alienation, which becomes encroachment wars in the developing world.

Capital deprives the labourer from his or her own self, the resources of the labouring class and the fruits of labour. It is misplaced to theorise war and accumulation by trans-historical behavioural characteristics. For a theory to be pertinent, the *immediacy* must be situated in

the *mediation* or, the present must arise based on the historically specific social forces that have shaped it, not the game theoretic accounts of “he did – I did.” The *appearance* of permanent imperialist war has its *essence* (essence as in value relationship, not as by the most recent use) in the genome of the capitalist system, or the commodity as self-expanding value.

The point of the above is that violence under capitalism is rooted in the law of value, and that China’s rise redresses the balance of power with empire and much of the value for low prices that the US earns in imperial rent will be lost. In such a metabolic order - metabolic as in the making of wealth consumes man and nature as cheapened inputs - China cannot continue to wiggle its way out of the US’s wrath (the commodification of its own people) and all at once, climb to the top of the global economic ladder by stealth. As the chief capitalist power in history, the US is being led by its own objective and alien market forces. It *unavoidably* must stop China. The case may be that it is only the reasonable view of some US strategists who foresee the prospects of any nuclear disaster as mutually assured destruction or a nuclear winter, which mitigates the realisation of that abominable first strike scenario (Johnstone, 2017).

The market imbroglio

With the nuclear confrontation’s prospect being serious but remote, China’s market-led expansion remains vulnerable so far as its trade routes fall in areas of US sponsored or instigated wars or through states under the thumb of Uncle Sam, like the Gulf states. More to the point, China’s energy security and circuits are vulnerable. The recent coup by the defiant Saudi prince potentially destabilises that circuit in a region that exports a fifth of global oil supplies, which flow through the Hormuz strait on daily basis. Saudi Arabia itself produces nearly a sixth of global oil. Apart from the Soviet targeting and depressing the sources of German strategic oil supplies in WWII, oil demand and supply have since run tightly close to each other. So, to restate the obvious, missile-lobbing within Saudi territory or across the waters of the Gulf strategically harms all oil dependent countries.

Although China may incur some shortages in the short term, other powerful emerging countries such as India will also lose. This begs the question: can the US regulate the sabotage of oil supply and production across an oil dependent globe? With the US being the third largest producer of oil and with its capacity to speedily increase production via unconventional drilling methods, it can be selective in choosing the parties it wants to bail out and the parties it wants to leave behind. For the latter group, their resources will be disengaged or be put up for grab at fire sale prices, and their capital could flow North to the safety of dollar markets. Just like every global war and recession so far, a war in Saudi or with Iran *may* turn out to be a wealth and value restructuring arrangement in favour of US empire.

For the US, it is the impact of the chronic oil shortage on China’s internal security that counts. China’s Achilles heel may still be the loosening of the centripetal pull of the Beijing authority upon the vast stretches of the successor state to the heavenly kingdom, as per just about any caricature reading of Chinese history. However, modernity and its trappings have eroded distances and homogenised traditions. The heavenly kingdom has become worldly with bullet trains now crossing the country. The effect of the oil shock may not shatter China, but can it bring its working population to endure the effects of severe austerity – up to the point of subversory spill-over. Put differently, can the shortages of oil combined with an

overstretched Chinese credit market – as in China’s debts triggering a financial bust or a Minsky moment - precipitate a downward spiral steep enough to thrust China into the sort of shock therapy and internal collapse that undermined the post-socialist Soviet republics?

The simple answer is no. China is too big to fail. It is true that Chinese public or private institutions may have overborrowed in times of economic expansion and might be overexposed in the downturn: the Minsky moment. It is also true that steady attempts to electronically link Chinese finance to the global market and circumvent its restrictions on capital outflows are ongoing. However, China grows in the safety of a regulated capital account. Minsky moments can be contained. It is not just because a crisis may undervalue the Yuan and, consequently, higher exports incomes may rebound markets, that China may be saved. Price movements and macroeconomic accounts are within its purview. China is a huge net lender. It is not some banana republic short leashed by debts to the financial-bogeyman institutions of imperialism. It lends the imperialist institutions. China has lent and borrowed from itself and according to the conditions it lays out, including the manipulation of the interest rate to balance its savings and investment rates. In a worst-case scenario, China can always restructure the conditions of debt repayment with standstill type arrangements to avoid collapse. Such autonomy is the fruit of the regulated capital account that locks much of the surplus value within the national boundary, a policy widely recognised as the precursor to China’s economic success.

At the present interval, prominent scholars of China venture to ask what would happen if China decided to impose sanctions on the USA (Chossudovsky, 2017).²² With Russia becoming its first supplier of crude, China has enough partnerships for energy supply, productive capacity and financial wherewithal to withstand the shock and possibly use the opportunity to recapitalise with alternative energy sources. China is also adopting measures to avert an energy sparked crisis. Already, China invests in electric vehicles, renewables, and its own shale and coal reserves, which will reduce the country’s dependence on foreign suppliers (Butler, 2017).²³ Moreover, higher oil prices incentivise regions that produce at high cost, shale and tar sands, to join the chorus of oil producers. With so much additional oil production and state credit available, wither the window of opportunity by which a Saudi-US instigated oil shock can trigger a financial bust in China. For imperialism, neither the first-strike nor the market-strike windows of opportunity are viable options.

China is the world’s leading auto-sufficient system of market accumulation, but it also has a huge socialised sector that can backstop a crisis. Short of nuclear war, the Chinese system is rooted in the protectionism of the socialist era, which makes it somewhat undefeatable. For China, development and working-class security are key to national security. Its trebling of manufacturing workers’ wages in a little over a decade signifies the lingering centrality of labour in the state. Politically, the living socialism in the Chinese model can be discerned from the neoconservative critique levied at Xi Jinping. The latest of such critiques (November 2017) by the Brookings Institute regrets Xi Jinping consolidation of power and his lack of willingness to override entrenched interests resisting neoliberal reforms – especially financial openness and labour market rigidities.²⁴ While on the socialist side, the late Fidel Castro

²² Chossudovsky M (2017) Imagine What Would Happen if China Decided to Impose Economic Sanctions on the USA? Global Research, September 03, 2017

²³ Butler N (2017) Made in China – the world energy market of the future, *Financial Times*, <https://www.ft.com/content/c1ddb6e1-b9df-39f9-bcd5-ee97989928b3>

²⁴ Avoiding war: Containment, Competition, and Cooperation in US-China Relations, Brookings, https://www.brookings.edu/wp-content/uploads/2017/11/fp_20171121_china_interview.pdf

stated that Xi Jinping is one of the strongest and most capable revolutionary leaders he has met (Castro, 2014). The demarcation lines have been drawn.

Just as Chinese export-led capitalism slipped into socialism behind the philosophical argument of “the two uniting into one,” so too can socialism displace any remnants of capitalism under some new form of the argument of “the one divided into two.”²⁵ These aphorisms were about how much capitalism should China introduce into its socialism, and whether socialism can survive the growth of an unequal wage system. In times of crisis, socialist measures become indispensable to the capacity of the state, any state, to provide and cement the popular national defence lines. The reassertion of socialism in China’s nineteenth Communist party congress (2017) signals China’s awareness of the seriousness of the mounting geopolitical contradictions.

MBS as the American war asset

For a considerable period after the end of the Cold War, no matter how foolish or miscalculating US empire appeared, right or wrong, the outcome of its actions favoured its status. The US could lose, but its very loss would be a win because there was no other power challenging its hegemony. For instance, in 2003 the United Nations did not authorise the invasion of Iraq, but the US invaded. While there was no power to challenge its decision, the nexus of war and financial expansion played in favour of its capital class. So long as the US was unchallenged, it had won whether it acted soberly or foolishly. History was American and in history there is no right and wrong. What was necessary for history, that is necessary to service the expansion of commodity production via a metabolic order auto-reproducing by value destruction and creation simultaneously, was also borne out by the immediate politics of the Oval office. An identity or a complete reconciliation of historical necessity and immediacy in politics as chance was nearly always in evidence. The Hegelian utopia in which the dialectical category of necessity *became its opposite chance* materialised, albeit, until the world realised that the bombing of Libya in 2011 was just another imperialist state destruction project. Applying the same NATO sponsored measures to Syria became impossible because China’s considerable presence permitted Russia’s direct intervention.

That ideality, the identity of necessity with chance or coincidence, is no longer the case. Immediately after the end of the cold war, that same ideality was dubbed an end of history. But necessity and chance are not just formal ideas without referent in reality. The bombing of Baghdad in 1991 has brought more pressure to bear for the world to become more unequal. The weakening of Arab socialism contributed to weakening global labour.

On the macroeconomic level, the US’s share of the global market has been declining vis-à-vis China’s. It is around 15 percent for the USA (2017 figures), while China’s is 18 and will rise to 20 percent in 2020. Politically, the US’s receding hegemony in Iraq, Syria and Yemen and the hemming in of Iran and Turkey upon the northern border of historical Palestine, are the harbingers of US imperial twilight. The US had tried in vain to enact a no-fly zone over Syria, but was faced with by the Chinese and Russian veto. More recently, the US’s attempts to sacrifice the Kurds in Iraq have failed. Such concrete events as manifestations of many chance occurrences signal an opportunity to be appreciated, a novel historical necessity, the rise of the developing world behind the new big wall of China.

²⁵ Ai S. (1965) *Surreptitious Substitution of Theory of Reconciliation of Contradictions and Classes for Revolutionary Dialectics Must Not Be Permitted*, Beijing, Renmin Ribao, <http://marxistphilosophy.org/aisuu.pdf>.

The US's Saudi sponsored coup, a fratricidal spectacle torn from the pages of a Shakespearian play, will most likely flounder because manic MBS has confronted *public power (the Leninist class-based understanding of the deep state as an instrument of capital)*, the bureaucratic structure and the order of kinship and clientelism holding together the kingdom. The coup will likely fail also because no one is convinced that it is an anti-corruption campaign. In fact, the present king was most opposed to corruption investigation in the past.²⁶ Although one may speak with confidence that the long-term prospects of Saudi Arabia under the current private resource allocation measures are grim, the early signs are that the Palace putsch is foolhardy.

However, MBS is no bull in a china-shop. He has been in command of the strongest units in the Saudi army aggressing Yemen. The supportive US is aware of his moves and has long had substantive military forces in Saudi Arabia. MBS is fighting the American/Israeli war in Yemen, leaving millions on the brink of starvation. This war is not about a sectarian Zaydi-Wahhabi war; it is about the control of the Mandeb strait, the alternative route to millions of barrels per day of Saudi oil in case the Gulf experiences war-disruptions.²⁷

More important, the war in Yemen is an extension of the destruction of value, death by war, starvation and related diseases, from the horn of Africa to the Sahel. It is baffling how the mainstream, including western Marxism, narrowly focuses on the woman's contribution to social reproduction as if capital is of the male gender targeting women's do-good recreation of value or labour power. The role of women is crucial, but social reproduction, the regulation of population growth as the stock of value, is holistic. Capital as the principal social relation in history hands orders to socially reproduce, chiefly by means of eliminating lives as value, before mothers' milk is passed to infants. Lives, humans that is, are the beginning and ends of social reproduction. The hours spent in producing moneyed commodities are inseparable from hours spent in reproducing non-moneyed commodities, including the production of waste.

Shifting the focus of the labour theory of value away from the non-moneyed or dollar-cheap and shortened third world lives is laden with ideological bias. Such reductionism is falsely adequate because the people involved in interpersonal comparisons and evaluation of practice (the determinants of theoretical adequacy) are of the same denomination. They regurgitate the existing lopsided structure of class and power relations. Following Emmanuel (1972), the discrepancy in the structure question can be posed as such: why the cheaply priced life of an Iraqi consumed in war predicates the more expensive life of a New Yorker gradually consumed in the drudgery of western industry. Dropping this link because one life is already more money-valued than the other, leaves the historical question of which value, class or power relations set the moneyed terms of trade out of the picture.

Moreover, the more conservative strands of the mainstream analyse the third world and its value/life destruction away with an assortment of undying, conflicting and shifting identities.²⁸

²⁶ The following article in the Arabic Al-Akhbar contains the WikiLeaks links to the current King opposing investigation into corruption: <http://www.al-akhbar.com/node/286474>

²⁷ Yemen war clouds raise dangers for top oil shipping route. <https://www.reuters.com/article/us-mideast-crisis-yemen-shipping/yemen-war-clouds-raise-dangers-for-top-oil-shipping-route-idUSKBN0MM2JX20150326>

²⁸ For instance, the late Ali A. Saleh, the former president of Yemen, himself a Zaydi, was allied with the Saudis and between 2004 and 2011 bombed the Northern Houthi areas. Theologically, Zaydis are more a variant of Sunnism, quite different from Iranian Twelver Shiism. The people he had bombed were his allies against the Saudis, until few days before he re-switched sides again and died in mysterious

While the war, the waste side of the system, is its more decisive constituent, the theory of the neoclassical economists, the most absurd of the mainstream, offer a fictional society choice between guns or butter. Guns, the shoddy metaphor for wars, involve the restoration of power structures and the consumption of people as commodities by people as labourers. In real society, people are the starting point of value making and are value themselves. The consumption of living labour by living labour organised as classes with national structures, engaged in the permanently imposed wars of imperialism, is an act of commercial exploitation that limits the progress of the weakest states. In this unending, anachronistic and holistic war as production measure, the more powerful machines of the North and the higher prices of their associated commodities are determined by the historically accumulated power (real and ideological), cultural expropriation and the consumption of non-moneyed resources and human lives in the South.

Tautologically, the higher moneyed signification of the wealth amassed by imperialism circularly determines the higher prices and profits associated with Northern assets, including the wages of its working class. For capital, uneven development, theoretically originating within the contradictions of value, was identified as an ontological condition or an absolute law of accumulation under capitalism before the recycled catchphrase now in common usage: combined and uneven development. Waste, wars, depopulation and environmental degradation are themselves producers of commodities in the process of consumption or realisation. These waste industries are also integrated precursors and end points in the civilian-end use commodity (butter-like as opposed to guns) realisation process of a global market that must tote the guns to produce butter. Accumulation by market expansion requires accumulation by encroachment wars. Seen from that optic, the continuation of war and or its escalation are the material and ideological foundation of capital, and its more ferocious form, imperialism.

The above brings us full circle to the definition of MBS as an incontrovertible war-asset to imperialism. The extolled NY Times reformer, is more than just a custodian of the oil spigots on behalf of empire. War and oil politics are complex and inseparable. MBS combines more of both than his predecessors.

History is against the US/Saudi alliance

There are other sociological reasons that might hasten the failure of the coup. The US held Saudi Arabia in a state of animated suspension to control/usurp its oil, it imposed upon that society an immutable state of consciousness re-enacted by a fabricated Islamic conservatism; such *stasis*, in which the European colonial settlement of Palestine remained unforgiven, would backfire if the gung-ho prince was to allegorically hoist the Zionist flag over Mecca. Saudi life before oil was of the typical peasant or nomadic structures in which everyone, men and women, worked and had a say in the decisions made. It was the combination of Euro-US imperialism that imposed an identity, which promotes idleness and segregation, and essentially, the subjugation of the Arabian Peninsula. However, the very reactionary identity *cum* social ideology erected by imperialism will at a moment's notice reinvent itself as anti-imperialist. This occurs at the juncture where the élan of resistance, the global ideological recharge occurring in the background as we speak, switches the meaning of popular parables from submission to revolt as per Frantz Fanon. In Saudi Arabia, the credo of anti-Zionism was

circumstances. The shifting sands of identities should not conceal the strategic objectives or imperialist or class politics.

uncompromised to compete with the popularity of pan-Arabism. More important, the anti-Zionist struggle is contiguous to peoples' liberation struggles in the region. Such legacies instilled at the popular level are the brakes that will hold back impetuous pro-Zionist-imperialist rapprochement.

Of course, the imperialist sponsored Sunni-Shiite identity schism reared by the invasion of Iraq and its US-erected Sectarian constitution is a sinkhole into which Iran had fallen, othering many into the Sunni hand-me-down imperialist rubric (The Bremer constitution for Iraq). But the recent gains of the multi-sectarian Arab Syrian army and the bitter victory of Yemen, a country that withstands a baleful famine in the process, had thrown a monkey wrench into the imperialist plot. The blowback from the defeat of the MBS-Zionist alliance/coup will air on the side of China. What China had sown into the Arab world, especially its long-standing support for the rights of the Palestinian people, will come to fruition. Although the short-term impact of oil shortages on China may be dire, the boomerang effect upon a US empire auto-eroding by the practice of racism inside and outside, and the instigation of war to promote its growth by waste industry, can also be dire. In the last instance, the coup will decidedly fail because China's influence is on the march.

However, just as there are imperialistically imposed identity-politics traps mitigating popular anti-imperialist unity in the Arab region and elsewhere in the developing world, there are also similar hurdles of identity superseding class unity in the North. The weakness of organised socialist forces in the North and their ideological platitudes minimising the contribution of the global South to wealth-making and value are not haphazard, they are closely related to the accumulation of historical surplus value and its bearing on the production of working class consciousness. Theorising is never free of ideology; theorising that things or objects such as better northern machines bereft of historical subjects produce more wealth and justify higher northern wages is absurd thingification (things making and explaining things). The dominant strand of Western/liberal Marxism theorises only objects without subjects. It misses the point that the primary inputs in the furnace of wealth-making are the stacked wasted lives of peoples in the third world, labourers consumed alive as labour power in imperialist genocide; wars that are endemic parts of global production outside any teleological order. Depending on one's point of reference, wars can be the final stage in the realisation of commodities. The western point of reference, where western-machines manufactured-commodities are the last stage of production, is superficial and biased. To be parsimonious, the productivity/price of the machine/commodity is denominated in the dollar whose value, through the exercise of imperialist war, is reinvented by the west as store of wealth and means of exploitation. War precedes and follows any production process as input and output. War, as the industry that consumes all sorts of living and dead labour, is the first and last stage of any production and realisation process.

A system that must devour its weakest living social and environmental orders, cannot be reformed. Sorting trash for recycling in the North or producing electric cars to halt environmental calamity are measures of self-delusion, a fig-leaf that displaces white-man burden, especially as the social relations required to set the background for higher profits necessitate the destruction of the weakest human and environmental circles; ones like the ongoing Somali famine that killed one million children over the last two years, yet goes on almost unnoticed (Mountain 2017). To have voided the necessity for ironclad popular organisation as undemocratic and, to have swerved popular energy into futile academic tit-for-tats, hastens the real ricochet effect of imperialism: the rise of fascism in the North. The results remain to be seen.

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Teaching relevant microeconomics after the global financial crisis*

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Abstract

There are reasons to believe that the failure of economics to prevent and also to predict the global financial crisis of 2008 creates favorable conditions for the reform and revitalization of the field towards a discipline more oriented to real-world behavior of economic actors. Mainstream microeconomic theory, as it is actually professed in undergraduate and graduate classrooms, continues to promote technique rather than substance, exaggerating the role of abstract modelling. To elevate the substance in microeconomic analysis three possible sources are suggested here: history, psychology and sociology. This is questioning both the limits of methodological individualism as well as the legitimacy of separating economics from other social disciplines. Teaching real-world microeconomic theory turns out to be a struggle against disciplinary isolation inside economic departments.

JEL classification A12, A22, B50, D01, Z10

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The financial crisis and mainstream economic theory

Mainstream microeconomic theory cannot comprehend economic crises because it starts with the assumption that rational individuals usually (if not always) take the right decisions that maximize their individual aims (utilities and profits) and that at the end of the day, right and wrong decisions balance each other to produce a generalized equilibrium between supply and demand. So, whenever there is a global disequilibrium in the markets, a neoclassical economist always puts the blame on human interference – public or private – that has somehow impeded the clearing processes of the market. In the neoclassical narrative, a crisis is either the fault of the government and its regulating activities, or the monopolistic behavior of some influent agents who have confused the competitive game of the market with the game of monopoly: yes, you will maximize your profits, though you don't eliminate all the other competitors, for the game would be instantly over.

A fundamental reason for the above is the deeply rooted belief in the natural stability of the market economy as a result of the non-coordinated behavior of rational agents. Nothing describes better this quasi-metaphysical belief than the abuse of Adam Smith's celebrated metaphor, as exemplified in contemporary textbooks:

“Households and firms interacting in markets act as if they are guided by an ‘invisible hand’ that leads them to desirable market outcomes. One of our goals in this book is to understand how this invisible hand works its magic. As you study economics, you will learn that prices are the instrument with which *the invisible hand* directs economic activity” (Mankiw, 2012, 11, emphasis added).

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What's more, this belief has also permeated the heart (or the brain) of central policy makers, such as Alan Greenspan, the former chairman of the Federal Reserve, who declared (in October 2008, before a Congress Commission) that he had "made a mistake in presuming that the self-interest of organizations, specifically banks would protect shareholders and equity in the firms".

The unsound vision of internal stability of the market is further self-protected by numerous assumptions and axioms that knowingly defy the reality, to serve the theoretical requirements of the general equilibrium model.¹ It is thus assumed that both consumers and producers act in an environment of perfect information of the present and future conditions and decide instantaneously under full certainty (Stiglitz, 1994, 29). By the same token, perfect information deactivates the role of money as a precautionary means for future needs and as a means for speculation, depicting a false image of an automatic adjustment (Mirowski, 2010, 428). Except that in the real economy, decisions are taken by considering the existing sum of money (in circulating or fixed capital) and above all by calculating the eventual risk of every placement in the short or long run. In other words, not only is money an endogenous element of the markets – as we know at least since Keynes (1936) – but it is also a fundamental cause of the instability and cyclical fluctuation of the economic system (Minsky, 1980). A crisis appears when investors massively change their behavior and start selling their accumulated assets, thus creating a sudden increase in demand for liquidity. As the financial crisis of 2008 has demonstrated, markets are far from being efficient, in the sense that transactions are rarely made in prices that correspond to the exact value of the good or service that is exchanged (Tsoulfidis, 2010, 330).

This fact obliges economists to reconsider the whole idea of the theoretical representation of the economic system as a closed and delimited world. On the contrary, the starting point should be that of an open and constantly evolving world, which is inhabited by interdependent and interacting individuals (Chick & Dow, 2001, 719; Kirman, 2009). Complexity of economic phenomena is not a situation to be studied during the final semesters of economic studies, but should be introduced to students in the very first lectures of ECON 101. Constructing formal models based on the hypothesis of fully independent and non-interacting actors, is just a waste of time and energy. Keynes marvelously described the limits of this kind of formalism in 1936:

"It is a great fault of pseudo-mathematical methods of formalizing a system of economic analysis [...] that they expressly assume strict independence between the factors involved and lose all their cogency and authority if this hypothesis is disallowed; [...] Too large a proportion of recent 'mathematical' economics are merely concoctions, as imprecise as the initial assumptions they rest on, which allow the author to lose sight of the complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols" (Keynes, 1936, 297-8).

¹ To assure the possibility of an aggregate and integrable demand function, additional restrictions were imposed upon individual ordinal ranking of preferences: completeness, transitivity, continuity and convexity. These axiomatic restrictions guarantee the existence of a "complete preordering of preferences" for every individual which are only necessary and not sufficient conditions for the existence of a general economic equilibrium, still not its uniqueness, nor its stability. Israel & Ingrao (1990) made an excellent historical exegesis of the development of the general equilibrium model.

What are the lessons to be taught from the above as to the education of young economists? We will focus next upon the changes to be made in teaching undergraduate microeconomics, after first examining the perception of the problem by its teachers and students.

Reactions against autistic economic theory

Reactions to the way the theory of prices is professed in higher education institutions long preceded the recent global crisis. Back in 1991, an official investigation in American colleges and universities has pointed out the excessive practice of mathematical techniques in economic departments (see *Report of the Commission on Graduate Education in Economics*, 1991). In the conclusion, a universal concern was openly expressed: “The Commission’s fear is that graduate programs may be turning out a generation with too many idiots savants, skilled in technique but innocent of real economic issues” (Krueger, 1991, 1044-5). This situation is the consequence of a long-standing tendency of homogenization in the economic curricula of American universities from interwar pluralism to post-war neoclassicism. The tradition of the Institutionalist School (Veblen, Hamilton, Ayres, Commons, Mitchell), as well as the tradition of economic history in Harvard (Schumpeter, Gershenkron, Kuznets) and other eclectic economists (J.M. Clark and F. Knight), was replaced by a monolithic way of thinking that changed the “professional ethos of economics” (Barber, 1997; Morgan and Rutherford, 1998, 1-25).

In Europe, with many national traditions of economic thought the tendency of homogenization in economics is less evident.² Nonetheless, in Europe there was also a bottom-up reaction movement of students in France in June 2000, known as *Autisme-Economie*, which was immediately supported by many professors (more than 145 of them) and which initiated a public debate in the columns of the daily French newspaper *Le Monde*. Soon, this movement against excessive formalization and the lack of pluralism in economic departments, involved many globally known economists such as Amartya Sen, Robert Solow, Olivier Blanchard, James Galbraith, etc. The movement also spread to many campuses, such as Cambridge (UK), Kansas and Harvard, and gave birth to the digital *Post-Autistic Newsletter* in September 2000, (see Fullbrook 2003, 3-17) which became the *Real-World Economics Review*, now in its 82th issue and with 26,500 subscribers.

Based on that reaction, it was maintained that standard microeconomic theory, i.e. the general equilibrium model should be simply abandoned (Guerrien, Keen, Dorman, Halevi in Guerrien et al., 2002; Keen, 2009). To summarize, these critics insist upon the lack of empirical and theoretical relevance of standard microeconomics and its use of absurd assumptions. Less negative critics in the same *Review* believe that microeconomic theory is useless unless it captures “the complexity of interaction in the economies” (Mayhew); that some central issues, such as the notion of choice and the supply and demand curves, have some pedagogical value in so far as they are incorporated into a teaching program that serves the general goal of promoting well-being (Nelson). More constructive critics believe that “basic economic reasoning” contained in microeconomic theory is truly important and

² In Coats ed. (2000) economists from ten western European countries have studied the growth of higher economic education and postgraduate training, the professionalization of the discipline, the evolution of research groups and institutes, the homogenization of academic rules and norms of scientific publication, as well as the role of the economist’s profession in the post-war economic and social development of Europe. One of the main conclusions was that despite the undeniable trend towards Americanization, differences on a national level are still present in all European countries.

worthy to be taught to students (Caldwell); also that “the core ideas of neoclassical ideas should not be excluded from the curriculum but placed alongside alternatives”, at least unless a more “adequate conceptualization of the human agency and decision making” appears (Hodgson); and finally that microeconomic theory can be “properly taught” with many applied economic problems as case-studies, instead of the usual formalistic tools of general equilibrium economics (McCloskey).

Teaching relevant microeconomics

Taking into consideration the above discussion, let us consider what we believe is worth keeping in standard microeconomics and how we should teach it. To start with, a significant re-orientation should be made in the subject matter of teaching. Here are some suggestions:

- 1) Give emphasis to economic substance over mathematical technique as many scholars have suggested (McCloskey, 2000, 218; Hodgson, 2009; Krugman, 2009). That means giving priority to economic concepts instead of sacrificing realism for the sake of the technical apparatus (Fine & Milonakis, 2009, 135). Theory and teaching should be appropriate to the relevant causal factors at work. An outstanding example of the doctrine of excessive commitment to analytical rigor by all means, is the representation of completely rational individuals who are gifted with perfect foresight and yet unable to do anything before the imaginary auctioneer cries-out equilibrium prices (see more in Zouboulakis, 2014, 51-54). The time has come to abandon the theory of price-takers and profess the idea of price-making agents, as in classical political economy.
- 2) Recognize that individuals have limited cognitive and computational capacities in pursuing their economic interests (as Henry Simon has showed) and, additionally, that economic decisions are often determined by “animal spirits – a spontaneous urge to action rather than inaction” (Keynes, 1936, 161-2; Akerlof & Shiller, 2009, 5). The recognition of these facts will help the student to understand from the beginning of her studies that markets are endogenously instable, regardless of the policy program. Keynes was right when he said: “We are merely reminding ourselves that human decisions affecting the future, whether personal or political, or economic, cannot depend on strict mathematical expectation, since the basis for making such calculations does not exist” (1936, 162-3).
- 3) Admit, consequently, that though the aim of the economist should be to grasp the world in a quantitative way, not everything is quantifiable and measurable in economic phenomena. Usually in economic modeling, the non-measurable is simply ignored (Mayer, 1996). Thus, some culturally determined behaviors that greatly affect entrepreneurship, saving, investment and even consumption, are not taken into account. Instead as Akerlof and Shiller concluded their best-seller book: “Evidence abounds for the animal spirits discussed in the first five chapters: confidence, fairness, corruption, money illusion, and stories. These are real motivations for real people” (2009, 174). Confidence, fairness, corruption and stories – i.e. widespread social representations of an era – are culturally determined social norms. Relevant literature on the influence of norms, custom and habits goes back to Nelson and Winter (1982) and has grown

significantly in the last 20 years to a degree that it is impossible to ignore when dealing with human behavior.³

- 4) We shall introduce students to some of the economic concepts relevant to microeconomics which have survived 240 years of history of economic thought. These include opportunity, cost, scarcity, productive factors, production possibility surface, division of labor and productivity, marginal increase, diminishing returns, increasing returns to scale, the law of demand, price and income elasticities, variable and fixed costs, the functions of money, money illusion, profit, interest of capital, rate of wages, competition and market power, concentration of capital, product differentiation, price discrimination, etc. The historical persistence and explanatory power of these theoretical concepts reinforces the scientificity of economic discourse in the minds of young students more than a solid logical construction of mathematical equations describing an imaginary world.
- 5) Analyze thoroughly only the chapters of mainstream theory that focus on the strategic interdependence between economic actors, such as duopoly, monopolistic competition and interactive game theory. Perfect competition should be only mentioned as an exceptional market and merely in order to introduce the idea of large competition prevailing in some international commodity trade markets, the fish market and the stock-market. Emphasis should be put on the applied fields of microeconomics in order to reveal the interaction between hard-core economic concepts and the institutional structures of the real economy. In the fields of industrial economics, agricultural and labor economics there are plenty of “good quality data that can be directly related to variables that appear in the corresponding economic theories” (Backhouse, 1997, 215).
- 6) A significant part of the course should be devoted to describing theoretically and concretely market failures using real examples of externalities in production and consumption, of problems of asymmetric information, adverse selection, moral hazard and inefficient allocation of property rights.

All the above are not sufficient by themselves to construct a relevant course in undergraduate microeconomics. As Joan Robinson said,

“Micro questions – concerning the relative prices of commodities and the behavior of individuals, firms, and households – cannot be discussed in the air without any reference to the structure of the economy in which they exist, and to the processes of cyclical and secular change” (Robinson, 1977, 1320).

Therefore, to elevate the substance of microeconomic analysis we need to strengthen its content with material from other social disciplines.

With a little help from my friends

We fully subscribe to Hodgson’s advice that “the modern university may require a Humboldtian reform” (in Fullbrook, 2003, 145). Until this is done, departments of economics

³ Beyond Nelson & Winter (1982), more recent contributions include Hodgson (1997; 2003). Schlicht (1998) and Hardin (2002). The idea of customary rule following behavior has a much longer history and was very much present in Mill and Marshall’s Economic Theory. Cf. Zouboulakis (2015).

can organize their curriculum so as to make it more relevant to the real economy. The first thing to do is to reinforce the place of both economic history and the history of economic thought. As to the former, the recently deceased economic historian and “Nobel Prize” winner in economics wrote:

“Economic history is a depressing tale of miscalculation leading to famine, starvation, defeat in warfare, death, economic stagnation and decline, and indeed the disappearance of entire civilizations. And even the most casual inspection of today’s news suggests that this tale is not a purely a historical phenomenon” (North, 2005, 7).

Thus, a pedagogically fruitful way to deal with the crisis of 2008 is to compare it with the depressions of 1873-1896 and 1929-1939. Students will then have the opportunity to realize all the dimensions of the actual crisis by knowing how the system has responded and changed in many aspects to overcome the previous crises. I mean the changes in policy priorities, in industrial organization, in money and banking regulation, in labor protection and of course in its theoretical orientation. Other episodes – such as the “Tulip Mania” and the “South-Sea Bubble” – also possess an analog pedagogical value. Needless to say, the details of the so-called “industrial revolution” are of huge importance to understanding the fundamental genetic characteristics of the economic system we live in.

As to the latter, more emphasis should be put on the history of economic thought – a sub-discipline that offers an absolute advantage in discovering new ideas, as many innovative economists have recognized. Paul Krugman (1996, 140) concluded that “when if one tries to reinvent a field without knowing what came before, one is too likely simply to reinvent old ideas, most them bad”. Geoffrey Harcourt also wrote that “often the same issues arise, and then it will be found that the greats of the past had something of lasting value to say about them” (in Fullbrook, 2003, 70). Even more categorically, Ronald Coase (2002) said

“It is a striking [...] feature of economics that it has such a static character. It is still the subject that Adam Smith created. It has the same shape, the same set of problems. Now of course we’ve made improvements, we’ve corrected some errors, we’ve tightened the argument, but one could still give a course based on Adam Smith”.

As Arjo Klamer and David Colander (1990) have suggested, one of the main reasons that only a very small minority of young economists has a “thorough knowledge of the economy” comes from their lack of understanding of the past of economic thought and economic history.

Furthermore, teaching the evolution of economic thought is an excellent means to promote the idea of scientific controversy and theoretical pluralism within our discipline. Economics, and the social sciences in general, are constantly in a state of internal division in many rival schools of thought with such great differences that one may certainly speak about competing “Scientific Research Programs” (SRP) in Lakatos’ sense.⁴ Differences and quarrels are

⁴ The “Methodology of Scientific Research Programs” by Imre Lakatos (1970) received great attention from 1974 to the late 1990s because the view of competition among different scientific programs corresponds greatly to what is really happening during the historical development of economics. The study of how different “programs” interact and compete with one another looks like a valuable starting point for the historical analysis of major “problem-shift” episodes, like the Marginalist or the Keynesian

natural in every scientific field. Yet, a student in physics, chemistry or biology is always able to get the state of the art by reading the last edition of any best-seller textbook. It is quite the reverse in the social sciences where differences exist in textbooks not only on the presentation of the major themes and the focus upon them, but also on the methods and techniques, the definition of major concepts, even the demarcation of the domain and the main purposes of social disciplines.

The simple recognition of this *de facto* pluralistic situation should lead the teacher of economics to deal with equal respect the competing SRPs and theories, to the best of his knowledge. Raveaud (in Fullbrook, 2003, 67) suggested “to teach through controversies”, meaning to present the students with the competing views on recurring economic problems. The history of economic thought is full of controversies that are still relevant. Raveaud quotes the example of the Vining-Koopmans controversy in the late 1940s (more widely known as the “measurement without theory controversy”) about the use of statistical data without a proper theory of economic behavior. Inductive inferences based on data collection are only good for establishing empirical relationships unreliable for prediction or policy purposes (Cf. Boumans and Davis, 2010, 38-41). An example more significant to microeconomics is the “full-cost controversy”. Initially, Robert Hall and Charles Hitch in 1939-40 contested empirically the profit maximization hypothesis, claiming that entrepreneurs set their prices by comparing – not the marginal cost to the marginal revenue – but simply matching up to a rough notion of total cost the market price. Richard Lester, seven years later, also contested the empirical relevance of the marginalist principle, initiating a huge debate in the *American Economic Review* from 1946 to 1953, involving many economists such as Machlup, Stigler, Eiteman, Apel, Bishop, R.A. Gordon, Haines, Bronfenbrenner, Reynolds, Papandreou, Kaplan, Ritter and co.⁵ Even more instructive is the “Friedman-Samuelson-Machlup debate” in the early 1960s, also known as the “positivist-descriptivist controversy” about the empirical status of the maximization hypothesis. As it is known, the controversy was unfortunately concluded with the prevalence of Friedman and his thesis that “theories are good for predictions only”. In that sense, it is useless to criticize the unrealistic nature of economic assumptions like economic rationality, since the aim of any assumption is only to provide the basis for successful predictions. This is the meaning of his famous F-twist: “the more significant the theory, the more unrealistic the assumptions”. Finally, we can mention the Galbraith-Becker-Stigler debate in the late 1960s on the role and functions of advertising in shaping consumers’ preferences (Hodgson, 2003, 160).

A second goal is to enrich the subject of microeconomics with the findings of psychology and behavioral science in particular. Psychologists, like Daniel Kahneman and Amos Tversky, put emphasis on experimentally observed behaviour using social, cognitive and emotional factors in understanding the economic decisions of individuals and organizations when performing economic functions. Kahneman and Tversky (1979) provided experimental evidence showing that people prefer lower, but more certain gains, rather than greater and more uncertain ones. They have also demonstrated that individuals are treating gains and losses asymmetrically, meaning that they do not assign the same value to expected utility and disutility. Series of experiments were put forward aiming at exploring the heuristic the individuals follow and the biases to which they are prone in decision making under uncertainty. Results from laboratory experiments have shown that individuals tend to be error prone and possibly irrational, suffering from “mindless behavior”, “insensitivity to sample size”, “base rate neglect”,

“revolutions”. For a concise evaluation of SRP Methodology see Blaug (1980: 31-6), Hausman (1992, 192 ff.), Backhouse (1997, 88-95), Boumans and Davis (2010, 108-114).

⁵ See Hausman (1992, 158-162), Tsoulfidis (2010, 241-2) and Zouboulakis (2014, 63-67).

“misconceptions of chance”, “cognitive illusions”, “confirmatory bias”, “belief perseverance”, “anchoring” etc. (Rabin, 1998, 24-30). Other experiments confirmed the fact that decision making is shaped by “framing effects”: the semantic description of possible outcomes affects greatly the individual’s choice; decision makers are inclined to accept passively the formulation of different choices and are particularly influenced by the default option.⁶ Therefore, the observation of consumer’s and producer’s behavior under different market structures gave birth to a more realistic representation of rational economic behavior. These massive empirical findings cannot be ignored and should be incorporated in the textbooks of microeconomics, even at the expense of a fictional generality.

The third and last goal is to enhance empirical relevance in teaching microeconomics, is to adopt a socially broader view of economic agency. Mainstream economic theory adopts the view that individuals live alone in a pre-social state of society and act in isolation with other human beings (Arnsperger & Varoufakis, 2006). Major economic issues – like externalities, money illusion and trust – are thus left aside although they do affect greatly economic transactions. The mainstream view, for theoretical, technical or ideological reasons, denies in fact the very essence of interpersonal exchanges between interacting individuals. As Kenneth Arrow (1994, 2) has suggested, to recognize the action of the social context upon individual behavior is to identify “the ineradicable social element in the economy”. Or even better said, “Rational deliberation is not possible except through interaction with the fabric of social institutions” (Hodgson, 2003, 163). Consequently, sociologists such as Mark Granovetter, Neil Smelser, Richard Swedberg, Carlo Trigilia, Viviana Zelizer and many others have produced over the last 20 years, a significant theoretical and empirical work that deepens our knowledge about the way economic transactions are really made. Findings about the weight of non-material motives in economic transactions; the significance of the system of rotating credit associations in developing countries; the role of informal arrangements and cooperation between industrial firms; the meaning of credit and commercial circuits among family members and other personal connections. All these findings demonstrate the narrowness of mainstream analysis which keeps outside the study of economic phenomena significant elements of social structure that really shape the efficiency of economic outcomes. As Ronald Coase (2002) said, “economists should enlist the support of lawyers, sociologists, anthropologists, and others in our work in order to understand why transaction costs are what they actually are. It’s the opposite of economic imperialism.”

On the usefulness of economic theory

An outstanding neoclassical microeconomist, Hal Varian, asked the emphatic question of “What use is economic theory?” To answer the question, he started by recognizing the obvious: “Economics is a policy science and, as such, the contribution of economic theory to economics should be measured on how well economic theory contributes to the understanding and conduct of economic policy” (1997, 109). But this acknowledgement should have led Varian in the opposite direction to the one he took. Instead, he claimed that although “it offers a useful insight in explaining an economic phenomenon” (ib., 115), “no theory in Economics is ever exactly true” (sic), since – as Friedman said 44 years ago – it focuses unilaterally onto one dimension of economic phenomena. Varian feels comfortable in

⁶ “Framing effects” are closely related to the phenomenon of “preference reversals” discovered by Lichtenstein and Slovic in 1971. A detailed review of the relevant literature is made in Hausman (1992, 227ff.).

admitting that “any method is better than none” (ib., 116), even if it leads to error.⁷ What a rigorous theorist should do instead is to promote only theories based on assumptions that sufficiently correspond to the operating frame of the real economy.

A commonly held view is that the Great Depression established Keynesian macroeconomics. However, the specialists know that it also greatly facilitated the process of mathematical formalization. A plausible explanation refers to the demand of the labor market for economists: business and research institutions wanted more technically skilled economists instead of broadly educated ones. The same demand for technical expertise was explicit in organizations such as the IMF, the OECD and, even more, the Rand Corporation. Thus,

“Economics suffered in a peculiar way because it had established a type and degree of formalism that allowed research output to be assessed principally in terms of mathematical interest and elegance. Economists were judged and became employable for their aptitudes for statistical analysis or predictive models” (Hodgson, 2009, 1216).

The homogenization of economic knowledge seen above, was obtained through the elevation of formal technique, as opposed to its substance. As Keynes wrote to Roy Harrod in 1938: “In economics ... to convert a model into a quantitative formula is to destroy its usefulness as an instrument of thought” (quoted in Hodgson 2013, 11). In that sense, the solution to the crisis in economic education coincides with the search for more useful economics.

We have seen already that this call goes back to 1991 and the COGEE Report in the US. Colander et al. (2004) have reported that mainstream economics changed during these last two decades before the crisis. Recent empirical surveys among graduate students of economics in seven major American universities (Colander, 2005, 181), show a hopeful change in their perception of the importance of knowledge of the real world economy, as against formal modeling, although they continue to complain about the lack of policy relevance just as they have done 20 years before (Klamer and Colander, 1990; Krueger et al., 1991). As argued here, and judging from the lack of apprehension of the biggest economic destabilization since 1929, apparently mainstream economics hasn’t changed enough. Even if there are actually more “elite mainstream economists working at the edge”⁸ and many of their graduate students perceive their differences, it is excessively unsafe to announce the arrival of a “Kuhnian shift” by this time; the suggestion that we are living the moment of the gradual transition time lag from the old conception of the market economy as a self-equilibrating mechanism to a new one “centered on dynamics, recursive methods and complexity theory” is too good to be true. Core microeconomic theory today, continues to suffer from the 19th century “Physics’ envy” and shares the same “icon of scientificity” since Jevons and Walras (Mirowski, 1989).

⁷ Actually Varian confused Roger Bacon (1214-1292) with Francis Bacon (1561-1626) and distorted the meaning of the latter’s motto “truth emerges more readily from error than from confusion”, writing “more truth arises through error than confusion”. A fundamental rule of logical inference – called “modus Tollens” - says that “if p implies q and q is a false proposition, then p is not a true proposition”. On the contrary it is invalid to deny the antecedent, that is to say “if p implies q and p is false, then, q is false”. Truth “arises” only from the first kind, although confusion helps not the truth to emerge, as Francis B. meant.

⁸ Colander et al. (2004) made the distinction between orthodox and mainstream economists, in order to identify those neoclassical economists who are critical of the standard theory and work “at the edges” of orthodoxy. In their survey they include in that category Paul Samuelson, Kenneth Arrow, Robert Solow, Thomas Schelling, Amartya Sen, Joseph Stiglitz, Chris Sims, Michael Woodford, George Akerlof, Richard Thaler, Anne Krueger, and Jagdish Bhagwati (2004, 493).

The multiplication of papers, books and conferences around the world are hopeful signs of a change that will remain unfinished as long as it is not disseminated through the undergraduate economic education. Our suggestion here is to disseminate the idea for a need for educational reform in undergraduate programs inside the department of economics. In Greece for example, severely touched by the crisis, after seven continuous years of depression and with an accumulated loss of GDP of roughly -25%, what are the changes already made in our undergraduate curricula? Looking at the outlines of the courses taught at the 11 undergraduate economics departments I am afraid, there have been very little changes.⁹

I end with an example of a good textbook. Joan Robinson and John Eatwell (1973) have more than 40 years ago suggested an alternative textbook that is very close to what I have in mind as relevant microeconomics. It offers sufficient space for the history of our discipline, it analyzes succinctly the factors of production, it makes a realistic description of the market mechanism and pricing of goods and services and introduces the student smoothly to a solid theory of capital and profit, not without reconsidering the fake division between micro and macroeconomic theory. There are of course many other fine works which are serving the same purpose, without the obsolete chapters on socialist planning. I have in mind *Understanding Microeconomics* by Robert Heilbroner and Lester Thurow (1984), and *Understanding Capitalism* by Samuel Bowles, Robert Edwards and Frank Roosevelt (2005).¹⁰ They all ask the right questions: what is production and consumption for? By whom? For whom?

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⁹ By chronological order of their "date of birth" Greece has the following economic departments at the universities of Athens, Thessaloniki, Economic, Macedonia, Piraeus, Patras, Crete, Thessaly, Ioannina, Peloponnese, and Thrace. The first three were "born" before the WWII, the next two in the late 1950s, Patras and Crete in the late 1980s, the next two in 1999 and the last two after 2002.

¹⁰ Fred Lee (2005) makes another proposal of what he calls "Heterodox Microeconomics" with a lot of suggestions for further reading.

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On microfoundations of macroeconomics

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“We have reached the point at which there are graduate students for whom John Hicks’s IS/LM model is just a dim memory from an undergraduate textbook and whose first lecture in their graduate macroeconomics courses began with a Hamiltonian describing the dynamic optimization problem of what appears to be an individual agent” (Hoover, 2001).

1. Introduction

A good starting point for this discussion can be found in the quote “[t]he classical political economists were primarily macroeconomists and only a Keynes would have been needed to put their theoretical structure in order, their specificities notwithstanding” (Pereira and Lima, 1996). Classical economists such as Adam Smith and David Ricardo mainly focused on market phenomena in their work. The analytical and empirical role that they assigned to the individual in their arguments was relatively weak. Though the analytical ground clearly shifted to the individual with the rise of marginalism in the middle of the nineteenth century, still the market phenomena remained the focus in English political economists’ writings. The individual truly became the analytical centre of economics in the works of French economists such as Augustin Cournot and Leon Walras (Hoover, 2001).

Keynesian revolution gave macroeconomics its rebirth. What Keynes had in the back of his mind was that whole is more than the sum of the parts/units (Pereira and Lima, 1996).

“[T]he individual played an essential role in Keynes’s analysis, even though he denied the vision of macroeconomics as having been built upward deductively from self-sufficient, autonomous microeconomic units. Microeconomics on this interpretation of Keynes is the economics of a part in the context as a whole. Microeconomic parts are neither self-sufficient nor autonomous on this view; microeconomics presupposes, and takes, macroeconomics as given” (Hoover, 2010).

Around the mid-1950s, at least two approaches existed to study economy-wide phenomena: general equilibrium theory and (Keynesian) macroeconomics (Janssen, 1996). Some important theoretical issues in both these approaches were established by this time. Arrow and Debreu (1954) had proved the existence of general equilibrium point. Hicks (1937) had established IS-LM framework. Until the early 1970s, a degree of autonomy was widely accepted for the two branches, microeconomics and macroeconomics (Janssen, 1996).

It was within this context Jan Tinbergen developed an explicit methodology of policy evaluation where the policy maker aims at “targets” by choosing “instruments” (Hoover, 2015). To this end, Lawrence Klein and Jan Tinbergen were instrumental in estimating large macroeconomic models with hundreds of equations, which “adopted the aggregative architecture of Keynes’s *General Theory*”. This Keynesian macroeconomic approach was

dominant in policy making until 1970s. The central challenge to the Klein/Tinbergen type macroeconomic models was the famous “Lucas Critique” (Hoover, 2015; Da Silva, 2009).

According to Lucas, aggregate relationships modeled by macroeconometricians were the product of intentional behaviour of individual agents in an economy. Policy maker is not an outsider to the economy and they react to data generated by those intentional agents. On the other hand, agents are not passive and they try to understand and predict the policy makers’ behaviour and incorporate those predictions and resultant knowledge into their behaviour. Usually, policies are guided by policy makers’ preferred goals and, therefore, policy actions are not random. To the extent that policy actions are systematic or predictable, it would not be a difficult task for the individual agents in the economy to adjust their behaviour in light of the policy changes. Thus, contrary to what the Keynesian policy modelers assume, the relationships embedded in macroeconomic models would not remain unchanged to policy actions. In such a context, Tinbergen’s target/instrument relationship was bound to fail (Hoover, 2015). “The dare implication of [Lucas] critique is that the whole justification for policy interventions based on large-scale macroeconomic models vanishes: it was the death declaration of the Keynesianism of the time”¹ (Duarte, 2014).

The implied solution was to start building macroeconomics on first microeconomic principles taking the intentional, rationally behaving individuals/agents as the analytical unit (Da Silva, 2009; Hoover, 2001 and 2013; Palsson Syll, 2014). As Hoover (2015) puts it, “[t]he Lucas critique called for a radical *reductionism* – a bottom-up approach in which the behavior of aggregate quantities was derived deductively from the characterization of individuals”. Therefore, the microfoundation program in the 1970s can be taken as an obvious response to the Lucas critique. Macroeconomists started modeling macro relationships in such a way that the models would be immune to the Lucas Critique. “*Every New Classical or New Keynesian microfoundational model* – at first, explicitly but eventually only implicitly – *is justified in the minds of its advocates as an attempt to avoid Lucas’s criticism*. This is the linchpin of the history of microfoundations” (Hoover, 2013, emphasis added). On the other hand, microfounding attempts of macroeconomics may be partly due to the failure of important elements of empirical macroeconomics, particularly, the breakdown of the Phillips curve relationship that had been heavily used for policy purposes in 1960s (Janssen, 2006).

2. What is meant by microfoundations?

A good point of departure in explaining microfoundations is the concept of “methodological individualism”. The following are a few definitions of the concept in various writers’ own words:

“the doctrine that the only well-grounded explanations of social phenomena are ones that appeal to the actions and behaviours of individuals” (Hoover, 2009).

“mode of economic analysis that always begins with the behaviour of the individuals” (Blaug, 1992).

¹ In a more recent paper in 2016, Katherine Moos states that “Lucas critique altered the aspirations of economists and policymakers by undermining belief in the ability of economists to make meaningful interventions in the economy and therefore infusing implicit *policy nihilism* into macroeconomics” (emphasis added).

“the view according to which proper explanations in the social sciences are those that are grounded in individual motivations and their behavior” (Janssen, 2006).

Looking from this perspective, macroeconomics, subject matter of which is the economy as a whole, is expected to provide proper explanations only if it is grounded on individual motivations and behaviour. Lucas’ plea for the provision of microfoundations to macroeconomics is well summarized in a statement appearing in Hoover (2010).

“In economics, the only acceptable causal articulation must capture the intentional actions of economic agents. The fundamental explanatory trope of microeconomics is that *ought* implies *is*. Economics on this view is intentional; *it must capture the beliefs, expectations, and choices of individual agents*. Macroeconomics without microfoundations will fail to do so” (Hoover, 2010, emphasis added).

Providing microfoundations to macroeconomics (or microfounding macroeconomics) in this manner after 1970s includes a few basic features. First, the analysis is based on “deep parameters” corresponding to “policy invariant” basic variables such as *tastes* and *technology* (Hoover, 2001). Second, the centre of the analysis is rational constrained individual optimizers such as representative firms that maximize profits and representative consumers who maximize intertemporal utility subject to wealth/income/budget constraints in an environment with perfect capital markets (Wren-Lewis, 2007). In its most extreme form of the concept of representative agent, “the economy as a whole is represented as if it were the outcome of a single individual’s decision problem.² The possible differences between individual and aggregate economic behaviour are thereby assumed away” (Janssen, 2006). Third, rational expectations remain as a “consistency axiom” (Wren-Lewis, 2007), in the sense that they are “capable of being reconciled with different theoretical structures” (Arestis and Sawyer, 1994).

As Wren-Lewis (2007) states, two later developments have completed the microfoundations of macroeconomics. The first, developed by Michal Woodford (in Woodford, 2003), was the traditional objective function assumed for policy makers that can be derived, under certain conditions, from the utility of the representative agent. The objective function that includes output and inflation in quadratic terms indicates that, for the policy maker who is assumed to be benevolent, the trade-off between inflation and output stabilization is no longer ad hoc, but intentional. The second was the construction of large scale models that are being widely used by most of the central banks, particularly characterized by Dynamic Stochastic General Equilibrium (DSGE) models.

However, it is worth noting that there had been some microfoundation programs in the history before the Lucas critique came into play. For instance, James Dusenberry, Milton Friedman, and Franco Modigliani tried to explain the microeconomics of consumption. William Baumol and James Tobin discussed demand for money at micro level. Dale Jorgenson looked into investment. Don Patinkin analyzed the labour market (Hoover, 2001). Nevertheless, none of these attempts was eliminative in nature like the microfoundation program followed by the Lucas critique.

² Section 6 reviews the role of representative agent in microfoundation project at length.

3. Some immediate implications

New neoclassical synthesis

With the attempts of microfounding macroeconomics, the long lasting traditional distinction between classical and Keynesian schools began to disappear (Janssen, 2006). The resulting new neoclassical synthesis “incorporates elements from both the classical and the Keynesian perspectives into a single framework” (Goodfriend, 2004). Lucas’s idea of reductionism rapidly became the standard among the New Classical economists (Hoover, 2015). Then New Keynesians also explicitly began to seek rigorous microeconomic foundations for traditional elements of Keynesian economics (Froyen, 1994). This by no means implies the absence of differences between the two schools. New Keynesian economic models represent a number of different themes such as price stickiness, fixed-price equilibria, imperfect competition, efficiency wages and multiple equilibria (Janssen, 2006). Nevertheless, both schools, assuming rational expectations, base their analyses on rational and constrained optimizing firms and consumers. As Wren-Lewis (2007) puts it, “[in] fact, it would not be a complete exaggeration to say that two approaches differ only to the extent that one (the New Keynesian) assumes nominal inertia, while the other does not”.

Macroeconomics being replaced by microeconomics

According to Hoover (2010), when it comes to microfoundations, there are at least three theses with different methodological implications: (a) without individuals there would be no aggregates; (b) how individuals behave affects how aggregates behave; (c) aggregates are nothing else but summary statistics reflecting individual behavior. The nature of the microfoundations suggested by New Classical and New Keynesian economics is mainly represented by (c) above³ (Hoover, 2010).

A common feature in modern macroeconomics is that traditional macroeconomic concepts such as business cycle or inflation are now being studied using the same tools and techniques used in microeconomics. By relying on the assumption of representative agent, modern macroeconomics simply assumes away the heterogeneity that exists at the individual level (Janssen, 2006). Though there is some degree of exaggeration, the fate of macroeconomics in the context of its being microfounded is well reflected in Lucas’ well cited statement that “the term ‘macroeconomics’ will simply disappear from use and the modifier micro will become superfluous. We will simply speak, as did Smith, Ricardo, Marshall and Walras, of *economic theory*” (Lucas, 1987). An important implication is that macroeconomic propositions that cannot be reduced to microeconomics are likely to be ruled out and “this amounts to saying goodbye to almost the whole of *received* macroeconomics” (Blaug, 1992, emphasis added).

Internal consistency at the cost of external consistency

Wren-Lewis (2007) compares the method of rejection of model parameters in pre- and post-microfoundations approaches. In the former, though macroeconomic theory was used to

³ There are definitions of economics (which had come into existence number of decades before the Lucas critique emerged) that give rise to the reduction of macro to micro. For instance, Lionel Robbins (1935) defined economics as “the science which studies human behavior as a relationship between scarce means which have alternative uses”. Such a definition implies that, “if it is not microeconomics, it is not economics” (Hoover, 2010).

specify a model, parameter restrictions implied by theory were rejected in econometric tests. If a certain parameter is so rejected, it would not survive in the model. The theoretical justification for the inclusion of a certain variable in the model was often fairly loose. However, nowadays, in the context of DSGE models, the theoretical (or internal) consistency of the model plays an essential role. Parameter restrictions implied by theory are always insisted. Econometric (or external) consistency is secondary to the theoretical consistency of the models. According to the former approach, models that are not consistent with data had to be rejected. However, according to the latter, though internal consistency is vital, external consistency is not essential and it is just a pointer to future theoretical development. According to Wren-Lewis (2007), the methodological approach that characterizes the post-microfoundations approach “holds that internal consistency should never be compromised. Under this view, a model that is internally inconsistent is simply incorrect (and should be rejected), while a model that is externally inconsistent can be tolerated, at least until a better model is found”.⁴

Methodological shift of macroeconomics

Model testing in macroeconomics, for a long period of time, has been based on the scientific method developed by Karl Popper and eloquently advocated by Blaug (1980). Data consistency was the vital factor and when the theories are rejected by data such theories were usually replaced. Hausman (1995) developed an alternative methodological approach, which is sometimes labeled as axiomatic or deductive. According to this approach, economic theory is constructed from a small number of fundamental axioms, of which rationality is the most important one. Rationality is not just an article of faith, but an empirical proposition that is backed up by a various types of evidence. For instance, one of the key axioms of the rationality is the transitivity which says that if bundle A is preferred to bundle B and bundle B is preferred to Bundle C, then bundle A must be preferred to bundle C. As such, theories that are based on these axioms are presumed to be empirically relevant. When it comes to model testing, this alternative methodology follows Mill (1843) and stresses that a “theory proposes ‘tendencies’, and so correspondence with data will always be inexact. Even where data rejection appears clear-cut, this does not lead to complete theory rejection, but instead represents ‘puzzles’ that require theory adaptation or augmentation” (Wren-Lewis, 2007). Though Hausman developed this methodological approach only for the core of microeconomic theory, Wren-Lewis (2007) argues that microfoundation program has extended it to macroeconomic theory as well.

Issues related to policy making

It took nearly two decades for Real Business Cycle models to evolve into DSGE models, which are now heavily used as a policy tool. It is in this context that Wren Lewis (2007) argues that “microfounded models used for policy analysis can only develop as fast as theory allows”. He also uses a convincing example to explain this. Though “inflation inertia”⁵ is an effect that can be seen in most of the economies, still there is no clear microfounded explanation for it. How should policy makers proceed in this regard? Should they continue to

⁴ An example provided by Wren-Lewis (2007) is Uncovered Interest Parity (UIP), which is almost always included in current open economy macroeconomic models and empirical support for which is extremely poor. According to the above criteria, UIP is highly likely to be retained in models as it is internally consistent though not externally consistent.

⁵ Inflation inertia is the continuous rise in prices because of past inflation, even though there are no structural reasons for that to happen.

use models based on microfoundations ignoring inflation inertia until inflation inertia will be microfounded one day? Or, should they take inflation inertia into account in policy making using non-microfounded models? In this context, Wren-Lewis (2007) raises a sensible question: “[i]s it either inevitable or desirable that the phase of theoretical development will govern the tool that policy makers use?”

4. Can macroeconomics be reduced to microeconomics?

Whole is something more than mere sum of units

Microfoundation literature ignores the fact that there are some emergent properties at the macro level which do not have natural counterparts at the micro or individual level (Jansen, 2006). A simple non-economic example can be found in Grabner and Kapeller (2015). The difference between the words “dog” and “god” does not exist in their individual components or the letters d, o and g. Interestingly, it depends on the way the individual components are ordered (or, in their relations or structure). Taking an analogue from science, Hoover (2001) provides another example. Boyle and Charles Laws state the relationship between pressure, temperature and volume. Temperature and pressure are emergent properties that stem from the aggregation of molecules and such properties are absent at the level of molecules. The same is applicable to social and economic phenomena. For instance, the analysis of interactions and relations between individuals/units helps us understand the *emergent* features in the society such as preference formation in the context of social emulation, emergence of routines in organizations, evolution of cooperation, path dependence and technological lock-ins (Grabner and Kapeller, 2015).

There are also some emergent rationality traps due to the fact that myopic individually rational actions can lead to worst possible aggregate outcome. These cases can be expressed in the form of n -person prisoner’s dilemma. For instance, though one can improve his/her view in a theatre by standing up, there will be no collective improvement if everyone follows that rationale (Grabner and Kapeller, 2015). Tragedy of the commons, which implies unsustainable usage of a common good in the absence of a suitable mode of social coordination, is also another example (Hardin, 1968).

Methodological difference

Pereira and Lima (1996) points out that microeconomics and macroeconomics use two different methodological stances. Microeconomics employs primarily a logical-deductive reasoning while macroeconomics uses mainly a historical-inductive reasoning. The issue here is that logical-deductive microeconomics cannot provide historical-inductive macroeconomics with microfoundations.

Distinction is not merely conceptual, but ontological

According to Hoover (2009), the mistake that macroeconomists make is to believe that macroeconomic analysis is not ontologically independent. They believe that macro analysis is not solid unless they can trace the route where the macro analysis reduces ontologically to intentional individuals who make decisions in the light of their preferences, goals and beliefs.

Hoover (2009 and 2001) argues that macroeconomics can supervene on microeconomics, but in an antireductionist manner. The idea here is “not to reduce macroeconomics to microeconomics, but to show that macroeconomics could have an ontological anchor in the individual, while preserving ontological independence for causally interacting aggregates”. In this regard, Hoover cites David Levy’s (1985) argument that individuals necessarily employ macroeconomic concepts in their micro level decision making. For instance, any person who wants to make the micro-level decision of how much money to be saved for his/her child’s education has to form expectations of the impact of inflation, which is a macroeconomic concept. That is to say that “[m]icroeconomics of the real world necessarily uses macroeconomic models and concepts as an input” Hoover (2001). Though the reductionist view of supervenience of macro on micro requires that microeconomics and macroeconomics belong to two separate domains, they cannot actually be separated (Hoover, 2009).

Theory of the whole is prior to the theory of the individual

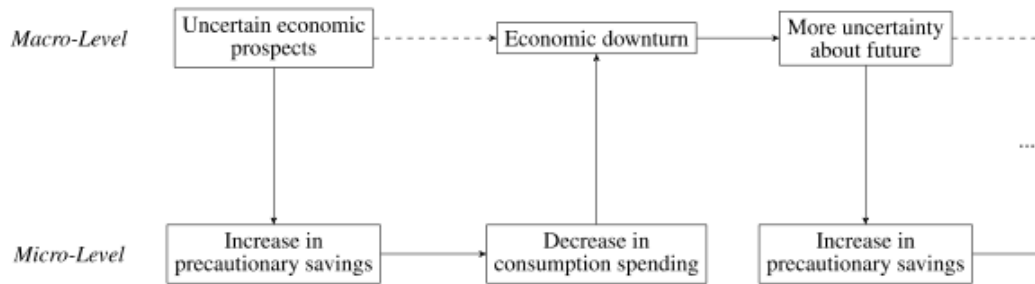
Either classical economists or Marx did not develop their theories of long-run development of a capitalist economy as a construction based on theories of individual behaviour. For those economists, “individual behaviour took its meaning and motivation from its social context so that the theory of the whole was prior to the theory of the individual”. To put what Marx said more precisely, “classes determine men, rather than men determining classes”. Viewed from this perspective, the argument that individual preferences are independent of economic changes does not make much sense. This is for the simple reason that such preferences are socially constructed. “Indeed, economic pressures shape individual preferences and define the social positions in which individuals make their choices” (Pereira and Lima, 1996).

Bidirectional causality

As King (2012) argues, in economics, causal process can operate in either direction between the individual and the entire economy, but not only from the individual agent to the entire economy. For him, macroeconomics and microeconomics are related horizontally rather than vertically. In this sense, *foundation* is a bad metaphor as one of the two sub disciplines cannot be the foundation of the other. A better metaphor would be a *bridge* between two buildings which stand on their own foundations (King, 2012).

Grabner and Kapeller (2015), viewing heterodox economics in a systemist framework, which has been suggested as an alternative to both individualism and holism, discuss some examples that can be presented here in support of King’s metaphor “bridge”. Figure 01 which shows paradox of thrift in a systemist framework demonstrates how causal arrow may run in both directions between microeconomics and macroeconomics:

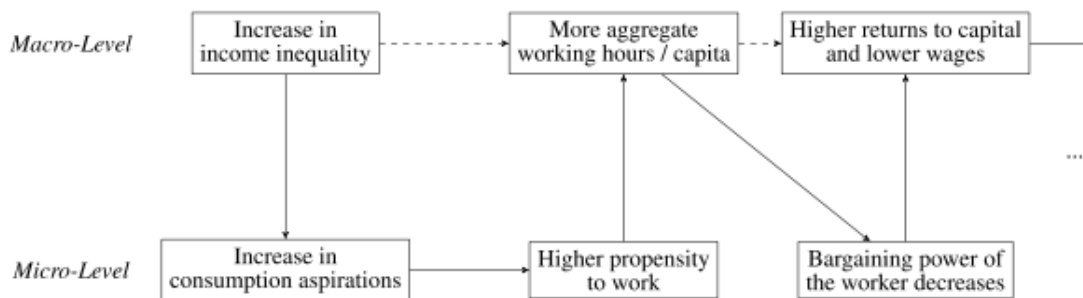
Figure 01



Source: Grabner and Kapeller (2015).

The example represented by Figure 02, which views income equality, labour supply and economic development in a systemist framework, can also be cited in support of King's argument that there is a bridge between two sub disciplines, but one cannot be the foundation for the other:

Figure 02



Source: Grabner and Kapeller (2015).

5. Can microfoundations be viewed as Nowakian idealization?⁶

According to Lezek Novak, “a theory is a formal structure and ... a complete theory is *idealized* when elements of that structure are set to limiting values so that they cease to contribute to the explanatory machinery of the theory” (Hoover, 2010). For instance, consider a complete theory of planetary motion governed by Newton's laws. One can reach an idealized version of this theory by setting the values of planetary diameters to zero, while retaining the measured value of their masses. This type of idealizations are frequently used in actual calculations.

In any theory, there are features that are of primary importance in achieving its goals than some other features, which can be thought of secondary.⁷ Various degrees of idealization can be achieved depending on how many secondary factors of the theory have been set aside.

⁶ This section entirely relies on Hoover (2010).

⁷ Distinction between primary and secondary factors has to be understood relative to the desired target of explanation (Hoover, 2010).

On the other hand, the explanatory range, the detail and the accuracy of a theory can be improved through reinstating, one by one, the secondary factors that have been set aside. Such a process, known as *concretization*, brings the idealized version ever closer to the reality.

Idealization can often be seen in microeconomics. For instance, monopolistic competition is a less idealized version than perfect competition. One can obtain perfect competition by setting the differences among the goods to zero. The rational economic man is also not a true description, but can be viewed as an idealization.

A question that can be raised in the context of microfounding macroeconomics is whether it can be taken as idealization. To answer this question, Hoover (2010) takes an example from the well-received graduate text book Blanchard and Fischer (1989). In chapter 8 of the book, a model to explain nominal rigidities and economic fluctuations assumes the following Cobb-Douglas utility function with an additional linearly separable term Y to represent individual preferences:

$$U_i = \left(\frac{C_i}{g}\right)^g \left(\frac{M_i/P}{1-g}\right)^{1-g} - \left(\frac{d}{\beta}\right) Y_i$$

where M_i is money holdings by i^{th} consumer/producer; Y_i is output of good i ; C_i is consumption of individual i and defined by the following constant elasticity of substitution aggregator function:

$$C_i = n^{1/(1-\theta)} \left(\sum_{j=1}^n C_{ij}^{(\theta-1)/\theta} \right)^{\theta/(\theta-1)}$$

where C_{ij} is consumption of good j by i^{th} individual; P is the general price level defined as a weighing of the prices of individual goods P_i :

$$P = \left(\frac{1}{n} \sum_{j=1}^n P_j^{(1-\theta)} \right)^{1/(1-\theta)}$$

According to Hoover (2010), these forms of functions are not chosen as “Nowakian idealizations of some actual preference function, but as tractable forms with well-known mathematical properties, some of which may be adjusted to approximate features of actual preferences”. They can be viewed as some non-ideal characteristics or particular concretizations of the model.

When it comes to general equilibrium, the suggested mechanism is that individual agents face a set of common prices which are adjusted until excess demand in all markets will be eliminated. In this context, simple but critical questions Hoover (2010) raises are that “who sets [those] prices? On the basis of what knowledge?” According to Hoover (2010), there are at least two approaches by economic theorists to answer these questions. The first approach simply abstracts away from the process of price setting and focuses only on the equilibrium by proving, in terms of the fixed point theorem, that equilibrium exists. In this attempt, in which how the equilibrium is established is not explained, equilibrium is considered the *deus ex machina*. Hoover (2010) goes on saying that “even the mathematics of discovering equilibria

in formal general-equilibrium models points to the character of the god in the machine". The second approach to the process of setting prices is to "give a name to the god in the machine – auctioneer". However, this auctioneer is by no means an idealization of the exchange process of macroeconomics. "Rather – implicitly or explicitly – it is a particular, and particularly unhelpful, concretization, which suggests falsely that the best analogue to a decentralized economy is a command economy in which information is processed centrally".

Apart from the question "who sets prices?", there are a few more conceptual difficulties in such a formulation. One of those is related to the fact that representative agent uses general price level as an input in making his choices (see the utility function of the agent). However, the general price level is an emergent property of macroeconomic systems and ontologically different from the prices of individual goods. This issue that macroeconomic concepts are needed in microeconomic decision making as inputs has been pointed out in the previous section.

Another conceptual difficulty associated with this microreduction is related to aggregation. Start with perfect competition where agents are price takers and small relative to the market. This is a properly formulated Nowakian idealization. On the contrary, if you assume that representative agent is also an idealization, in which the general equilibrium lies at one limit and the representative agent at the other, it would be an *improper* idealization. Why is it so? If the representative agent is held to follow the rule of perfect competition, then it is justified on the idealizing assumption that $n \rightarrow \infty$. However, the representative agent is itself an idealization where $n \rightarrow 1$. Somewhat inconsistently, here the representative agent is the whole market and is small relative to the market at the same time. The issue here can be summed up by a simple question: with whom does the representative agent trade?

A third aspect of the problem can be related to the fact that "the acceptable idealization of perfect competition in microeconomics applies for markets of particular goods, while macroeconomics must ... capture the economy as a whole" Hoover (2010). If the idealization starts from a general equilibrium system in which there are many goods and many individuals, the model involves two idealizations. According to one, the number of distinct goods approaches one. According to the second, diversity of types of agents approaches a single type while n agents do still exist. Aggregate demand is then equal to n times individual demand and aggregate supply can also be obtained in the same manner. Such adding up of individual demand/supply to a well behaved aggregate demand/supply function needs the strong assumption of homotheticity and identical goods and agents. The requirement of homotheticity cannot be taken as a Nowakian idealization because "[i]t does not eliminate a substantive factor as inessential by setting it to a limit. Instead, it is a particular concrete assumption upon which the result critically depends" Hoover (2010).

This section can be concluded by quoting the very last sentence of Hoover (2010). "The essence of [the] criticism of the common strategies of reducing microeconomics to macroeconomics is that it is based in model building that mixes legitimate idealizations with non-ideal, particular modeling assumptions and then relies on those assumptions at critical junctures in providing the derivation of the macroeconomic relationships from microeconomic behaviors".

6. Does the representative agent serve the purpose?

This section includes the critical thoughts of a few economists about the “representative agent”, the linchpin of the proposed microfoundations of macroeconomics. The representative agent in modern macroeconomic models maximizes utility subject to a budget constraint represented by the national income identity and simultaneously maximizes profits subject to an aggregate production function. The forms of these consumption and production functions are identical to the forms that are proved to be tractable in microeconomic analysis (Hoover, 2009). A number of economists argue that there is no formal justification for the representative individual used in modern macroeconomics. As Kirman (1992) puts it, “the assumption of a representative individual is far from innocent; it is the fiction by which macroeconomists can justify equilibrium analysis and provide pseudo-microfoundations”.

Does representative agent agree with methodological individualism?

As Janssen (1993) points out, methodological individualism is a desirable form of explanation of macroeconomic phenomena for at least two reasons. First, relationships with such individualistic foundations are more likely to be stable across various changes in policy regimes. Second, “one does not fall easily into the trap of postulating a suspect entity that behaves independently of individual members of a group and that serves the interest of the group”. In this context, Janssen argues that Arrow-Debreu general equilibrium approach is not consistent with methodological individualism because it relies on “Walrasian auctioneer” who is a suspect entity of the type stated in the above quote. In addition, “the restriction to single individual decision problems found in modern macroeconomics is self-imposed and not implied by the methodological position of methodological individualism” (Kirman, 1989 as cited in Janssen, 2006).

Insufficiency of representative agent models in analyzing macro problems

Many economists point out that representative agent models are neither sufficient nor suitable in studying macroeconomic problems, root of which is coordination failures. For instance, both Kirman (1992) and Stiglitz (1992) argue that representative agent models are incapable of explaining most of the macroeconomic phenomena for many peculiar features embedded in such models. First, since all individuals in representative agent models are identical, trade is highly unlikely to take place. Second, for the same reason, there cannot be any meaningful stock market. Third, in an environment where trade is absent, the concept of market failure may not make sense. Fourth, such models cannot accommodate information asymmetries⁸. Fifth, in such a model, government policies may not include distributional considerations. In summary, “the representative-agent, who is assumed to approximate the aggregate behaviour of the economy, assumes away the basic subject that should be dealt with in macroeconomics – namely aggregation problems and failures of coordination between the behaviour of individuals” (Prereira and Lima, 1996).

⁸ As Pereira and Lima (1996) put it, “asymmetric information could be reconciled with a representative agent model only by assuming a particular kind of schizophrenia on the part of the representative agent”.

Representative agent can disagree with agents

There is no plausible formal justification for the assumption that the aggregate of individuals may act in the same manner that an individual acts. Individual rationality in maximization does not necessarily imply collective rationality. On the other hand, the fact that the collectivity exhibits certain rationality does not necessarily imply that individuals act rationally (Kirman, 1992). Even if it is accepted that choices of the aggregate sufficiently represent the choices of a maximizing individual, still there is an issue here. The reaction of a representative to a certain change in a parameter of the original model may not be similar to the aggregate reaction of the individuals he “represents” (Kirman, 1992). In addition, there is no theoretical reason to conclude that the functional forms applicable to individuals will also be applicable to the aggregate of individuals. For instance, individuals’ production function is Cobb-Douglas does not necessarily mean that the aggregate production function is also Cobb-Douglas. By the same token, there is no valid reason for one to assume that the aggregate level functional forms apply to individuals (Hoover, 2001; 2009).

Representative agent can lead to misleading policy analyses

Suppose that a policy change is introduced in a model with a representative consumer. In such a situation, it is a common practice among economists that new equilibrium is examined in terms of the representative. The implicit assumption here is that the choices of the representative even at this new equilibrium coincides with the aggregate choices of the individuals in the economy. However, “the representative constructed *before* the change may no longer represent the economy *after* the change”. This is because the implicit assumption mentioned above holds only if we ignore ‘distributional changes’ that are likely to be brought about by the policy change. Usually, a policy change affects different individuals differently. Indeed, in some policy actions, the very objective is to exert different impacts on different type of individuals (Kirman, 1992). Kirman (1992) cites a few examples here: Gewek (1985) on effects on subsidies to production; Kupeic and Sharpe (1991) on volatility of stock market prices.

Is aggregation possible in the manner microfoundationists suggest?

Perfect aggregation from individual agents to a representative agent requires two things. First, individual agents must have identical utility functions. Second, these utility functions must be homothetic. Both these requirements are highly unrealistic. The requirement “identical” implies that a multimillionaire and a pavement hawker have the same preferences. The requirement “homotheticity” implies that the pavement hawker spends the same proportion of his income on a certain good as would the multimillionaire (Hoover, 2001 and 2010).

Furthermore, as Hoover (2001) suggests, the “[r]epresentative-agent model may help in pointing to some sorts of qualitatively useful relationships. But it is unlikely to provide quantitative restrictions on the behaviour of macroeconomic aggregates”. The reason for this can be revealed by thinking about the manner in which Alfred Marshall used the concept of the representative firm. For Marshall, representative firm did not mean the average or median firm. When he used the concept of representative firm, he wanted to avoid extreme behaviours of firms that may be in the form of size (too large or too small) or age (very young or very old) to explain how a typical firm behaves. In other words, he wanted to describe the usual behaviour of a firm under certain ideal conditions. However, the representative-agent models that are being used in modern macroeconomics try to do something quite different.

Those models attempt to describe the behaviour of the aggregate, not by considering seriously how the individuals behave in the aggregate, but by analyzing the aggregate as if it were one big individual subject to the constraints that in fact apply to real individuals (Hoover, 2001).

In the context of the ideas of various writers included in this section, Hoover (2001) is worth quoting here. “The advocate of the representative-agent model has no right to attack other macroeconomists for failing to provide microfoundations, for he fails to provide genuine microfoundations himself”.

7. Some final words

As mentioned in the introduction, microfoundations program can be thought of an obvious response to the famous Lucas critique. As such, it would be a sensible idea to inquire about the empirical validity of the Lucas critique. Estrella and Fuhrer (2003), which develop a few tests to check the empirical importance of the Lucas critique for several monetary policy models that are being extensively used in the literature, present evidence that some forward-looking models underpinned with micro foundations are less stable (and, therefore, more vulnerable to Lucas critique) than their better fitting backward-looking counterparts. They also observed that VAR and non-VAR macro models without explicit expectations were often stable empirically. Based on Estrella and Fuhrer (2003), Da Silva (2009) argues that it is not assured that the Lucas critique can be preemptively removed even if macro models are explicitly based on micro foundations. In a way, this is not a surprise as Lucas himself admits elsewhere that “the question of whether a particular model is structural is an empirical, not a theoretical one. If the macroeconomic models had compiled a record of parameter stability, particularly in the face of breaks in the stochastic behavior of the exogenous variables and disturbances, one would be skeptical as to the importance of prior theoretical objections of the sort we have raised” (Lucas and Sargent, 1978).

The idea that “first microeconomic principles are policy-invariant” can also be questioned (Da Silva, 2009; Palsson Syll, 2014). It is not possible to specify first principles such as preferences that depend on expectations and simultaneously time-invariant to policy changes that are being predicted (Da Silva, 2009). Palsson Syll (2014) adds to this when he argues that “[t]echnology and tastes cannot live up to the status of an economy’s deep and structurally stable Holy Grail. They too are part and parcel of an ever-changing and open economy”. A few more complications can be added to this. It is difficult to know a priori whether observed shifts in policy are strong enough to bring about a significant change to the current model representation of the economic variables. Also, it is difficult to know a priori how agents form their expectations. Furthermore, the stability across observed shifts in the context of historical data does not guarantee stability in the presence of shifts that are yet to occur (Da Silva, 2009).

A few key ideas are worth mentioning in order to summarize and conclude this discussion.

1. The whole is something more than mere sum of its parts. Always there exist some emergent properties at macro level.
2. King’s metaphor of “bridge” is more appropriate to characterize the relationship between two sub disciplines. Bidirectional causality between the two is clearly visible. Micro level

decision making needs macro concepts as inputs. In addition, individual preferences are influenced by macroeconomic phenomena such as recessions and financial crises. Also, a large part of individual preferences are, without a doubt, socially constructed. On the other hand, certain macro concepts may need micro level explanations. Areas such as demand for money and consumption are two common examples.

3. The accusation of macroeconomics for not taking beliefs, expectations and choices of individuals into account is a constructive comment that has to be accepted positively. Therefore, microfoundng macroeconomics is not something that needs to be refused altogether. However, there are two important things that are noteworthy in any attempt of seeking microfoundations for macroeconomics. First, not every macroeconomic concept needs microfoundations, and therefore, an across-the-board microfoundation program may be an unsuccessful exercise. Second, the rational, constrained optimizing agent used by New Classical and New Keynesian schools is just one of many alternatives of microfoundation methods available in the literature.⁹
4. Finally, if ignorance of the beliefs, expectations and choices of individuals in (Keynesian) macroeconomics is considered a grave mistake, Robert Lucas himself makes a similar mistake of the same degree by assuming that all agents are alike and thereby assuming the heterogeneity of the beliefs, expectations and choices of various individuals away.

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⁹ A detailed discussion of such alternatives is beyond the scope of this paper. Those who are interested are referred to Grabner and Kapeller (2015), Janssen (2006), Jo (2007) and Pereira and Lima (1996), and references therein, for details.

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The trouble with distribution theory

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Abstract

Despite two centuries of work, income distribution remains a problem in search of a credible theory. By credible, it should be understood, a theory that is scientifically sound – in short, consistent with the underlying laws of mechanics – and empirically verified. This paper examines the problem of income distribution from a number of perspectives, including historical, scientific and moralistic. It will be argued that, for a panoply of reasons, the profession set out to tackle the problem of income distribution without first of all having resolved satisfactorily the more basic problem of modeling production, making for the current situation in which distribution theory is little more than a logical construct, the underlying fundamentals of which sit in violation of the principles of basic physics (classical mechanics), generating increasingly questionable results. Various alternative theories (historical and current) are examined, as are the associated policy options. The upshot is that the fundamentals underlying distribution theory have to be updated, as does the policy agenda as advocated by writers such as Thomas Piketty and Joseph Stiglitz.

JEL codes O40, O47, O57, Q43

Key words distribution theory, scientific fundamentals, consilience

1. Introduction

Interest in the problem of income distribution has been, over the course of the past two centuries, anything but orderly, being more a series of responses to real-time crises. Take, for example, Friederich Engels and Karl Marx and the radicals whose mid-19th century interest in the question of income distribution was in large measure a response to the business cycle and what at the time appeared to be a form of secular stagnation. This led to the theory of surplus value, the cornerstone of Marxian economics, and ultimately, to the neoclassical rejoinder in the form of the Euler equation (i.e. neoclassical distribution theory).¹ Fast forward to the Financial Meltdown of 2008 when, once again, income distribution, specifically a highly skewed distribution in favor of the owners of capital, was invoked as one of the leading causes, prompting a renewed interest in the problem.²

In both cases, questions relating to equity and fairness, not to mention employment and overall macroeconomic considerations, pushed and continue to push the debate forward. Lacking, however, was and is a more scientific, time- and issue-invariant, approach to the question. The downside or fallout has been the emergence and the continuing emergence of poorly formulated alternatives, including the work of Thomas Piketty whose underlying fundamentals differ little from conventional approaches. For example, his $r-g$ rule is based, in large measure on the outdated Harrod-Domar growth model which assumes Leontief fixed proportions technology. Further, the bulk of his argument regarding income inequality is based on the emergence of a set of “super managers” whose role in production is unspecified. Consequently, he stopped short of providing a theoretical justification for their

¹ According to Marx, surplus value is equal to the new value created by workers in excess of their own labor-cost, which is appropriated by the capitalist as profit when products are sold.

² This is sometimes referred to as the Rajan hypothesis (Rajan, 2010). See also van Treeck and Sturn, 2012.

disproportionately high share of income, something a complete account of income distribution and inequality should do.

This paper attempts to examine the problem of distribution from a historical, analytical, scientific and empirical perspective.³ The upshot is relatively straightforward, namely that the problem of distribution got off on the wrong foot, having being usurped by a host of other problems and issues, including the business cycle, weak growth and rising unemployment. In this paper, we propose to analyze it from first principles – that is, the underlying physics of material processes and the basic principles of Western-style property law.

To this end, we frame the discussion in terms of three questions. The first is: is there a scientifically-consistent rationalization for the existing factor distribution of income, and if not why not? This then leads us to the second question, namely if physical productivity is the underlying basis for income distribution, then what would the corresponding distribution of income look like? The third and last question is: can the existing distribution be reconciled with a physical productivity-based distribution?

The paper is organized as follows. To begin with, we present a short history of distribution theory, which then segues into addressing our first question, namely is there a scientifically-consistent rationalization for the current distribution of income. Not finding one, we then turn to examine the properties of a pure physical productivity-based standard. As the latter has been and continues to be the revealed preferred standard in Western industrialized economies, we then examine possible rationalizations of the existing distribution. Among these is the energy rent-based rationalization (Beaudreau 1998,2005) where the owners of energy-based inputs and non-energy-based factor inputs (labor, capital, management) bargain over the resulting energy rents.⁴

Should income distribution be based on the notion of property – that is, of a factor's productivity? In other words, as in the case of neoclassical distribution theory, should factors be paid what amounts to their property – to which they have a claim – namely their marginal productivity? While to most, this will appear to be obvious, it bears reminding that according to classical mechanics, modern-day labor and capital (simple and complex tools) are not physically productive.⁵ Only energy/force is physically productive, implying that given the supervisory nature of labor, neoclassical income distribution theory breaks down.

Theoretically speaking, if one were to invoke a pure productivity standard, complete with the associated property rights, then all of output (value added) would be attributed to the owners of energy. But this then raises a problem, namely incentive-compatibilizing the owners/providers of capital and labor. In other words, if all of the product reverts to the owners of energy, then what would be in it for the owners of what we shall refer to as the owners of the organizational inputs (labor and capital)?

³ A search of EconLit revealed no comparable/similar work – that is, critiques or surveys of income distribution theory.

⁴ For more on the bargaining approach to income distribution, see Pissarides 2000; Bental and Demougin 2006; 2008; Jones 2003.

⁵ Consequently, the first and second derivatives of the corresponding twice-differentiable production function have no meaning, scientifically speaking. That is, beyond the properties of the derivatives.

2. Income distribution theory: a history of missed opportunities, improvisation, and failure

In this section, we examine the history of distribution theory, starting with its origins. In short, it is argued that its origins coincided with the appearance of non-family, non-clan, non-tribe-based specialization. Prior to this, artisans and others tradesmen produced wealth using simple material processes. As they were the owners of all of their factor inputs (energy, tools, supervision, management), the question of the apportionment of the output among individual inputs (i.e. tools, energy) did not arise. As it turned out, the first occurrence of the distribution problem coincided with the feudal period where landowners hired peasants to till their lands. Consequently, the owners of the land and labor – and tools – were not one in the same. The result was one of the first incentive-compatible contracts, namely that of the laborer, the terms of which were fixed, or firm, giving rise ultimately to the nouns, firm and farm.⁶ It turned out that the distribution of the product had little to do with physical productivity and everything to do with subsistence and risk assessment. At the very least, farmers or tenants has to eke out a living, and at the very most, the better they were in negotiating, the greater was their share of the product.⁷

Enter the industrial revolution with its heightened specialization and the problem of distribution. As workers had to be paid prior to the product being sold and revenue earned, a conundrum arose, namely how to pay workers in the absence of a revenue flow? Early writers resorted to what was known as the wage-fund, or the monies the entrepreneur had put aside (essentially saving) with which to remunerate his workers (Quesnay 1758, Mill 1848). As this amount was fixed, so was the “wage-fund.” As described, the wage-fund pre-dated a well-developed banking system with modern-day credit facilities (i.e. real bills).

In the early years of the industrial revolution, private, credit-issuing banks provided the wherewithal to finance production, lifting the constraint imposed by the wage-fund. Bills of exchange were issued and used to remunerate labor and the owners of all variable factor inputs. However, the problem of distribution remained whole and unaddressed. That is, until the early 19th century when stagnation appeared to set in. Perhaps the earliest writer to address the issue was industrialist. Robert Owen who attributed the downturn to “insufficient purchasing power” owing to low wages. In short, technological advances had outpaced wage growth, resulting in insufficient demand. This led to what would become Owenism, consisting of a form of local communism where money/credit would be replaced by “labor certificates” in an amount equivalent to potential output, and distributed according to need (Owen, 1827).

Continuing stagnation in the early 19th century resulted in other similar forays into social engineering, the most important – and notable – of which was Friederich Engels and Karl Marx’s “Communist Manifesto,” which unlike Owen, brought the distribution question to a head. Unlike Owen who had advocated a wholesale overhaul of distribution as well as the medium of exchange, Engel and Marx went to the crux of the issue by invoking property rights. Starting from the classical view according to which only labor is physically productive, they went on to argue that profits or payments to the owners of capital were unjustified, illegitimate, and hence a form of theft. After all, in a world in which physical productivity is the

⁶ The noun firm is a variant of ferme, French for firm.

⁷ From an energy point of view, the ultimate and only factor input is the solar radiation involved in photosynthesis. The resulting output, it bears reminding, is used by the farmer as an input, providing him with the energy to “farm” – that is, till the land. In such a setting, the Physiocratic contention that only agriculture is productive holds.

basis on which to set wages or factor payments in general, then all of output should be paid out to the owners of labor – in short, the workers. So was born the classical-inspired labor theory of value, which cast a pall on the nascent field of political economy.

From a theoretical point of view, Engel and Marx were right. The classic theory of production, largely based on Chapter 1 of Smith's "Wealth of Nations," focused on labor productivity. Capital was, as such, not physically productive. How then to justify capital's non-negligible share in national income? In short, this task would fall upon the shoulders of William Stanley Jevons (1874) and Alfred Marshall (1890), both of whom essentially decreed that capital was physically productive, complete with a marginal and average productivity, thus bringing to a close the issue. The result was neoclassical production theory, where both labor and capital are viewed as physically productive. Invoking Euler's Theorem resulted in modern-day distribution theory according to which the marginal products of each factor multiplied by their respective quantities exhausts total output. This approach to distribution was corroborated in 1928 when Charles Cobb and Paul Douglas provided the first numerical estimates of the neoclassical production function (specifically, output elasticities), elevating it to the status of economic law – or so it was thought.⁸

The irony in Douglas' work was the fact that according to him, factor markets in the 1920s had failed workers. Specifically, productivity had increased throughout this period without a concomitant increase in wages. The thrust of his work with mathematician Charles Cobb was to plead in favor of higher wages, based on what he considered to be a historical regularity. That is, overall productivity gains should be shared according to a 75-25 split.

While now firmly ensconced in mainstream production and distribution theory, the performance of the empirical Cobb-Douglas production function since has been less than stellar. In fact, most studies employing more up-to-date estimation techniques have been unable to replicate Cobb and Douglas's original results.

3. Neoclassical distribution theory: empirical irregularities

Neoclassical distribution theory is based on the existence of a well-behaved, continuous, twice differentiable production function defined over capital and labor. Starting with Wicksteed in 1894 and culminating with Charles Cobb and Paul Douglas' 1928 estimates of capital and labor's output elasticities, neoclassical distribution has rationalized the existing distribution of income in terms of productivity, and hence, in terms of basic property law (Cobb and Douglas 1928). That is, capital and labor are paid or receive the value of that which is theirs, that which is owed to them. It therefore follows that stable, time-invariant estimates of the respective output elasticities are essential for the theory to hold.

Unfortunately, time has not been kind to the Cobb-Douglas production function and to the Cobb and Douglas' initial estimates. Highly criticized by contemporaries as an approach to understanding production, subsequent estimates proved to be near-fatal. For example, Schlichter (1928) openly doubted whether factor shares remained constant over time, in addition to the underlying assumption that capital was always fully utilized over the business cycle. Williams (1945), Douglas (1948) and McCombie (1998) showed that the resulting

⁸ After repeated tests involving data sets from different countries and industries, Paul Douglas came to speak in terms of "laws of production." See Douglas, 1948.

estimates were sensitive to the inclusion of certain data points. Recently, Fraser (2002) pointed to the presence of collinearity in Douglas' original and subsequent data (U.S., Massachusetts, Australia, New Zealand), and found that when corrected using a Generalized Maximum Entropy (GME) estimator, the results were significantly altered. Referring to Table 2, taken from Fraser (2002), we see that the output elasticities for capital, became negative.

Table 2 Fraser (2002)'s GME estimates of output elasticities

Table 6: Least Squares Estimation
Cobb-Douglas Functional Form With Technical Change

Parameters	USA	MASS	NSW	VIC	NZ
α	2.84* (1.362)	1.983* (0.29)	-0.15 (0.5)	-2.175 (1.536)	-2.0513** (1.13)
δ	0.048* (0.021)	0.0267* (0.0028)	-0.0013 (0.0055)	-0.0248 (0.0176)	-0.013* (0.005)
β_1	0.913* (0.134)	0.631* (0.064)	0.697* (0.113)	0.799* (0.335)	0.403* (0.119)
β_2	-0.54 (0.34)	-0.111* (0.045)	0.343* (0.106)	0.697** (0.369)	0.904* (0.139)
R^2	0.9622	0.9882	0.993	0.9397	0.9262
F	195.929*	1001.848*	1188.83*	110.14*	84.649*
DW	1.6014	0.971	1.614	0.6529	1.467
F Test ($\beta_1 + \beta_2 = 1$)	4.37*	50.52*	0.11	1.97	3.63**

Source: Fraser (2002).

On theoretical grounds, it implicitly assumes an elasticity of substitution between capital and labor of unity. Finding this to be overly restrictive, Arrow, Chenery, Minhas and Solow (1961) proposed a generalization in the form of the constant elasticity of substitution (CES) production function. Heretofore, the data would reveal the elasticity of substitution between what were two non-physically productive factor inputs. Other refinements of the Cobb-Douglas production function included the Translog, the Normalized Quadratic and other functional forms. The upshot was straightforward, namely that the original Euler equation failed to capture well, the underlying production relationships.

Recently, a number of writers have questioned the fundamentals underlying the Cobb-Douglas, or neoclassical approach to income distribution, focusing on the relationship between the estimated output elasticities and the actual underlying technology. Their argument is simply that the estimated output elasticities do not reflect the true technology, but rather are simply capturing factor shares (Beaudreau, 1995; Kummel et al., 2008; Miller 2008; Ayres et al., 2013)

4. A consilient model of production

The notion that factor payments should somehow be tied to productivity can be traced back to Engel and Marx and their allegation of theft directed at the owners of capital for illegally appropriating a share of the "value." As argued, this was based on the classical theory of production, which focused exclusively on labor. This led to the neoclassical response, in which it was decreed that capital was physically productive, in violation of classical mechanics (Beaudreau, 1998; 2016), According to classical mechanics, tools (simple and complex) are

not physically productive as they are not a source of energy.⁹ Instead, they affect second-law efficiency, or the ability of energy to do work. The better the tool, the more work can result from a given quantity of energy/force.

Adding insult to injury, it turned out that not only was capital not physically productive, neither was labor. From the dawn of the industrial revolution, labor's role had gone from that of energy source to that of machine supervisor, or what Marshall himself referred to as "machine operative." Workers – now including women and children – oversaw the workings of machines, powered by steam.

We may now pass to the effects which machinery has in relieving that excessive muscular strain which a few generations ago was the common lot of more than half the working men even in such a country as England in other trades, machinery has lightened man's labours. The house carpenters, for instance, make things of the same kind as those used by our forefathers, with much less toil for themselves. Nothing could be more narrow or monotonous than the occupation of a weaver of plain stuffs in the old time. But now, one woman will manage four or more looms, each of which does many times as much work in the course of a day as the old hand loom did; and her work is much less monotonous and calls for much more judgment than his did (Marshall, 1890, p. 218).

If we are to begin to understand the problem of distribution and in the process avoid the cognitive dissonance found in the writings of Marx and Marshall, then it is imperative that we start from first principles, specifically from a model of material processes that is consistent with the laws of physics and thus unassailable, scientifically speaking. In this section, we present such a model, namely the energy-organization approach to modeling material processes which bridges mechanics, applied physics and economics.¹⁰

We begin by presenting the Energy-Organization (*E-O*) approach to modeling material processes (Beaudreau, 1998). Drawing from material process sciences (engineering, biology), it models wealth in terms of two universal factor inputs, namely broadly-defined energy and broadly- defined organization. Both are necessary conditions in all material processes whether it be in biology, chemistry, engineering or economics. The model is formalized in terms of Equation 1 where W_t , E_t , T_t , and $S(l_t)$ refer to wealth, energy, tools and supervision at time t , respectively.¹¹ Supervision, in turn, is assumed to be increasing in l_t . That is, more information leads to better and more effective supervision. η refers to second-law efficiency, which, as shown, is a function of T_t and $S(l_t)$.

$$W_t = \eta[T_t, S(l_t)]E_t \tag{1}$$

⁹ According to Betts (1989), "Machinery is used to change the magnitude, direction and point of application of required forces in order to make tasks easier. The output of useful work from any machine, however, can never exceed the total input of work and energy. (Betts, 1989, 172)." Arthur Beiser, in *Modern Technical Physics*, provided a similar definition: "A machine is a device which transmits force or torque to accomplish a definite purpose. (Beiser, 1983, 208)." See also Alting (1994).

¹⁰ Stern and Kander (2010), Kander and Stern (2014) and Kander et al. (2014) presented a quasi-consistent model in which they considered a capital-labor Cobb-Douglas function, embedded within a nested Constant Elasticity of Substitution (CES) production function with energy inputs. This is similar to the *E-O* approach. However, it continues to assume that both labor and capital are physically productive, thus violating the laws of physics.

¹¹ These are used instead of capital and labor in keeping with the engineering and applied physics literature.

$\eta[T_t, S(t)]$ corresponds to the broadly-defined organization input, while E_t corresponds to the broadly-defined energy input. While E_t is sometimes referred to as energy consumption *per se*, technically it refers to available work or neg-entropy. As energy cannot be created nor destroyed, it follows that energy is not consumed *per se*, but rather overall entropy is increased. Second-law efficiency (i.e. η) is assumed to be increasing in tools and supervision. For the sake of discussion, it will be assumed that the latter are qualitative and not quantitative variables. That is, second-law efficiency is increasing in the quality of tools and the quality of supervision.¹² A good example of the latter is James Watt's external condenser that increased the steam engines's efficiency (i.e. η) by 100 percent.

$S(t)$, supervision at time t , is assumed to be information-based, consisting of collecting, storing, and retrieving process-related information, and using it as part of an operating protocol/algorithm. This can be carried out/performed by what 19th-century British economist Alfred Marshall referred to as "machine operatives," that is, workers, or by computer-based automated control systems.

The model is sufficiently general to allow for energy and information deepening, which by definition consists of an increase in the energy/tool and information/ tool ratios, respectively. Historically, energy deepening has been associated with machine speed-ups where by applying more energy (steam, kwhs), tools produce more output per unit of time, while information deepening has been associated with more and better process and sub-process based information (Beaudreau, 2017).

4.1 Is Neoclassical distribution theory consistent with the physics of material processes?

As neoclassical distribution theory was/is founded on neoclassical production theory, which itself was based on Adam Smith's ill-fated, unscientific attempt at analyzing the role of the steam engine on labor productivity, confounded by a off-the-cuff response on the part of William Stanley Jevons and Alfred Marshall to Engel and Marx's allegations over the legitimacy of profits in the former (Adam Smith's world), the question of whether neoclassical distribution theory is consistent with the physics of material processes arises. In its basic version (two factors), it maintains that both capital and labor are physically productive. In its extended version (KLEMS), it maintains that capital, labor, energy, material and services are each physically productive, and substitutable (Berndt and Wood, 1975).

The idea that all factors are physically productive is firmly embedded in the neoclassical approach to production and distribution as well as the question of income distribution in general.¹³ A good example is the current debate over IT (Jorgenson and Stiroh, 2000) where it is assumed – without any doubt or debate – that like all other factors, information is physically productive, complete with an estimable output elasticity. For example, William Lehr and Frank Lichtenberg, using government data, estimated a computer output elasticity of 0.06 (Lehr and Lichtenberg, 1999).

Unfortunately, such a view, while convenient, cannot be justified on scientific grounds – by which it should be understood on the basis of classical mechanics and applied physics. As

¹² At the aggregate level, both T and $S(t)$ are quantitative variables. That is, aggregate output is increasing in aggregate, economy-wide tools and equipment, and supervision.

¹³ Over time, it has become common practice to literally throw any and all possible factor inputs into the production function. Interesting examples include the inclusion of highways as a factor of production.

shown in the previous section, according to the latter, energy and energy alone is physically productive, all other inputs being organizational in nature.¹⁴ As labor has not been a source of energy/force since the Paleolithic era (i.e. that is, in general), it stands to reason that neoclassical distribution theory is not, nor will never be consistent with the physics of material processes. Table 2 presents a list of what are violations of the principles of basic physics and mechanics found in current neoclassical production theory. In short, all non-energy inputs are not physically productive, but are essential to the organization of material processes. In a sense, they are organizationally productive.

Table 1 Neoclassical production theory violations of basic physics/mechanics

Factor Input	Violation
Labor	Labor is essentially a supervisory input, overseeing machines.
Capital	Consists of simple and complex tools, provides mechanical advantage, is not however productive.
Managers	Organize material processes, higher form of supervision. Not physically productive.
Information	Not a source of energy. An input in the overall supervisory technology.
Robots	Set of tools that replace operator held power tools. Not a source of energy, hence not physically productive.

4.2 What would a physical productivity standard look like?

These findings lead us to the obvious question, namely what would a physical productivity-based income distribution standard look like? The answer to this question is self-evident. Like Engel and Marx who had identified labor as the only factor input and hence the only legitimate claimant to output, in this case, energy is the only physically-productive input, and as such, would be the only legitimate claimant to output.

All other factors, being organizational inputs, would not be entitled to a share of the output. Clearly, this would raise an important incentive problem. If all other inputs were excluded from the plunder, then they would have no interest in participating. This leads us to an important conclusion, namely that a pure productivity standard is inconsistent with production as we know it.

4.3 How can the existing functional distribution of income be understood?

As it currently stands, the owners of energy appropriate roughly between four and eight percent of output, while labor and capital appropriate the rest. Contrast this with a pure physical productivity standard where the reverse would be the case. One way of seeing the former is in terms of bargaining, specifically that the owners of labor and capital have, over

¹⁴ Interestingly, the related fields of industrial relations and industrial psychology also assume, for the most part, that labor is physically productive, and hence wages should reflect the value of what is, in essence, the property of labor – his/her work. The field of industrial relations appears to be of two minds in so far as the role of labor and wages are concerned. There is the Cornell ILR stream which is decidedly neoclassical in its approach, and the other, more conventional stream which focuses on collective bargaining, almost at the expense of markets.

the course of the past two centuries, appropriated something we refer to as energy rents, which are by definition equal to the difference between the value of energy's physical productivity and the cost/price of energy.¹⁵ We could refer to this as the energy rent pie, which is divided up between the owners of the organizational inputs. For example, the owners of labor appropriate 50-60 percent, and the owners of capital, 30 percent and managers, the rest.

In other words, the current distribution can be understood as resulting from bargaining on the part of non-energy-based factor inputs. This is not unlike John K. Galbraith's view of income distribution in the 20th century as resulting from a form of bargaining between large corporations and large unions, the latter being referred to as "countervailing power" to the rise of large, vertically-integrated conglomerates. It is also consistent with Robert Owen's view of the role of the commune in income distribution, as well as with the Technocrats view of the role of the Technate in income distribution.

In Beaudreau (1998; 2005) I argued that income distribution in a world in which energy and organization are complementary inputs is best studied using cooperative bargaining theory. Accordingly, the owners of energy and organization bargain over their respective share of the product (i.e. payoff set). Theoretically, the distribution of income is the solution to this game. Since broadly-defined organization is a *sine quo non* of production, it is clear that energy's overall share of the product cannot be total (i.e. equal to one). Put differently, a pure energy standard is ruled out by the presence of organization. The difference will be appropriated by the owners of organization (i.e. the designers of and owners of the production processes, and the owners of the supervisory input).

4.4 Bargaining without outside options

I begin by defining the bargaining problem. The owners of energy and organization (e.g. the owners of energy (E), tools (T), the supervisory inputs (S), and lastly, the designers/owners of the production processes themselves (D)) bargain over

$$W(t) = \min \left[\frac{E(t)}{\beta_1}, \frac{T(t)}{\beta_2}, \frac{S(t)}{\beta_3}, \frac{D(t)}{\beta_4} \right]$$

The output, in this case, manufacturing value added.¹⁶ Define S_E, S_T, S_S and S_D , where $[0 \leq \alpha_i \leq 1, i = E, T, S, D^{S_{i-1}}]$,

as the energy, tools, supervisor and designer/owner factor income shares, respectively. Also, assume that α_i where $i = E, T, S$ and D , defines factor i 's bargaining power

$$[0 \leq \alpha_i \leq 1, i = E, T, S, D^{\alpha_{i-1}}]$$

Lastly, assume that factor i 's utility is an increasing linear function of income. More specifically, $U_i = U_i[S_i W(t)] \forall i = E, T, S, D$.

¹⁵ For more on the bargaining approach see, Pissarides, 2000; Duffy and Papageorgiou, 2000; Bentolila and St. Paul, 2003; Blanchard, 2006; Guscina, 2006; and Bental and DeMougin, 2005. Our approach differs in so far as the underlying fundamentals are concerned. This literature typically assumes that labor and capital are physically productive thus violating the laws of physics.

¹⁶ Here, upper-level and lower-level supervisors are aggregated into one category, S.

This provides a general framework in which to study income distribution. In the absence of outside options, the simple bargaining problem is given by Equation 2, where the S_i 's are chosen to maximize the product of utilities.

$$\max_{S_i} S = \frac{TT}{i = E, T, S, D} [S_i W(t)]^{\alpha_i} \quad (2)$$

Assuming that $\alpha_i = \frac{1}{4}$, then it is clear that the solution to this problem is given by $S_i^* = \frac{1}{4}$ for all $i = E, T, S, D$.

Thus, in a world devoid of outside options and in which preferences are identical, income distribution will be largely determined by bargaining power. That is, if the economic value of energy, tools, supervisors and production processes is nil, then their share of the overall income (output) pie will be determined by each factor's bargaining power. For example, the greater is lower-level supervisors' bargaining power, the greater is its share of the pie, so to speak.

4.5 Bargaining with outside options

The presence of outside options alters considerably the bargaining problem. For example, suppose that the owners of electric power can sell each kilowatt hour at a price of 7 cents. It stands to reason that, at the very least, the owners' share of manufacturing output must be equal to or greater than the corresponding market value of the power. Define ξ_i such that $\xi_i > 0$ to be factor i 's outside option. The bargaining problem becomes:

$$\max_{S_i} S = \frac{TT}{i = E, T, S, D} [S_i W(t) - \xi_i]^{\alpha_i} \quad (3)$$

subject to:

$$S_i W(t) - \xi_i \geq 0 \forall i = E, T, S \text{ and } D \quad (4)$$

In this case, a bargain will be struck if and only if, at the very least, the various factor inputs receive their outside options; otherwise, negotiations will break down, in which case production will not occur. It therefore follows that Equation 4 must hold for all $i = E, T, S$, and D .

4.6 The determinants of outside options and bargaining power

Among the determinants of the resulting bargaining solution are (i) each factor's outside option, and (ii) each factor's bargaining power. This leads us to examine the determinants of outside options and bargaining power. For outside options to have any meaning, there must exist alternative uses for energy, tools, and upper and lower-level supervisors. For example, the owners of electric power could consume their kilowatt hours instead of devoting them to generating value added. The owners of tools (capital) could opt for consumption over investment. Lastly, the owners of upper and lower-level supervisory skills could devote their time to leisure activities. In a world in which the number of firms exceeds one, the owners of these factor inputs could, theoretically, bargain with another firm. The point of the matter is that outside options are conditioned by each factor's set of alternative activities.

For all bargaining problems with more than one solution (i.e. the perfectly competitive bargaining solution, defined by a strict equality for Equation 2.6), bargaining power plays a crucial role in income distribution. For example, the more bargaining power the owners of supervisory inputs have over the owners of electric power, the greater will their share of the product be.

This raises the question of bargaining power *per se*. What determines bargaining power within the firm (i.e. among the owners of energy, tools, the supervisory input and the conceivers of production processes)? Unfortunately, while formal bargaining models provide much insight into the process of income distribution in the presence of rents, it provides little in the way of an exact bargaining solution.

Throughout 19th and 20th centuries, increasing energy use and the resulting energy rents led to calls on the behalf of labor to share in loot, so to speak. While machine operatives were not in any way responsible for the increase in output, they, their representatives, and/or members of governments nonetheless manifested a desire to share in them, one based on a number of criteria, from morality/justice to demand-related issues (i.e. increasing aggregate purchasing power). Table 3 presents a list of what are bargaining-related approaches to the sharing of what were/are energy rents, ranging from the Technocrats' and a guaranteed energy-based income (paid out in energy certificates), to John Kenneth Galbraith's notion of "countervailing power" in regard to the rise of the large multinational corporation, largely responsible for the rise in energy rents in the 1910-1940 era.

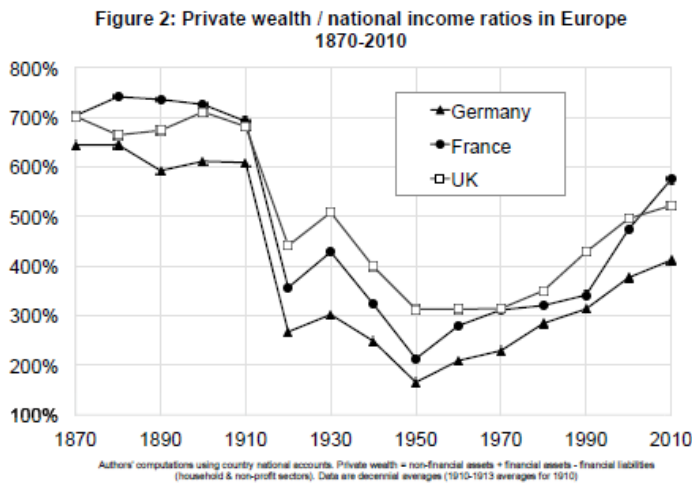
Table 2 Related bargaining-based approaches to factor shares

Source	Process
Labor Robert Owen (1827)	Labor Certificates
Technocrats (1933)	Universally-Distributed Energy Certificates
Congressman Huey Lewis (1934)	"Share the Wealth Movement"
John Kenneth Galbraith (1967)	Countervailing Power in Wage Negotiation
Post-WWII Tripartite collective bargaining in Europe	"Strict Bargaining Approach to Wages"
Pissarides (2000) Determination	Bargaining Approach to Wage
Beaureau (1998, 2005)	Energy Rent-Based Approach to Factor Shares.

5. Revisiting Piketty's stylized facts

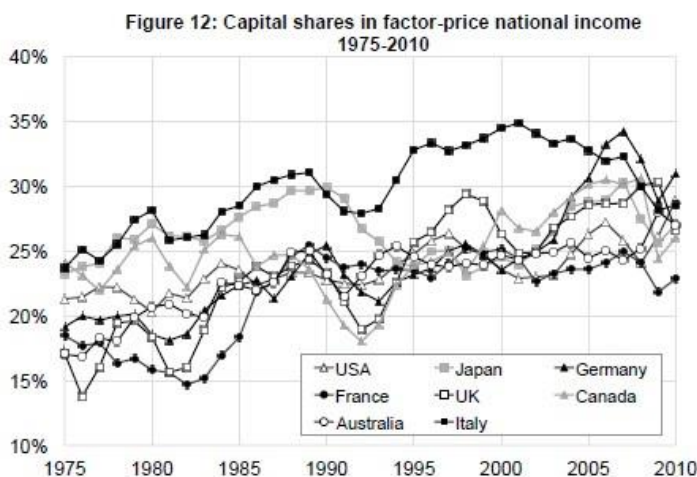
In this section, we revisit Thomas Piketty's stylized facts in light of what is a consistent model of material processes. Figure 1 presents his Stylized Fact No. 1, namely a diminishing capital-output ratio in the early part of the 20th century, relatively flat in the 1960s-1980s, only to increase in the 1990s, 2000s, and 2010s. He rationalized this in terms of (i) the destruction of capital in the two world wars, and (ii) the increase in the rate of capital accumulation since. The former effect is based on faulty reasoning as it supposes that capital is a passive input, having no bearing whatsoever on the level of output. Clearly, this was not and is not the case. If capital was destroyed in the two World wars, then would it not affect the West's ability to produce output (i.e. the denominator)?

Figure 1 Capital/income ratios



Rather, the U-shaped capital-output ratio should be seen as the result of two technological trends, namely energy deepening in the first half of the century, and massive ICT investment since 1980. By energy deepening, it should be understood a rising energy-capital ratio, specifically a rising electric power-capital ratio. As pointed out in Beaudreau (2017), this corresponded to increasing machine speeds, increasing productivity per unit of capital and increasing output per unit capital. This came to an end in the 1970s, resulting in a flattening of the capital-output ratio. The second trend was the introduction of ICT technology – in short, information-based automation and control devices. Control technologies replaced and continue to replace workers. Another way of seeing this is that physical capital replaced and continues to replace human capital.

Figure 2 Capital's share 1975-2010



The second Piketty stylized fact is the increase in capital's share of overall income. As we pointed out, capital *per se* is not physically productive, making for a situation in which its income share is largely determined by its bargaining power over energy rents. Automation and the introduction of computer-based control devices have reduced the owners of labor's

bargaining power, resulting in a lower share of energy rents being appropriated by labor, and a higher proportion being appropriated by the owners of capital, as well as by those that were and are responsible for the introduction of these labor-saving technologies, namely what Piketty refers to as super-managers.

This leads us to the third Piketty stylized fact, namely the marked increase in the top decile's share of national income, attributed principally to the emergence of "super-managers" that command salaries in the millions of dollars. He attributed this to social norms, where those who set their own salaries are increasing generous towards themselves. This has prompted a debate within the profession, with some like Joseph Stiglitz pointing to a disconnect, specifically that there is clearly a disconnect between what executives are doing and how they are getting rewarded. We maintain that this phenomenon can easily be understood in terms of super-managers' share of energy rents, specifically that by introducing control technologies and implementing off-shoring strategies, they have, over the course of the past three decades, redirected the energy rents henceforth appropriated to labor and transferred them to both themselves and the owners of capital – in short, they have shared the plunder in terms of energy rents from automation and off-shoring (Epstein, 1996; Rodrik, 1997; Guscina, 2006).¹⁷

According to Frederich Engel and Karl Marx, the owners of capital in the 19th century had appropriated – without any basis in classical production theory – 30 percent of surplus value, or value in general, thus depriving the owners of labor of their rightful property. In this paper, we are making a similar argument – a sort of 21st century *Das Kapital*. Specifically, the owners of capital are appropriating a larger share of output and wealth, but not at the expense of labor, but rather at the expense of owners of energy, the only physically-productive input. The owners of labor have, as a result, been the big losers. However, as their share of wealth was itself largely illegitimate (the result of bargaining over energy rents), it stands to reason that the increase in capital's share has been achieved and is being achieved at the expense of the owners of energy.

Piketty's analysis has led him to a number of policy recommendations or measures, based largely on new forms of taxation aimed at reducing inequalities. For example, he called for a "confiscatory" global tax on inherited wealth, and a 80% tax on incomes above \$500,000 a year. Both of these measures take aim at the trends documented above, regarding wealth and income. In other words, he recognizes both the legitimacy of both greater wealth as well as greater factor shares to non-labor income, and the legitimacy of the state to redistribute income. This, however, is where our analysis and policy implications differ. While not addressing the question directly, he implicitly assumes that factor payments made to capital and super-managers are based on a productivity standard, and thus are justified/legitimate. We, on the other hand, view factor payments as having no basis whatsoever in productivity, but rather are based largely on factor inputs' bargaining power over energy rents. For example, since the 1980s, the owners of capital along with super-managers have increased their bargaining power, and hence, increased their share over these same rents. This raises a number of policy questions regarding income distribution when Piketty's stylized facts are examined within the context of a consilient model of material processes.

¹⁷ Bental and Demougin (2015) tell a similar story. Specifically, ICT innovation led to reduced moral hazard, lower worker bargaining power and lower wages.

6. Policy implications

Despite its progressive nature, Piketty's "Capital in the 21st Century" perpetuates the centuries- old notion that tools are productive and thus have a legitimate claim to output. It also conveys the notion that salaries paid to super-managers are legitimate and somehow reflect their productivity – that is, their physical contribution to wealth. In this section, we examine the policy implications of our consistent approach to modeling wealth creation within the moralistic context adopted by Piketty and others (e.g. Joseph Stiglitz), namely of "desired" greater equality. To this end, we consider three fundamental questions, namely (i) who can legitimately lay claim to energy rents? (ii) how should energy be priced? and (iii) how should a moral society – one that values equality – ensure an equitable distribution of energy rents?

The first of these questions, namely who can legitimately lay claim to energy rents?, is by far the most critical and fundamental question regarding income distribution as energy rents are the de facto basis of wealth. We maintain that it is implicit in the writings of the French Physiocrats, Robert Owen, Karl Marx, William Stanley Jevons in his 1865 "The Coal Question," the Technocrats, Frederick Soddy and numerous others. The Physiocrats maintained that agriculture was the source of all wealth. As agriculture is based on photosynthesis which, in turn, is powered by solar radiation, it stands to reason that according to them, all wealth is ultimately based on solar radiation/energy raising the question "who owns the sun?" In 1865, William Stanley Jevons, in the Coal Question, referred to coal as the source of all wealth, thus attributing, like the Physiocrats, to energy its rightful role/place in the creation of wealth.

Turning to the question of who owns energy and hence, the resulting energy rents, we are confronted with a series of questions, ranging from who owns the sun, the coal deposits, the oil wells, nuclear materials, etc.? For example, who owned the abundant coal fields of 19th century Great Britain? Who owns the fissionable materials that today power the growing number of nuclear power reactors in China and elsewhere? Is it the individuals who hold the title to the land and sub-soil in which these resources are located, or the corresponding nation states – that is, the owners of the sub-soil?

Second is the question of energy pricing. Theoretically, if it is priced at its marginal revenue product (i.e. price times marginal product), then in the event that the latter is greater than its cost, the owners of energy appropriate all of the rents. If, on the other hand, it is priced at its marginal cost, then it stands to reason that substantial energy rents will accrue to its users. This, we maintain, has been the case over the past two centuries and is currently the case, as substantial energy rents accrue to non-energy-related inputs.¹⁸

Turning to the third question, namely of an equitable distribution, the obvious answer is a straight division of energy rents by the population. That is, citizenship entitles individuals to an equitable share of the energy rents, defined over the relevant geopolitical space. Operationally, this would entail distributing claims to energy rents (i.e. Owen's Labor certificates, Technocrats' energy certificates) by fiat. The important point here is the understanding that such rents are scientifically legitimate and do not represent a form of transfer from the owners of capital. Clearly, for incentive-compatibility, the owners of capital

¹⁸ This is sometimes framed in terms of the energy return on investment (EROI). According to Hall and Day (2009) and Hall et al (2009), the EROI for fossil fuels has been and continues to be positive, despite declining over time. In other words, energy rents continue to be positive.

would need to be compensated for having foregone consumption. This would entail that a fraction of energy rents would need to be set aside and paid to these individuals.

6.1 The problem with Piketty's wealth/income tax

In his work, Thomas Piketty advocated a universal tax on wealth, the idea being that the consequences of the growing concentration of wealth can only be reversed by way of a tax – and by the provision of public goods/redistribution. Among the reasons why we see this as problematic are the political and social consequences. That is, taxing the “1%” will invariably be seen as an infringement on the institution of private property and hence is seen as an attack on one of the most time-honored traditions in Western society.¹⁹ That is, will be perceived of as one class (group of individuals) illegitimately appropriating the avails of another in a zero-sum game context.²⁰ Ironically, seen from an energy rent perspective, a Piketty-like tax is, in actual fact, a situation in which the state, the legitimate owner of energy and claimant to the associated energy rents, is simply reappropriating what is legitimately its own. Operationally, the state makes these rents available to users (firms) which in turn, share them with the owners of labor and capital, which ultimately are reappropriated via progressive income taxation. Recently, these rents are increasingly appropriated by the “1%” and being reappropriated by the state. Unfortunately, this is not the way in which such a tax has been/will be perceived given the current underlying fundamentals (i.e. that capital and management are physically productive).

Joseph Stiglitz's 2013 “market-power rents” approach can also be better understood from the point of view of energy rents. Specifically, he argued that the ratio of wages to productivity has been decreasing largely as the result of firms' increasing market power. Implicit in this view is the assumption that labor is physically productive. The problem, however, is that labor is not only not physically productive, but is increasingly redundant as an organizational input (i.e. supervising machines a la Marshall), thus diminishing its contribution to wealth. As its bargaining power has declined and continues to decline, its share of energy rents will also decline. This owes not to market power, but rather to bargaining power. As in the case of Piketty, advocating a corrective tax connotes the idea of theft, when in fact property rights have not been firmly established.

Karl Marx advocated a form of state ownership of capital of the means of production (i.e. capital), as they represented a form of theft – from the legitimate owners of all wealth, namely the workers. As we have argued, the legitimate owners from a pure productivity point of view are the owners of energy, which in most Western nations is the state. Marx's argument in favor of state ownership is analogous to our argument, but in what we would argue is a paleolithic context, where the motive power/energy input is provided by labor. That is, all motive force is provided by labor. However, even then, given that labor is ultimately powered by carbohydrates and proteins, a Physiocratic standard would be more appropriate, where the owners of the energy source (i.e. owners of land) would be the veritable owners.²¹

¹⁹ New Deal-era pro-labor policies were perceived of by those on the right as an infringement on the rights of the owners of capital, and have since been disparaged in mainstream economics.

²⁰ This conflict has been endemic to industrial society from the getgo – that is, from the appearance of energy rents.

²¹ In many ways, slavery illustrates the case of a pure productivity standard where the slave owner provides the food and reaps a rent, defined as the value of the work performed by the slave minus the cost of food. As such, the slave (body) is not physically productive, but rather an energy conversion and transmission device.

6.2 Other considerations

As we have shown, throughout recent history, the problem of distribution has been invoked as a leading cause of a skewed distribution of income and its macroeconomic consequences. Specifically, the growing concentration of income in the hands of the owners of capital was invoked by Karl Marx and by the Roosevelt Administration as the main cause of the business cycle. Others such as the Technocrats advocated a pure energy standard where energy certificates would be issued commensurately with the total outstanding energy balance (total energy available in a given geopolitical agglomeration), distributed according to what was an egalitarian rule, thus avoiding under-income, under-consumption and under-expenditure.

The upshot here is that science should guide policy. As it currently stands, the science behind the current distribution of income is fundamentally flawed as it is based on a flawed, unscientific model of material processes in economics. Until the latter situation is rectified, policy will be second best – at best.

7. Summary and conclusions

From the beginning, the debate over income distribution and the laws that govern it was based on a number of objectives, including a desire on the part of political economists to understand the determinants of wages and profits set against the Western legal mindset of productivity and property law. In other words, the profession sought to develop a theory of income distribution that would be both scientific in nature and legal in its implications. When Frederick Engels and Karl Marx declared that profits were a form of theft as only labor was physically productive, it touched off a debate that was to result in neoclassical distribution theory – in short, contemporary distribution theory based on the notions of labor and capital marginal productivity.

As we showed, instead of setting off an in-depth debate over the role of all factors in what were then revolutionary industrial production processes (i.e. powered by the steam engine), it led to what was a unscientific/unscholarly response on the part of the classics (Marshall, Jevons etc.) of simply decreeing capital to be productive, in violation of basic mechanics. Surprisingly, this is where the debate ended, with the result that current distribution theory stands in violation of the every elementary principles of basic mechanics.

Growing inequality, especially between the owners of labor and capital, has recently rekindled interest in the question of income distribution. Leading the charge has been French economist Thomas Piketty whose magnum opus, “Capital in the 21st Century,” can be seen as a modern-day rejoinder to Karl Marx’s “Das Kapital,” published in 1867. Like Marx, Piketty was motivated by growing inequality. However, unlike Marx who focused the bulk of his criticism on the legitimacy of profits, Piketty focuses on the laws that govern distribution in what is a neoclassical world, one that recognizes labor and capital, and super-managers as physically productive.

In this paper, we have maintained that herein lies the trouble with distribution theory, namely its weak underlying fundamentals (i.e. neoclassical production theory) and its condonation of the existing distribution of income (and its associated laws of motion) as theoretically legitimate. Not only can profits nor salaries to super-managers not be justified on productivity

grounds, the bulk of workers' salaries and investors' profits cannot be justified on productivity grounds, thus obviating the need for a consilient theory of distribution.

While not claiming to be definitive, we proposed a bargaining theory of distribution based on a consilient model of production processes. Having shown that a pure productivity standard is not incentive compatible, we proposed a bargaining model with outside options. Accordingly, income distribution was modeled as a bargaining problem over energy rents involving the owners of labor (supervision), capital (tools) and management (super-managers).

The resulting bargaining solution, we maintained, is consistent with both the current functional distribution of income, as well as with various approaches to income distribution, including John Kenneth Galbraith's countervailing power approach, where the owners of capital and labor bargain over the "plunder."

The key contribution, however, goes beyond the science of distribution, to the resulting policy implications, specifically with regard to recent trends in income distribution – specifically, those identified by such writers as Thomas Piketty and Joseph Stiglitz. First and foremost is the notion that the current distribution of income cannot be legitimized in terms of productivity, but rather, in terms of bargaining power, viewed as a social construct. Automation and outsourcing have diminished labor's bargaining power at the expense of the owners of capital and super-managers, resulting in a labor share that is free falling over time.

Whereas Piketty sees taxation as the only option, we see myriad possibilities, ranging from a radical overhaul of income distribution based on a scientific model of production and its corollaries, to taxation, to the Technocrats' notion of a social wage or income. It is our view that if nothing else, this widens the breadth of the debate over income distribution, all the while correcting some of the more egregious flaws of mainstream distribution theory.

On a final note, we would like to make a case for a rapprochement between the science of material processes, the underlying implications and consequences, and the theory of income distribution. For over two centuries, the question has been examined on what were and are false premises. Until the debate becomes decidedly scientific, rancor and division will not only reign, but will increase in intensity.

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Trumping the NAFTA renegotiation: an alternative policy framework for Mexican-US cooperation and economic convergence

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Abstract

The effects of globalization and regional integration have not worked well for most Americans and Mexicans. Our objective here is to assess the proposals of the Trump administration for revising NAFTA, the responses of the Mexican government, and progressive alternatives to both. This article will address what kind of economic policies are needed to achieve more inclusive and sustainable growth in both Mexico and the United States, given their current degree of integration and the changing character of global production and technology.

Key words NAFTA, regional integration, convergence, inequality, development, minimum wages

1. Introduction

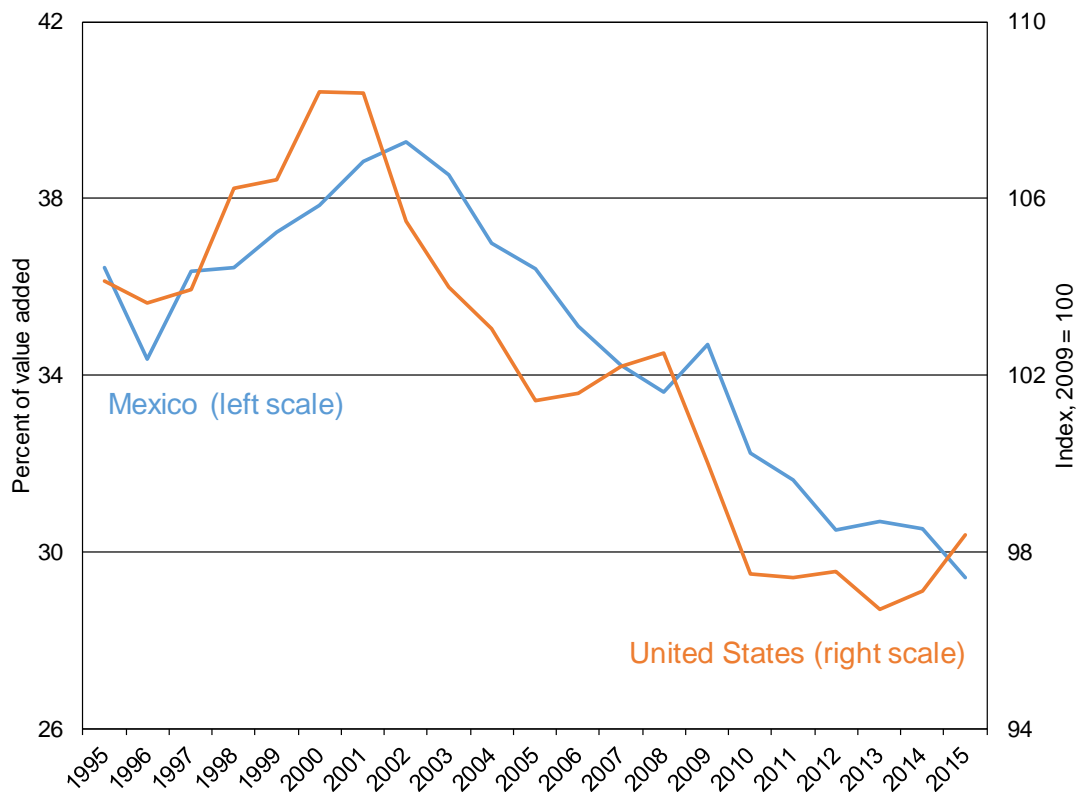
The election of Donald Trump as U.S. President has put the future of the North American Free Trade Agreement (NAFTA), as well as U.S.-Mexican relations generally, back onto the political agenda. The Trump administration has made it clear that if the renegotiation of NAFTA with Canada and Mexico does not lead to an outcome it finds acceptable, it will withdraw the United States from the agreement, and Trump has also threatened to impose a 35% tax on businesses that ship goods to the United States after relocating out of the country.

The political success of Trump's demagoguery (and faux populism) partly reflects the failures of the neo-liberal policy regime in place since the Reagan era (for example, adjustment costs that were not offset, industrial policies that were not adopted, inequality that grew out of control, and a dollar that was allowed to become overvalued). The aftermath of the 2007-2008 financial crisis has not produced a hopeful outlook for many Americans. Even though the rising inequality was not caused solely by the subprime crisis and the downturn that followed – it had been building up over the past three decades – the crisis made matters worse, to the point where it could no longer be ignored (Stiglitz, 2015).

Indeed, globalization and regional integration have not worked well for many Americans and Mexicans. Recent research shows that the United States has experienced significant localized job market effects (mostly depressed wages and dislocation of less educated workers) as a result of NAFTA's tariff reductions (Hakobyan and McLaren, 2016), as well as much larger job losses attributed to increased imports from China and worsened inequality attributed partly to trade and outsourcing more generally (see Autor, Dorn and Gordon, 2016; Bivens, 2017).

On the Mexican side, the consumer “gains from trade” due to all of Mexico’s tariff reductions (not only those due to NAFTA) – while generally positive – have been highly concentrated in upper-income households and the northern regions of the country (Nicita, 2009), while wage inequality between more and less “skilled” workers (for example, workers with higher or lower levels of education) worsened after trade liberalization and the formation of NAFTA (Hanson, 2004). In both countries, real wages have failed to keep up with rising productivity of labor in key tradable goods industries, especially manufacturing, resulting in falling shares of labor in national income since the late 1990s (see figure 1; see also Mishel, Bernstein and Shierholz, 2012; Ibarra and Ros, 2017). And, as detailed in the next section, the Mexican economy has made no progress in convergence with the United States in per capita income or wages since NAFTA went into effect in 1994.

Figure 1 Private business sector labor shares, Mexico and United States, 1995-2015



Sources: Ibarra and Ros (2017), data used with permission; U.S. Bureau of Labor Statistics (BLS), www.bls.gov; and authors’ calculations.

Thus, our purpose in this paper is not to defend NAFTA. Nevertheless, we recognize that the economies of all three member countries have been transformed by the regional integration brought about by NAFTA and other liberalization policies, and therefore the efforts by the Trump administration to undermine or destroy NAFTA without putting any positive alternative policies in place could have many adverse consequences. As one critic of U.S. trade policy has written,

“the U.S. and Mexican manufacturing sectors have become tightly integrated in recent decades. One need not like the new equilibrium to which this integration has led our economies to recognize that ripping this integration apart could well impose new costs on American workers. Undoing a treaty like NAFTA, even if done intelligently with a progressive focus, would be

challenging. Undoing it rashly, with a simple-minded aim of declaring victory over Mexico, will most certainly provide no help to American workers” (Bivens, 2017, p. 14).

Our objective here is to assess the proposals of the Trump administration for revising NAFTA, the responses of the Mexican government, and progressive alternatives to both. In our view, what is needed to make the process of North American integration work more in the interest of workers and average (“middle class”) citizens in both countries goes beyond mere tweaks to NAFTA, and would require significant reorientations of macroeconomic, industrial, and labor market policies in both Mexico and the United States. In contrast to the nationalistic approach adopted by the Trump administration, we believe that there are positive changes to NAFTA that could be adopted in the renegotiation, and there is much more that could be done in terms of U.S. and Mexican economic policies if there is a constructive vision that seeks to foster upward economic convergence between the NAFTA countries.

Therefore, this paper will address what kind of economic policies are needed to achieve more inclusive and sustainable growth in both Mexico and the United States, given their current degree of integration and the changing character of global production and technology. Most importantly, we will seek to identify policies that can move the two neighbors back onto a trajectory of upward convergence, defined as one in which Mexico raises its per capita income and real wages toward U.S. levels that are also rising (and in which real wages increase in line with productivity growth in both countries). At the same time, we will identify changes to NAFTA’s provisions on trade, investment, property rights, and labor standards that could contribute to our policy objectives. But first, we turn in the next section to a brief evaluation of what NAFTA has and has not accomplished.

Before proceeding, two caveats are in order. First, although we recognize that Canada is an integral part of NAFTA, our focus is on Mexican-U.S. economic integration and convergence, so we will discuss Canada only as necessary in relation to the NAFTA renegotiation. Second, although geographers may consider that North America includes Central America and the Caribbean islands, we will use the term North America to refer only to the three NAFTA members.

2. Has NAFTA been successful?

NAFTA appears to have been successful in its immediate objectives of promoting greater volumes of trade and flows of foreign investment. Regional trade increased sharply over the agreement’s first two decades, from roughly \$290 billion dollars in 1993 to more than \$1.1 trillion in 2016. Inflows of foreign direct investment (FDI) into Mexico have also increased since NAFTA went into effect in 1994, from averaging 1.2% of Mexico’s gross domestic price (GDP) in 1980-1993 to an average of 2.7% of GDP in 1994-2016.¹ During the same period, the U.S. FDI stock in Mexico increased from \$15 billion dollars to more than \$100 billion dollars (McBride & Aly, 2017). NAFTA has given Mexico preferential access to the world’s largest consumer market in the United States, which helps to attract investment from other countries outside North America, although the degree of such preference has

¹ Authors’ calculations based on data from World Bank, World Development Indicators [online database] <http://data.worldbank.org/data-catalog/world-development-indicators> [date of consultation: 16 June 2017] updated to 2016 using INEGI data for FDI and IMF/WEO data for Mexican GDP in dollars [date of consultation: April 7, 2017].

been eroded by U.S. trade agreements with other nations and the reductions in most-favored nation tariffs under the WTO.

However, recent research finds that only part of the post-NAFTA increase in intra-regional trade can be attributed to the causal impact of the tariff reductions in this trade agreement. Romalis (2007) estimated that the tariff reductions in NAFTA increased bilateral U.S.-Mexican trade by only 23%, while Caliendo and Parro (2015) – using a model that emphasizes trade in intermediate goods – estimated that the impact was to slightly more than double U.S.-Mexican trade.² These are not negligible increases, but they suggest that U.S.-Mexican trade has grown for many reasons besides NAFTA. In any event, bilateral Mexican-U.S. trade has clearly become very important for both countries: as of 2016, the Mexican economy was the third largest supplier of goods imports into the United States, and the second most important destination (after Canada) for U.S. exports, while the United States was by far Mexico's largest trading partner accounting for about 80% of its exports and 50% of its imports.

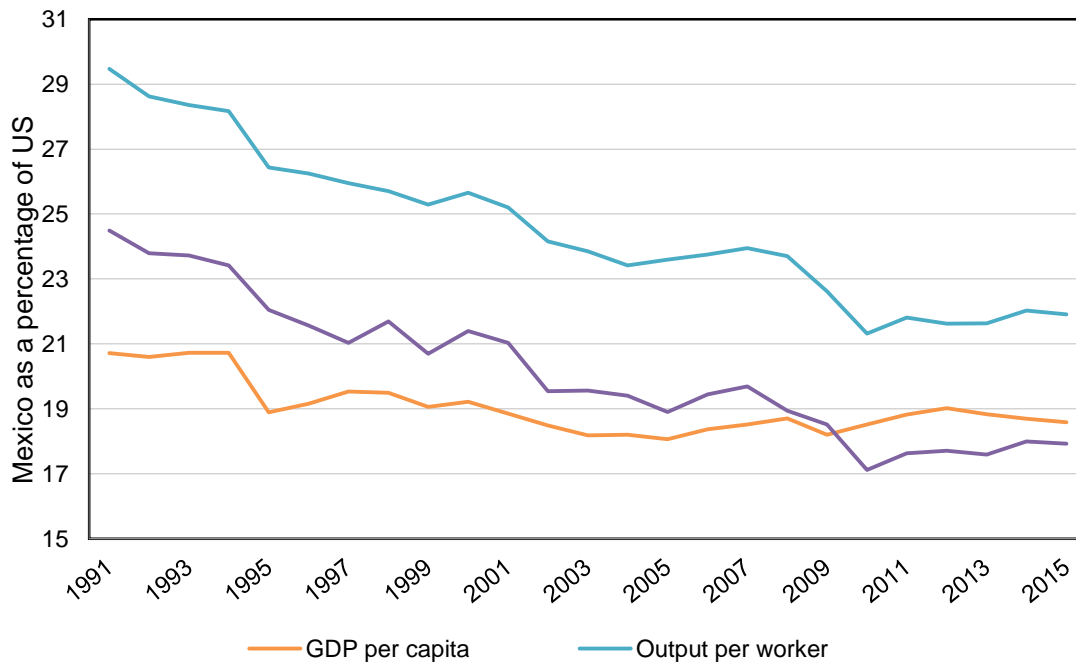
For Mexico, NAFTA represented the culminating phase of a process of neo-liberal reforms that began in the 1980s that led to trade and financial liberalization. NAFTA was an instrument designed to increase trade and FDI with North America. It was also seen as a legal constraint that would prevent any attempt by subsequent governments in Mexico to return to trade protectionism and excessive state intervention in the economy (the so-called “lock-in of reforms”).

In spite of the increases in trade and FDI, however, the larger goals that the Mexican government proclaimed for NAFTA when it was adopted in 1994 have not been achieved. Contrary to the assertion by then-president Carlos Salinas de Gortari that NAFTA would transform Mexico into a “first-world country,” there has been no convergence between Mexico and the United States in per capita income or labor productivity since NAFTA went into effect (see figure 2). Indeed, Mexico's NAFTA experience has suffered from a disconnect from the promises of some of its supporters that the pact would deliver rapid growth, raise wages, and reduce emigration. Between 1993 and 2013, Mexico's economy grew at an average rate of just 1.3% a year during a period when most of Latin America was undergoing a major expansion. In spite of the increase in FDI as a percentage of GDP, there is no evidence that the ratio of domestic investment to GDP has increased in Mexico in the post-NAFTA era.

Poverty in Mexico remains at about the same levels as in 1994. Also, the expected “wage convergence” between U.S. and Mexican wages never occurred. As figure 3 shows, as of 2016, real hourly compensation in Mexican manufacturing was still below its absolute level from 1994, while as of 2015 (the last year for which data are available) Mexican hourly compensation was also a lower percentage of the U.S. level than in 1994. Furthermore, Mexico's per capita income rose at an annual average rate of just 1.2% in the 1993-2013 period – far slower than in other Latin American countries such as Brazil, Chile, and Peru (McBride & Aly, 2017).

² Specifically, Caliendo and Parro (2015, Table 5, p. 23) report that NAFTA's tariff reductions increased Mexican imports from the United States by 118% and U.S imports from Mexico by 110%. Also, these academic studies refer to real increases in trade volumes (holding prices constant), while the raw data cited earlier are in current dollars and are not adjusted for price changes.

Figure 2 GDP per capita and labor productivity in Mexico as a percentage of US, 1991-2015

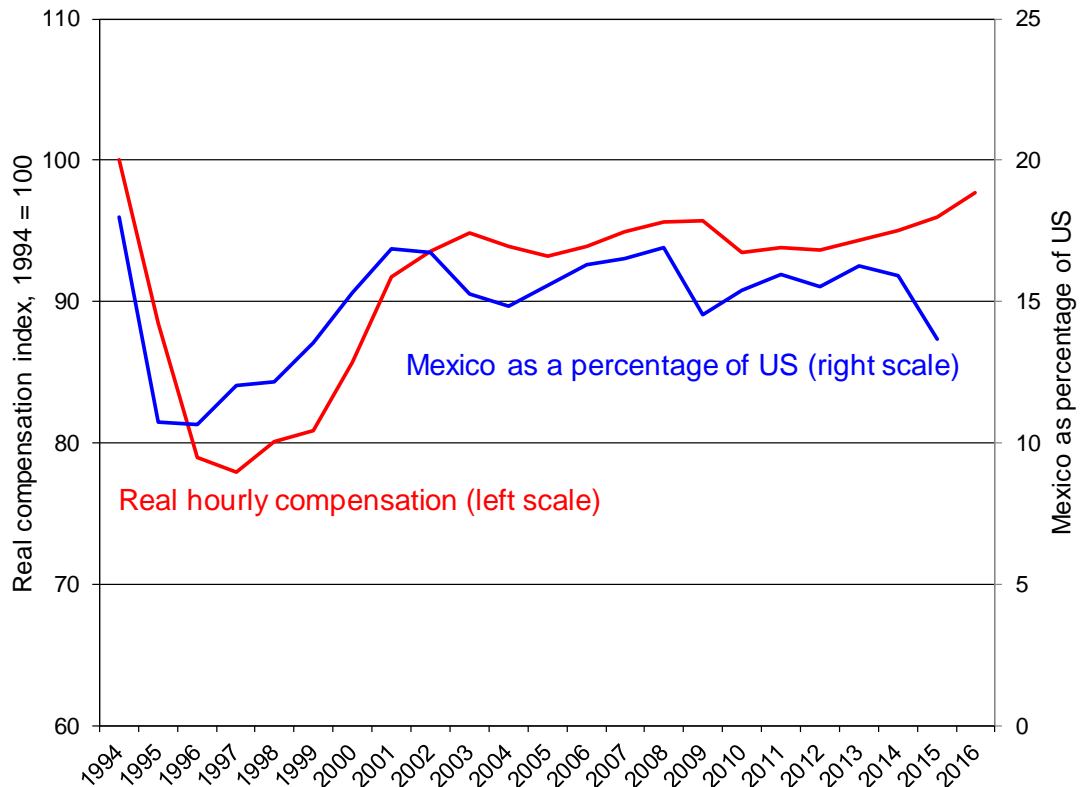


Sources: Data from World Bank, World Development Indicators, and OECD Statistics, accessed October 15, 2017, and authors' calculations.

This brings us to the great paradox about NAFTA and Mexico. On the one hand, NAFTA and related policies of trade liberalization and neo-liberal reforms adopted since the late 1980s have been an abject failure from a development standpoint: after three decades, these policies have never achieved the promised convergence to first-world (U.S.) levels of real wages or per capita incomes or any progress in that direction.

On the other hand, NAFTA (in combination with those same related policies) has locked Mexico onto a growth trajectory along which whatever growth does occur – however slow and inadequate – derives most of its momentum from the performance of exports, and hence is highly dependent on the growth of the U.S. market and other external factors (Blecker, 2009). As a result, any changes to NAFTA that would impede Mexican exports would undermine the chief dynamic factor in the Mexican economy, and a U.S. withdrawal from NAFTA or the imposition of higher tariffs and other trade barriers could be catastrophic in the short and medium term. Yet, the failure of the current development model implies that Mexico needs to re-think its economic strategy anyway, and ironically the threats from Trump could provide an opportunity to accelerate that re-thinking and shift Mexico's policy paradigm to a more development-oriented, less externally dependent, and more equitable and sustainable model.

Figure 3 Hourly compensation of Mexican production workers, in real terms and as a percentage of the US, 1994–2016



Sources: Authors' calculations based on data from Banco de México, www.banxico.org.mx; INEGI, EMIM, www.inegi.org.mx/; BLS, International Labor Comparisons, www.bls.gov; accessed 26 June, 2017 and earlier; and Conference Board, <https://www.conference-board.org/ilcprogram/>, accessed 9 August, 2017.

3. Critical perspectives on the NAFTA renegotiation

Trump's attack on NAFTA as "the worst trade deal ever" (based on a zero-sum view of trade) poses a serious threat to the performance of the Mexican economy. In fact, his rhetoric alone has already wreaked havoc on the business climate in Mexico and reversed a number of foreign investment commitments there, even before he took office (for example, Ford cancelled plans for a new assembly plant in San Luis Potosí for \$1.6 billion dollars, right after he threatened General Motors with a large border tax unless it moved production of the Chevy Cruze back to the United States). Indeed, a failed renegotiation and a U.S. withdrawal from NAFTA could push the Mexican economy into a recession. Mexican exports more than quadrupled since NAFTA went into effect; they accounted for 37.5% of Mexico's gross domestic product in 2015, and more than 80% of those exports go to the United States.

In its response to Trump's nationalistic posture on NAFTA, the main points presented by the Mexican government show a conciliatory posture in being willing to modernize NAFTA, while adopting a "win-win" vision of trade in the region, which considers the interests not just of one country but all three of them. The Mexican government has stated its willingness to update NAFTA by including economic activities that were not considered in the original negotiation (for example, electronic commerce and oil production, among others).

Also, the Mexican government wants to incorporate provisions to transform the energy sector, as long as they are consistent with the laws implemented by the energy reform of President Enrique Peña Nieto. Nevertheless, the Mexican government would be expected to defend Mexico's interests in the negotiation, as those are conceived by the Peña Nieto administration. In both Mexico and the United States, interest groups (above all the business sector or corporate lobbyists) are lining up to try to influence each administration's negotiating strategy, while critics (ranging from free traders to labor, environmental, and social activists) have issued varying opinions about what changes should or should not be adopted in a revised NAFTA.

Our objective here is not to immerse ourselves too deeply in the "weeds" of the NAFTA renegotiation, especially since we doubt in the likelihood of anything positive emerging from a renegotiation process spearheaded by Trump's trade officials (and it remains entirely possible that either Trump will scuttle the negotiations and withdraw the United States from NAFTA, or Mexico and Canada will find Trump's demands so unacceptable that they prefer not to reach a new agreement). Nevertheless, we believe that there are some changes to NAFTA that could truly help to promote upward convergence of living standards in Mexico and the United States, in combination with other types of policies discussed in later sections.

In order to assess the U.S. administration's approach, we will rely primarily on the "Summary of Objectives for the NAFTA Renegotiation" submitted by U.S. Trade Representative (USTR) Robert Lighthizer to the U.S. Congress, as required by law, on 17 July 2017. For the sake of brevity, this document will be referred to below as "the USTR Objectives". To address the Mexican government's position we will rely principally on the document sent by the Secretaría de Gobernación to the Mexican Congress on 26 July, 2017. In both cases, to analyze the Mexican and U.S. governments' positions on the renegotiation we will also rely on media reports about what is actually being discussed in the renegotiation process. Our purpose is not to give a comprehensive response to these objectives and discussions, but rather to analyze some key aspects of the proposed NAFTA revisions that relate to our own objectives for making North American integration work more in the interest of the majority of the population on both sides of the Río Grande (Río Bravo).

3.1 Rules of origin and national content requirements

NAFTA's rules of origin (ROO) are the provisions that determine how much North American content a good has to contain in order to qualify for a NAFTA tariff preference (usually a zero tariff). The USTR Objectives call for the NAFTA renegotiation to "Update and strengthen the rules of origin, as necessary, to ensure that the benefits of NAFTA go to products genuinely made in the United States and North America", and to "Ensure the rules of origin incentivize the sourcing of goods and materials from the United States and North America". We will discuss strengthening the region-wide ROO first, followed by the proposal to enact new requirements for U.S. content within NAFTA.

In principle, strengthening the ROO for NAFTA as a bloc could potentially encourage the production of products with greater North American content, thereby supporting jobs in all three member countries. However, stronger ROO could also encourage "trade diversion" that can cause losses in consumer welfare by inducing regional production of goods that could be imported more cheaply from other countries. Nevertheless, carefully crafted ROO could be helpful in some industries, if formulated as part of a larger set of policies for promoting those

sectors. Indeed, the Mexican government has not rejected stronger ROO at the regional level, and private interests such as the Mexican textile, steel, automotive and auto parts, electronics and telecommunications sectors have also expressed support for tightening the ROO for North America as a whole in order to replace imports from Asia.

However, tougher ROO, even for North America as a whole, might not be effective. The potentially higher costs of compliance in combination with relatively small tariff preferences could drive producers to ignore NAFTA rules and import from other countries instead. This is what has occurred in the textile and apparel sector, which – in spite of very high ROO (triple transformation test) in NAFTA – has shrunk tremendously in all three member countries due cheaper imports from China and other lower-wage countries. The North American textile-and-apparel complex took a big hit in 2001, when China entered the WTO and obtained “permanent normal trade relations” status in the U.S. market, and again after 2005, when the Multifibre Arrangement (a system of global quotas) was abolished. This example illustrates that if the cost savings from producing outside North America are greater than the benefit of the tariff preference for producing within the region, the goods will not be produced in North America.

Furthermore, if stronger ROO lead to higher costs, they could make North American products less competitive on global markets, in which those products have to compete with goods from Asia, Europe, and other regions. For example, if the ROO are strengthened in the automotive sector, the auto companies would be likely to raise the prices of cars produced in the region as a result of being forced to source more of their parts and materials from Canada, Mexico, and the United States, thus reducing the competitiveness of North American cars (including U.S.-produced vehicles) in the global automotive market (or in relation to cars imported into North America from other countries, such as South Korea or Japan).

In addition – and this seems to be a major stumbling block in the current renegotiation process – the Trump administration is seeking U.S. content rules in addition to the regional ROO in NAFTA. Needless to say, such rules would be against the interests of Mexico (and Canada), since they could force some production to relocate (or return) to the United States, and indeed the Mexican negotiators (along with their Canadian counterparts) have rejected this demand. But what would be the effect of the U.S. content rules on U.S. producers?

To understand the likely consequences, it is useful to use the auto industry (one of the main sectors in which the USTR is proposing to tighten ROO and impose U.S. content rules) as an example. First, imposing U.S. content requirements would be hugely disruptive to the regional supply chains already established in the industry, including supply chains that furnish U.S. manufacturing plants with inputs. Second, such rules could make some inputs more expensive for the U.S. producers of finished cars, who would then have a harder time competing with imports from other countries (Japan, Korea, Germany). Third, such rules could lessen the economies of scale and scope achieved through the regional rationalization of the industry (currently, Mexico is specialized in small cars and labor-intensive auto parts, while the United States and Canada tend to produce luxury cars and larger vehicles such as SUVs and light trucks).

Fourth, any restored U.S. production of small cars and auto parts would likely involve much more automated technology than what similar production utilized in the past, so the jobs that would return would be far fewer in number than those that left. There would also be high fixed costs of relocating links in regional supply chains to domestic producers in each country, as

well as possibly significant variable costs of documenting national as well as regional content. Unless the United States were to revert to very high tariff levels for finished autos (which would be a WTO violation, but not inconceivable for the Trump administration), the intention to encourage greater U.S. content could well backfire as producers might choose to source more cars and auto parts from Asia or other global regions rather than try to produce them at higher cost in the United States merely in order to qualify for NAFTA tariff preferences. In the long run, a U.S. auto industry that has higher costs and less scale economies would be less competitive, thereby inviting imports from cheaper locations outside North America. In short, intra-NAFTA U.S. protectionism is not a recipe for success in the auto sector, and for similar reasons would not be in other industries as well. However, there are positive things the United States could do to make the United States economy more competitive, which will be discussed under industrial policies in section 5, below.

3.2 Labor provisions and minimum wages

The USTR Objectives propose to “Bring the labor provisions into the core of the Agreement rather than in a side agreement,” and “Require NAFTA countries to adopt and maintain in their laws and practices the internationally recognized core labor standards as recognized in the ILO Declaration...” The Mexican government has not objected to these stipulations, and indeed had agreed to similar provisions in the Trans-Pacific Partnership (TPP) before Trump withdrew the United States from that proposed agreement. However, the USTR Objectives also propose to “Require NAFTA countries to have laws governing acceptable conditions of work with respect to minimum wages, hours of work, and occupational safety and health,” and Trump and other administration officials have spoken more bluntly about the need to increase wages in Mexico (and this is one of the few areas in which the Canadian government of Prime Minister Justin Trudeau has agreed with the Trump administration).

The Mexican government has rejected any negotiation over Mexican wages (minimum or otherwise) and labor laws as part of the NAFTA renegotiation – although it should be noted that Mexican governments since Salinas in the 1990s have accepted negotiations with the United States over property rights of investors and intellectual property protection even though they have resisted any negotiations over wages or working conditions. Civil society groups in Mexico perhaps have a more mixed reaction. On the one hand, Mexicans generally resent any U.S. efforts to dictate domestic policies, and U.S. pressure to raise wages is often seen as a thinly veiled effort to make Mexican industries less competitive. On the other hand, Mexicans are quite conscious that their wages have been stagnant in real terms since NAFTA went into effect, that their wages have lagged behind both productivity (especially in tradable goods industries) and rising wages in other emerging nations (for example, Korea and China), and that a falling labor share of national income is a contributing factor to high overall inequality in Mexico (Esquivel, 2015; Ibarra and Ros, 2017).

Perhaps the most principled response to this conundrum is to seek policy changes – either through the NAFTA renegotiation or in parallel with it – that could address wage stagnation and rising inequality in both Mexico and the United States, so that the onus not only placed on Mexico. In this respect, one area in which government policies can definitely make a difference is minimum wage legislation, which helps to set a floor below wages for less-skilled workers and (ideally) to prevent lower-paid workers from being in poverty.

In fact, the real value (purchasing power) of the legally mandated minimum wage has fallen dramatically in both countries in recent decades compared to earlier historical levels. In the

United States, the minimum wage provided an annual real income of only about \$15,000 dollars in 2016, compared with an average of around \$20,000 dollars in the late 1960s and early 1970s, both measured in constant 2015 dollar prices and assuming 2,080 hours of full-time work per year. This one-quarter cut in the real minimum wage occurred because legislated increases in the nominal minimum wage failed to keep pace with inflation. Moreover, this real decrease is even more shocking because it occurred during a period when U.S. labor productivity (output per hour) approximately doubled.³ In Mexico, for which comparable data from the same source (the OECD's OECD.Stat) are available only starting in 1984, the real value of the minimum wage was cut by more than half, from an annual rate of about \$4,000 dollars in 1984 to a mere \$1,900 dollars in 2016, measured in constant 2015 dollars at 2015 dollar purchasing power parity (PPP) exchange rates. Mexico's average labor productivity (output per hour) grew by only 4% over that period, as rapid productivity growth in modern, large enterprises and export-oriented firms was offset by falling productivity in informal activity and services, but it was certainly not cut in half.⁴ Hence, aside from not keeping up with inflation in nominal terms, minimum wages in real terms have not kept up with the average productivity of labor in both countries.

Moreover, the Mexican minimum wage provides an annual income equivalent to barely one-fifth (exactly 21%) of the poverty line for a family of four in Mexico and it is among the lowest minimum wages in Latin America (CONEVAL, 2017). Thus, even if two adult household members work full-time at the Mexican minimum wage, their family (assuming two children) would still be 57% below the poverty level. The U.S. minimum wage – in spite of being almost eight times higher than the Mexican minimum wage as of 2016 – still falls short of the U.S. poverty line for a single parent working full-time with two children, and is only barely above it for two full-time earners with two children (UC Davis Center for Poverty Research, 2016). Specific proposals for raising minimum wages in both countries are discussed in section 5, below.

Another labor-related proposal in the USTR Objectives is to “Establish rules that will ensure that NAFTA countries do not fail to effectively enforce their labor laws implementing internationally recognized core labor standards and acceptable conditions of work with respect to minimum wages, hours of work, and occupational safety and health laws through a sustained or recurring course of action in a matter affecting trade or investment between the parties”. This is important because Mexico has very tough labor laws on the books, but is frequently accused of not enforcing them – especially in labor-intensive maquiladora industries. But labor standards are also under threat in the United States, given the push of the Trump administration toward deregulation of health and safety regulations and other protections for workers. Hence, a principled response to this initiative would be to endorse it, but to insist that it must be applied equally to all countries, and that the United States as well as Mexico must be held accountable for enforcing high labor standards (consistent with the ILO conventions and each country's own laws). In other words, the USTR is not wrong to

³ Authors' calculations based on data from the Penn World Tables (PWT), version 9.0 <http://www.rug.nl/ggdc/productivity/pwt/> [downloaded 4 April, 2017] (Feenstra, Inklaar and Timmer, 2015). We used the series for output-side real GDP at chained PPPs (in millions 2011 dollars) and average annual hours worked by persons engaged to compute output per hour worked. The exact hourly productivity numbers for the United States are 63.36 in 2014 versus 30.62 in 1970, measured in constant 2011 United States PPP dollars per hour. Note that 2014 is the last year available from this source.

⁴ Using the same source and method as described in the previous note, we calculate that Mexican hourly labor productivity (measured in constant 2011 United States PPP dollars per hour) was 16.98 in 1984 and rose to 17.71 in 2014.

include this demand, but it should not be used as a protectionist measure against Mexico; rather, it should be used to leverage up the enforcement of workers' rights and labor standards in all NAFTA members.

3.3 Property rights and dispute settlement

NAFTA contains several notable and controversial provisions regarding foreign investment, property rights, and dispute resolution. First, it requires Canada and Mexico to adopt U.S. levels of protection for intellectual property (copyrights, patents, among others) when these are higher than the other country's standards – although Mexico had already adopted higher intellectual property standards in advance of the NAFTA negotiations in the early 1990s (Shadlen, 2009). These strengthened intellectual property rules are a form of protectionism that makes many goods and services (for example, pharmaceuticals, software, and entertainment) more expensive for consumers while increasing corporate profit margins. This is contrary to the spirit of a free trade agreement, which should aim at making goods and services cheaper for consumers, and is especially problematic in Mexico given its emerging market status and lower level of per capita income. Indeed, overly strong intellectual property protection can be deleterious from a development perspective, as it can discourage domestic innovative efforts (which are essential for emerging countries to escape the “middle income trap” – see Lee, 2016). Extremely high levels of intellectual property protection (for example, very long time periods for patents and copyrights) do not make sense for a developing or emerging economy like Mexico, and have been adopted there under pressure from the United States as a condition for attracting foreign investment and securing a free trade agreement.

Second, NAFTA's chapter 11 famously prohibited “expropriation” of the property of foreign investors, a provision that has been interpreted broadly as referring not merely to the outright nationalization of foreign companies' assets, but also to the adoption of any types of regulations that might impinge on potential corporate profits even if those regulations serve a genuine public interest (for example, environmental laws). In this respect, chapter 11 created property rights that in many cases exceed those recognized in the laws of any member nation (including the United States). Third and most insidiously, the provision that has become known as “investor-state dispute settlement” (ISDS) allows foreign corporations to sue governments in special panels of “experts” (usually trade lawyers or officials favorable to corporate interests) appointed to enforce these broadly defined property “rights”. Through this process, a foreign corporation can threaten federal, state or provincial, and local governments with costly lawsuits if they try to adopt regulations that might lessen a company's profits.

Fourth, chapter 19 of NAFTA allows national decisions about “trade remedies” or administered protection (for example, antidumping duties and safeguard tariffs) as well as alleged NAFTA violations to be appealed to tri-national dispute settlement panels, effectively taking such appeals out of national judicial systems. The USTR Objectives propose to eliminate the chapter 19 dispute settlement process entirely, which would effectively allow the United States to impose more administered protection on imports from Canada and Mexico (assuming that U.S. appeals courts would be less likely to overturn U.S. trade remedies than the NAFTA dispute resolution panels) – although of course, this would also allow Canada and Mexico to retaliate with more protection on imports from the United States. In related areas, it has been reported that the Trump negotiators are seeking to weaken or eliminate the exemption of NAFTA members from global U.S. safeguards and to institute new safeguard tariffs in cases of “surges” of imports from Canada or Mexico in certain product lines.

On a more positive note, the USTR Objectives call for reform of dispute settlement procedures under NAFTA by making any such proceedings more transparent and open to the public (although this call is ironic, given that the USTR Objectives propose to abolish the chapter 19 dispute settlement process). In a less positive spirit, the USTR Objectives propose to institute an asymmetrical regime for investor rights that would “Secure for U.S. investors in the NAFTA countries important rights consistent with U.S. legal principles and practice, while ensuring that NAFTA country investors in the United States are not accorded greater substantive rights than domestic investors”. Such a shift would enable the United States to dictate protections for its investors in Canada and Mexico, while providing only national treatment for Canadian and Mexican investors in the United States. A much more sensible approach would be to offer national treatment for foreign investors in all three countries.

Unfortunately, the USTR Objectives propose to abolish the wrong dispute settlement mechanism. Eliminating the chapter 19 process under which a member country can appeal alleged violations of NAFTA’s trade provisions or other trade rules would be a flat-out assault on the use of this process by Canada and Mexico to try to overturn various U.S. protectionist policies, such as the duties threatened or imposed on Canadian softwood lumber and Mexican tomatoes. To be sure, the USTR is right to propose that any dispute resolution panels within NAFTA should be more open and transparent. But the chapter 11 ISDS panels are far more objectionable than the chapter 19 trade dispute panels; the latter only need procedural reform and greater transparency (and a commitment of each country to honor their decisions), while the former should either be eliminated completely or have their powers drastically curtailed (and also be more transparent, if they are kept).

In contrast to chapter 19, very significant changes to NAFTA’s chapter 11 are warranted. Property rights protection should be limited to national treatment under the laws of each country, while intellectual property laws should be allowed to vary (within some limits) in proportion to the development level of a country. Abolishing the ISDS panels altogether could help to restore a greater balance between the public interest and corporate greed in all three countries. Other proposals for reform of dispute settlement include the proposition that litigants should be required to pursue remedies in national courts first, and should only have recourse to trilateral dispute settlement panels as a last resource – not as a first option or a means of circumventing national judicial systems (Shadlen, 2009); creating a more democratic appeals mechanism (for example, panels of appellate judges from the three countries, rather than trade “experts”) could also help. Such adjustments to the property rights (intellectual and other) and dispute settlement mechanisms (especially ISDS) in NAFTA could go a long way to giving all three NAFTA members the “policy space” required to implement industrial, environmental, and social policies that are in the national interest of each country.

3.4 Trade balance objectives

The USTR Objectives start with a declaration that the Trump administration seeks to “Improve the U.S. trade balance and reduce the trade deficit with the NAFTA countries”. It is true that the U.S. trade deficit, which consists mainly of a deficit for manufactured goods, is symptomatic of the forces that have contributed to job losses in manufacturing and downward pressure on U.S. wages. However, a focus on bilateral trade deficit of the United States with Mexico (the United States actually had a surplus with Canada in 2016) in the NAFTA renegotiation would be mistaken for several reasons.

First, by far the largest bilateral trade deficit of the United States is with China, not Mexico. As of 2016, the U.S. deficit with China was about five times larger than the deficit with Mexico, whether measured in terms of goods only (\$347 billion dollars compared with \$71 billion) or goods and services (\$309 billion versus \$63 billion).⁵ Therefore, even if one wanted to reduce bilateral U.S. trade deficits, the one with Mexico would be an odd place to start (especially given that Mexico buys far more U.S. exports than the much larger nation of China).⁶

Second, bilateral trade balances are clearly mismeasured and don't accurately reflect what is produced in the respective countries. On the one hand, U.S. exports to Canada and Mexico are exaggerated in the official U.S. statistics because these include "re-exports" of goods imported from other countries and transshipped to these neighboring nations; such re-exports are not U.S. products and don't create jobs in the United States (except possibly in transportation, and to the extent that some used goods are included in re-exports). Indeed, Mexico does not count such goods as imports from the United States – it reports them as coming from their countries of origin – which explains why Mexico's measure of its surplus with the United States is notably larger than the United States' measure of its deficit with Mexico (the U.S. data are much closer to the Mexican figures when they are adjusted to remove re-exports). On the other hand, all countries attribute their imports to the *immediate* country of origin, rather than the ultimate source of the value added included in those goods. Thus, for example, a television assembled in Mexico using components imported from South Korea and exported to the United States is counted as coming completely from Mexico; no adjustment is made for the imported Korean parts. As a result, the U.S. import statistics surely exaggerate the value added in imports from Mexico, many of which are assembled using large amounts of inputs imported from other countries.⁷ Therefore, the officially reported bilateral U.S.-Mexican trade balance is surely mismeasured and a misleading guide to policy.

Third, and most importantly, what matters to U.S. industrial employment is the overall trade balance, not the bilateral balance with any particular trading partner. The overall U.S. trade balance depends heavily on macroeconomic factors such as the value of the dollar and U.S. growth relative to other countries. Hence, the fact that the United States has recovered more strongly from the 2008-2009 crisis than many other countries and that the dollar has strengthened in the last few years have contributed to the post-crisis rebound in the overall U.S. trade deficit.

Trade agreements – not only NAFTA, but also the WTO and many others – also matter insofar as they affect the structural parameters (for example, elasticities of import and export demand with respect to relative prices and incomes) that determine how such macro variables translate into flows of imports and exports (Blecker, 1992; 2000). To the extent that these agreements reduce U.S. tariffs and trade barriers and encourage U.S. companies to relocate offshore (for example, by liberalization of FDI flows), they can help to increase the U.S. trade deficit; to the extent that they open up foreign markets to U.S. exports, they help to reduce it.

⁵ Data from the United States Bureau of Economic Analysis, *U.S. International Trade by Selected Countries and Areas* [online: last updated June 2, 2017] www.bea.gov [October 13, 2017].

⁶ In 2016, the United States exports of goods and services to Mexico totaled 262 billion of dollars, compared with 170 billion of dollars to China (ibid.).

⁷ Of course, the United States-produced inputs that are imported into Mexico are counted as the United States exports to Mexico, and so help to reduce the United States deficit with Mexico even as officially measured.

It is likely that the encouragement that trade agreements (including NAFTA) have given to “offshoring” by U.S. companies has far outweighed the gains in U.S. exports. Nevertheless, the fact that U.S. exports have not responded more strongly to foreign market opening (via the WTO or other trade agreements) also depends on other factors such as the value of the dollar and various sorts of foreign interventions or violations (for example, China’s exchange rate management in the early 2000s and its notorious lack of respect for intellectual property rights). In any case, the overall U.S. trade deficit would not be reduced if, say, the U.S. stopped importing so many automobiles from Mexico, but instead imported them from China – and if anything, the overall U.S. deficit might actually increase, since imports from China are likely to embody less U.S. content (capital equipment, intermediate goods, and raw materials) than imports from Mexico.

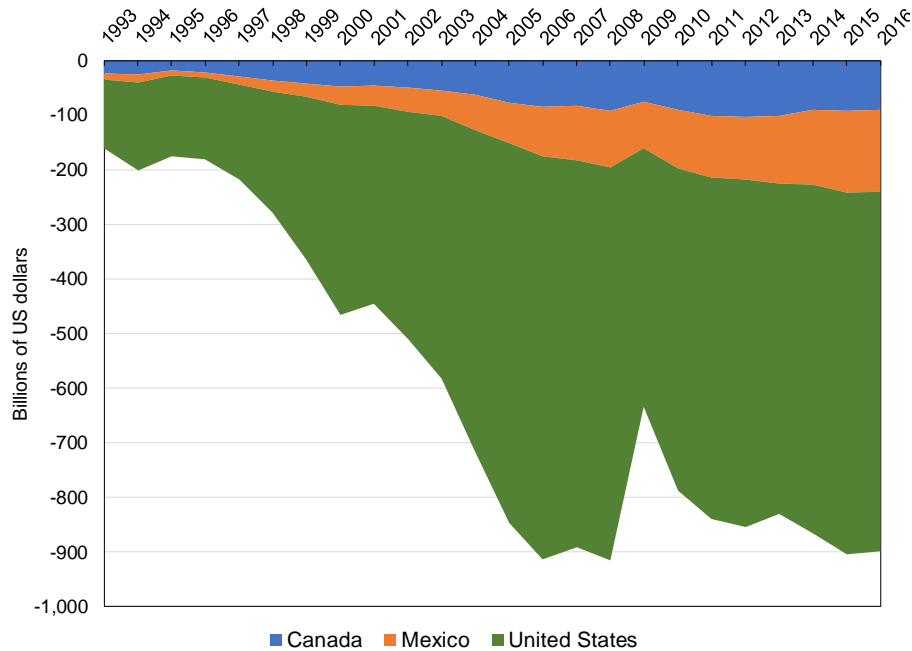
Furthermore, if one looks at the external trade balances of the three NAFTA members with the rest-of-the-world (that is, all countries except each other), one finds that North America as a whole is entirely a deficit region. The combined deficit of the three countries with non-NAFTA countries totaled over \$900 billion dollars in 2016, as shown in figure 4. Indeed, Mexico’s trade deficit with all other countries is larger than its surplus with the United States, implying an overall trade deficit for Mexico. In fact, Mexico has a net deficit in trade in manufactures, and its deficit with Asia (mainly China) and Europe more than outweighs its surplus with the United States (Moreno-Brid, 2013). If trade deficit is a problem in North America, this phenomenon is not confined to the U.S.-Mexican imbalance. Given how much the NAFTA economies have become integrated with each other via regional supply chains, it would make far more sense to address the root causes of the overall NAFTA deficit by transforming North America as a whole into a more competitive region. One place to begin is with exchange rates: the fact that all three countries have large external (non-NAFTA) trade deficit suggests that all three currencies (Mexican peso, Canadian dollar, U.S. dollar) are overvalued *vis-à-vis* the rest of the world. Exchange rate policy is addressed in the next section; other policy approaches for enhancing regional competitiveness are discussed below.

3.5 Currency manipulation and exchange rates

As required by the Trade Promotion Authority granted by Congress to the President for negotiating all trade agreements, the USTR Objectives include a provision seeking to “ensure that the NAFTA countries avoid manipulating exchange rates in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage”. In the NAFTA context, this stipulation makes little sense because all three members have flexible exchange rates rather than fixed or managed ones. Aside from the legal requirement, the USTR may have included this objective as a precedent for possible future trade negotiations, such as with Japan or other East Asian countries, but it has no relevance to Canada or Mexico today. It is also possible that the Trump administration wants to be able to claim that any depreciation of the Mexican peso or Canadian dollar constitutes “currency manipulation”, even if it is market-driven.

However, there are two aspects of exchange rate policy that would make sense for the NAFTA renegotiation or future monetary policies to address. First, in order to keep the entire, integrated North American industrial complex competitive (and address the region-wide external deficit discussed above), it is vital that all three countries keep their exchange rates at competitive levels relative to external currencies such as the euro, yen, and yuan.

Figure 4 Trade balances of NAFTA members with non-NAFTA countries, 1993–2016



Source: Authors' calculations based on data from IMF, *Direction of Trade Statistics*, <http://www.imf.org/en/Data>, accessed May 29, 2017.

All three North American currencies have gone through periods of being overvalued since the 1990s, and in each case the country's exports and manufacturing employment have suffered declines at that time (including both Mexico and the United States in the early 2000s – see Blecker, 2014). In this respect, it would make sense to try to keep all three North American currencies (U.S. dollar, Canadian dollar, and Mexican peso) at competitive exchange rates *vis-à-vis* other global currencies (euro, pound, yuan, yen, among others), while maintaining a narrow range of fluctuations with each other in which none of the three currencies becomes over- or undervalued relative to the other two. This would require coordinating the monetary policies of the three NAFTA members by maintaining low, steady interest rates in order to keep all three currencies stable and externally competitive. It would be also helpful to allow Mexico to use capital controls to prevent large swings in the peso's exchange rate in response to capital flow volatility – something that NAFTA now prohibits, but could be amended to permit.

Second, a revised NAFTA could require the three members to work together when faced by currency manipulation (actively managed undervaluation) by *other* countries. In fact, all three NAFTA members have been strongly impacted by genuine currency manipulation when and where it has actually occurred, such as in China in the late 1990s and early 2000s. During the first decade of the 2000s, China greatly increased its share of the import markets in all three NAFTA countries and significantly displaced Mexican exports from the U.S. market, partly as a result of its artificially low exchange rate, with severe negative effects on industrial employment in the United States and export dynamism in Mexico (see Autor, Dorn and Gordon, 2016, on the United States, and Gallagher, Moreno-Brid and Porzecanski, 2008, on Mexico). Since the Chinese yuan has recently (since 2008) appreciated relative to both the dollar and the peso, Mexico has recovered some of its competitive advantages in the U.S.

market and its share of U.S. nonpetroleum imports has rebounded (Blecker, 2014). Therefore, the three countries should consider joint retaliation (such as tariffs justified by balance of payments deficits under the IMF Articles of Agreement) against non-NAFTA countries that actively undervalue currencies with managed exchange rates. But there seems to be little point in prohibiting the three NAFTA members from engaging in exchange rate practices that none of them actually follow.

Under the present policy regimes in both countries, such coordination of monetary policy is unlikely to materialize. The Mexican government is currently unwilling to negotiate any coordination of monetary policies between Mexico and other countries. Similarly, the U.S. Federal Reserve formulates its monetary policies only in regard to its dual objectives (low inflation and unemployment) for the U.S. economy. However, if the North American economies are ever to have a successful regional industrial development project, they will have to pay more attention to competitive exchange rates and be more willing to engage in trilateral coordination of monetary policies than is possible under the current monetary policy regimes in the three countries. Indeed, to lower trade barriers both within North America and between the North American countries and the rest of the world, while allowing the North American currencies to become overvalued, as was done in the 1990s and early 2000s, is virtually a case of economic policy malpractice.

4. NAFTA and the Mexican economy's structural weaknesses

Trade liberalization and NAFTA helped to reshape Mexico's economic specialization model from an essentially oil-exporting economy in the early 1980s to rapidly become a major player in the world manufacturing market by the 1990s (Moreno-Brid and Ros, 2009). The impressive success in penetrating global and regional markets for manufactures was reflected in the change in the composition of exports. The export impulse has been accompanied by an increase in the technological sophistication of the manufactured goods that Mexico sells abroad. In fact, the percentage of high-technology exports⁸ as a proportion of manufactured exports increased from 8% in 1990 to 15% by 2015 (World Bank, 2017).

In spite of that, the growth impact on the Mexican economy has not been what was expected because trade liberalization also induced a substantial increase of imports – especially of intermediate goods – which has limited the value added created by the export boom. The intense and sustained penetration of imports into the domestic market – especially the growth in imports of intermediate inputs for use in export production – has weakened the backward linkages of the export sector to the rest of the Mexican economy. The fact that value added in export production has lagged far behind the gross value of exports explains why booming manufacturing exports have not translated into more rapid growth of per capita income, formal-sector employment, or real wages. As manufactured exports are highly dependent on imported inputs, local content is relatively small and links with local suppliers are weak.

As a result of the increasing importance of imported inputs as well as the opening to imports of final (consumer and capital) goods, the long-run income elasticity of Mexico's import demand has increased significantly in the years since trade liberalization and NAFTA (Moreno-Brid, 1998, 1999, 2002; Pacheco-López, 2005; Blecker and Ibarra, 2013). In fact,

⁸ According to the World Bank, high-technology exports are defined as products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery.

these studies show that the increase in the income elasticity of Mexico's import demand has outweighed the increase in its export growth, resulting in a tighter balance-of-payments constraint on the country's growth in the post-liberalization, post-NAFTA period. Simply put, Mexico has to grow more slowly than in the past simply to prevent a rising trade deficit. As Ibarra and Blecker (2016) observe, Mexico was able to avoid significant balance-of-payments deficit in the period 2001-2012 only at the cost of extremely slow GDP growth (about 2% per year). Thus, trade liberalization (and associated macroeconomic reforms, such as inflation targeting) have failed to place Mexico on a sustained export-led growth path.

In this context, the adverse impact of Trump's protectionist policies is amplified due to various structural flaws in the Mexican economic development framework in place since the mid-1980s, flaws that have only deepened since then. The government's economic policy focused on boosting Mexico's economic growth by exporting to the U.S. market while neglecting the internal market has failed, altogether, to ensure high and sustained growth of GDP and employment. Also, this policy created deep dependencies between the Mexican and U.S. economies, in the context of NAFTA. For example, Blecker (2009) showed that the impact of the U.S. growth rate as well as the importance of the real value of the peso for determining Mexico's growth increased significantly after 1994. The risks and weaknesses of such dependencies have been dramatically revealed in the agenda of radical changes to previous trade, financial, and migration policies that the Trump administration is imposing.

There are two main types of factors that explain why Trump's attacks on NAFTA and Mexico pose such a serious threat to the Mexican economy. First, there are the structural factors that have conditioned the performance of the economy, including the adoption of an export-led growth strategy that is heavily dependent on the U.S. market. Especially, manufactured exports have become (along with FDI inflows) the main engine of growth, and these exports are strongly dependent on the dynamics of the U.S. economy. Second, there are important conjunctural factors: very slow economic growth, vast poverty and high inequality, rising inflation, and in 2017 the implementation of strict fiscal austerity with big cuts in public spending (mainly in public investment). Particularly worrying is the fact that now for seven straight years, public investment has been cut in real terms. In 2016, as a proportion of GDP it was below 4%, its lowest level since the 1930s. Such low levels of public investment impair Mexico's growth prospects as the (quantitative and qualitative) deficit in infrastructure widens and potential synergies with the private sector on investment projects remain unexploited (Moreno-Brid, Perez-Benitez, and Villarreal, 2016). Thus, the reduction of public investment is partly responsible for the fall in total investment and may even have had an adverse effect on private investment.

All of this has clearly affected the business climate in Mexico. Not only have the formation of fixed capital weakened and capital outflows increased, but also the exchange rate between the peso and the dollar has become very volatile, thereby clouding growth expectations and negatively affecting the dynamism and stability of the Mexican economy. Ironically, if the peso continues to depreciate, this could help to bolster Mexican exports if the Trump administration imposes new protectionist barriers (and the peso would likely fall even more, if the United States withdraws from NAFTA). However, a sharp depreciation of the peso would worsen other problems for Mexico, especially inflation – and a spike in inflation would surely induce a contractionary responses of a monetary policy focused on an inflation target. All of this would be occurring while productive activities are stuck on a very slow growth path – there is in fact continued economic deceleration. The labor market is deteriorating and both poverty as well as inequality remain at high levels (Esquivel, 2015).

In this scenario of decreasing economic activity, loss of stability of key macroeconomic variables, social upheaval, low government approval, and questioning of the policy regime by political representatives of business and labor sectors, Mexico now faces grave external threats from the Trump administration as it moves toward its own upcoming presidential election in July 2018.

5. The road ahead: towards a new agenda of development and shared prosperity

Mexico has an urgent need for a new development agenda based on strengthening the internal market (equality + structural transformation + fiscal reform). This is true and will remain true independently of any outcome of the NAFTA renegotiation. To the extent that the renegotiation is based on a Trumpian view of trade as a zero-sum game, the outcome will not favor Mexico's development prospects. If the spirit of the renegotiation is to enhance the competitiveness of the entire region and to promote Mexico's convergence (in income, earnings, among others), a revamped NAFTA could be a useful tool (not the fundamental one by any means) for improving Mexico's growth prospects.

The United States also needs a new policy regime to reverse rising inequality, secular stagnation, and regional divergences. The Trump negotiating agenda for NAFTA would do little if anything to achieve this. Protection could potentially benefit particular industries or areas, but would not reverse the national trends and could worsen competitiveness in other, unprotected sectors (and even some of the protected ones, such as automobiles, if their costs rise). However, a revised NAFTA that promotes industrial growth and competitiveness throughout North America could help the United States along with other measures. A progressive response to Trump must address concerns of U.S. workers over disappearing jobs and stagnant wages, or it will be a political non-starter. Raising incomes and wages in Mexico as well as legalizing undocumented immigrants and enabling them to obtain higher wages are win-win for U.S. and Mexican workers.

Mexico and Canada may stop negotiations if Trump keeps threatening a U.S. withdrawal, insists on national (U.S.) content regulations within NAFTA, or makes new outrageous attacks (for example more insulting tweets) against the other NAFTA members. However at a certain point Trump's "bluff" may have to be called. The bargaining leverage of Canada and Mexico is far from insignificant because: i) they are the two largest markets for U.S. exports; and ii) many states that were key to Trump's Electoral College victory have strong trade ties with Mexico, in agricultural or manufactured exports (for example, corn-exporting Iowa).

The Canadian and Mexican governments can't appear weak in the face of Trump's hostility. Peña Nieto cannot be seen to cave in to certain – for Mexico key – demands of Trump, but at the same time he must allow the U.S. team to earn some points. For the Mexican government to show weakness in the renegotiations would be much worse for the ruling Institutional Revolutionary Party (PRI, in its Spanish acronym) than allowing the United States to withdraw from NAFTA, as the former could guarantee a PRI defeat in the 2018 election and the possible victory of left-wing (Morena party) candidate Andrés Manuel López Obrador. If the terms of the renegotiation are not favorable for Mexico, the government knows that it would be better to abandon the agreement and allow the U.S.-Mexican trade relationship to be governed by WTO rules (see Mufson, 2017).

5.1 Globalization, jobs, and the new agenda

The backlash against globalization and regional integration – which contributed strongly to the victories of Trump in the United States and Brexit in the United Kingdom – owes much to the impact that these processes have had on working-class citizens in those countries. Without question, opening to trade causes severe dislocations and losses of jobs and income, especially for less educated workers in affected industries and localities (see Trefler, 2004, on the impact of the Canada-U.S. Free Trade Agreement of 1989 on Canadian employment; Autor, Dorn and Gordon, 2016, on China's impact on the United States; and Hakobyan and McLaren, 2016, on NAFTA and the United States).

In the U.S. context, a debate has raged for more than two decades on how NAFTA (or trade with Mexico more generally) has affected employment, especially in manufacturing (the main sector producing tradable goods). Some estimates put U.S. job losses in manufacturing attributed to trade with Mexico as high as 650,000 (Scott, 2014, p. 438), while others claim that the number could be as low as 100,000 (Meltzer and Bahar, 2017). Sorting out which numbers are “right” would be beyond the scope of this paper, but we can note a few points. First, even the highest of these numbers represents only a small share of total U.S. employment, which reached 154 million in September 2017. However, the 650,000 number – if correct – would represent more than 10% of the 5 million decline in manufacturing jobs in the United States since the late 1990s. Second, regardless of whether the higher or lower estimates are correct, the relevant issue today is what would be the impact of higher U.S. trade barriers (for example, imposing U.S. content rules or higher tariffs within NAFTA, or a U.S. withdrawal from NAFTA) in the current economic environment. As the great economist Joan Robinson always emphasized, time is irreversible: new protectionist barriers would not return the U.S. industrial structure or level (and composition) of manufacturing employment to what they were in 1993 – and certainly not what they were in the pre-globalization era (1950s or 1960s). Given the tremendous changes in technology and the advent of global supply chains in the past few decades, the impact of such new protection is highly unpredictable, but it is unlikely to result in the return of anything close to the number of jobs that left (especially if we believe the higher estimates). Indeed, in the extreme event that the United States withdraws from NAFTA, while the effect could certainly be detrimental to North American integration (and possibly devastating to Mexico, at least in the short run), such a move could end up only accelerating the automation of manufacturing activities and the offshoring of jobs to other global regions such as East Asia.

In the past few decades, what has made the impact of globalization and regional trade agreements more painful than necessary is the fact that they have occurred in an environment in which adequate safety nets are not in place, full employment is not guaranteed, and the likely earnings from alternative employment (for example, in the service sector instead of manufacturing, especially informal activities in Mexico) are much lower than in the occupations lost due to trade or offshoring. Governments supporting trade agreements and integration projects have been reluctant to admit the severity of the potential adjustment costs, lest they lose support for their liberalization efforts – even though such efforts at denial are not only intellectually unjustified (even in theory, trade generally creates losers as well as winners), but also have often backfired politically (as in the success of the Trump and Brexit campaigns).

Moreover, all this is occurring in an era (since roughly the 1980s) when macroeconomic policies (especially monetary policy) have shifted in many countries (including Mexico and to

a lesser extent also the United States) toward a greater focus on price stability and balanced budgets than on full employment and economic growth. Mexican growth during the entire liberalization era (since the late 1980s) has been less than half as rapid as it was during the import substitution era (the decades from the 1940s to the 1970s), while U.S. employment growth has slowed down notably since the United States began to experience “secular stagnation” in the early 2000s (Blecker and Esquivel 2013; Blecker 2016).

Nevertheless, the renegotiation of NAFTA (or a possible U.S. withdrawal) paradoxically presents an opportunity for Mexico to diversify its exports to other countries and thus reduce its dependence on the U.S. market. This could help to reduce key vulnerabilities of the Mexican economy and should help to create a better business climate to boost investment in industrial development by strengthening the rule of law in Mexican institutions. In that sense, NAFTA was a key pillar: it was instrumental in transforming Mexico into an export platform to the United States, guaranteeing property rights of foreign investors in exchange for unrestricted access of Mexican exports to the U.S. market and “locking in” neoliberal market reforms through a trilateral agreement. Yet even when Mexican exports were soaring at two-digit annual rates of growth (in the 1990s), they failed to pull the rest of the Mexican economy onto a path of rapid growth, and now – ironically – it is the United States under Trump that is threatening to abandon the trilateral agreement that was supposed to guarantee the permanence of a neo-liberal policy regime in Mexico.

Thanks in part to the Great Recession/slow growth post-2008 and in part to Trump (and his threat to withdraw from NAFTA), today the external market has stalled as an engine of expansion for Mexico. There is thus an urgent need to implement a new agenda of development based on strengthening the domestic market, in the context of an open economy. The new agenda has three main priorities or lines of policies: i) income redistribution to tackle inequality; ii) structural transformation to, in particular, strengthen backward and forward linkages of the productive sector, and iii) much more active state intervention in the economy. In that sense, addressing industrial policies, financial policies, regional policies and public investment with the aim of strengthening backward and forward linkages of the productive sectors (including the export sector), promoting backward regions and boosting infrastructure are essential to transform the process of North American integration to one of “upward convergence” (defined as a process in which Mexico approaches U.S. levels of wages and per capita income, but with those levels continuing to rise in the United States and not being pulled down). The idea is not to disregard export capacities, but rather to supplement them with a strong impulse from the domestic market.

5.2 Tax policies for income redistribution

For the United States, the best approach would be to restore high marginal tax rates on very high incomes and inherited wealth, which would help to reverse the heightened inequality that the United States has experienced since the 1980s (Piketty, 2014) at least in the post-tax distribution. Unfortunately, it is clear that this will not happen under the Trump administration. On the contrary, the administration’s tax proposals instead seek lower taxes for the wealthy, abolition of the inheritance tax, and reductions in corporate tax rates (as well as deregulation) in order to “incentivize” investors. When Ronald Reagan tried such policies in the 1980s, he claimed that tax revenues would rise. Instead, tax revenues fell, the budget deficit increased, and workers suffered from an overvalued dollar and increased trade deficits. The big winners in relative terms were corporations and the rich, who benefited from dramatically reduced tax rates

(Stiglitz, 2017). It is also clear that tax policy should address a country's problems. The United States confronts widening income inequality. Nonetheless, what Trump administration has to offer is a tax plan that provides the overwhelming share of benefits not to the middle class – a large proportion of which may actually pay more taxes – but to America's millionaires and billionaires. Still, it is most unlikely that any of these individual or corporate tax cuts will do much to increase investment or employment.

In Mexico, inequality has also become a huge obstacle to economic growth. Moreover, it has reached such a level that it may start to threaten not only political stability but also social stability. In this regard, Mexico ranked 35th out of 35 OECD countries in terms of the tax-to-GDP ratio in 2015, with ratio of 17.4% compared with the OECD average of 34.3%.

The policy shift towards fiscal austerity in Mexico was further boosted by reforms implemented in the mid-1980s, which set low inflation and balanced budgets as macroeconomic guidelines, and pushed for a retrenchment of the public sector from the economic sphere and a commitment to trade and financial liberalization. Although there is much debate on the causes of Mexico's economic slowdown in the last three decades, an important element behind it is the weak performance of investment. The retrenchment of public investment was a by-product of the government's systematic push since the early 1980s to slash the fiscal deficit by cutting expenditures and to implement market reforms aimed at reducing the size of the public sector. The reduction of public investment was further accentuated by recurrent macroeconomic "stabilization" programs that targeted cuts in capital expenditures as the preferred tool for slashing the fiscal deficit when facing adverse external shocks through contractionary policies (see Moreno-Brid, Pérez-Benítez, and Villarreal, 2016).

Fiscal reform is urgently needed to bolster Mexican government tax revenue in a progressive way. This would allow funding for infrastructure investment and social expenditures, strengthen the state's capacity to implement countercyclical policies, and put in place a much more transparent and efficient system of public investment across the nation aligned with the priorities of the National Development Plan.

5.3 Infrastructure investment and industrial policies

Both Mexico and the United States are notorious for having tremendous infrastructure "deficits" as a result of inadequate and declining public resources being invested in public capital in recent decades. A massive increase in infrastructure spending in both countries would boost demand and employment in the short run, while augmenting capacity and productivity in the long run. At least for the United States, a case can be made that it would be feasible to finance a significant part of the needed infrastructure expenditures through public sector borrowing at the federal level. Interest rates are at historical lows (and would stay there, if the Fed would abstain from unnecessary interest rate hikes), which means that the implied debt service would be easy to accommodate, and such expenditures should boost future incomes (via increased productive capacity and private sector productivity) so that such public investments would be partly self-financing in the long run (unlike tax cuts for the wealthy, which do nothing to expand productive capacity). Nevertheless, if one is concerned about increasing the U.S. budget deficit and federal government debt, then increased infrastructure spending could be paid for with the types of progressive tax changes advocated above. In any case, candidate Trump promised a large infrastructure program in 2016, but so far president Trump has not made any specific proposals for such a program; on the contrary

his administration's budget proposals actually call for cuts to infrastructure spending.

Deficit financing is more problematic in Mexico because of the country's long history of financial crises, which have often been associated with large public sector debt (especially when externally financed). Therefore, a fiscal reform of the type discussed above is essential to finance the urgently needed revival of public investment in Mexico.

In addition to infrastructure, both Mexico and the United States need to revive the use of industrial policies. NAFTA – assuming it remains in effect – prohibits the member countries from favoring nationally owned firms, except in certain areas such as national security and (although this could change in the renegotiation) energy. However, NAFTA does not prevent the member countries from engaging in many other types of industrial promotion policies, including support to research and development (R&D), scientific and technical education, and various kinds of incentives such as tax breaks or dedicated infrastructure.

Indeed, Mexico's success in building its emerging aerospace sector (largely in the state of Querétaro) stems from a tripartite alliance of government, academia, and the private sector (the latter led by the Canadian firm Bombardier), which includes a university that trains aerospace engineers. For the United States, its future success in manufacturing surely resides in high-tech fields such as biotechnology, renewable energy, and information technology, not in a return to coal mining, "smokestack" industries, or the "sweatshop" factories of the past. In this respect, the policies of the Trump administration are completely antithetical to improving U.S. competitiveness, given the administration's efforts to reduce funding for research, support for carbon fuel production (especially coal), and general hostility toward science and education (not to mention proposing to waste billions of dollars on an unnecessary and insulting border wall). But Mexico too has suffered setbacks in these areas, as budgetary restraints have impeded necessary investments in education, R&D, among others. If Mexico is going to escape from the trap of relying on low wages (relative to U.S. wages and relative to productivity) to be competitive in export markets, it too will have to upgrade its industries and – while some efforts in this direction have already begun – much more investment of public resources will be required.

One helpful measure for industrial policy and regional integration could be to strengthen the role of the North American Development Bank (NADB), which has been underfunded and limited in its scope since it was created in 1994. As one scholar of industrial policy has argued,

"One of the main weaknesses of the NAFTA framework was its lack of regional development financing. The original [NADB] proposals called for a regional development bank that could address the asymmetries among the NAFTA countries and fund regional integration projects. The institution still exists, but its mandate has been significantly reduced. It should be revitalized and recapitalized... Part of its broadened mandate should include stimulating competitiveness in North American manufacturing through initiatives such as support for small- and medium-sized industries, financing of joint venture projects, financing technological transfer, export promotion, and expanding domestic markets, research and development, and innovation, as well as public infrastructure projects" (Dussel-Peters, 2009, p. 32).

5.4 Raising minimum wages

One important way to pull up wages and living standards at the bottom end of the income scale – and to put upward pressure on median wages as well – is to raise the minimum wage. There have been campaigns to raise legal minimum wages in both Mexico and the United States in recent years. In the United States, the demand to raise the minimum wage to \$15 dollars per hour from its current level of \$7.25 dollars has become a key demand of the progressive movement since the Bernie Sanders campaign of 2016. In Mexico, a proposal made by some researchers of UNAM (Gobierno de la Ciudad de México, 2014) proposed to seek a broad national agreement to increase the minimum wage in 2015 and put it at \$82.86 pesos per day, with the objective that a worker would receive the minimum welfare line (purchase the food basket). This would have represented an absolute increase of \$15.57 pesos, or 23% initially. Such an increase would then be the beginning of a recovery trajectory would seek to achieve over time the constitutional mandate (the wellness line) of \$171.03 pesos.

Recently, the Mexican government announced a raise of 10% on the minimum wage above inflation from \$80.04 pesos to \$88.36 (November, 2017). Nevertheless, the raise will be virtually cancelled by inflation. Currently, the CPI is growing at 7% on annual terms, with prices of staples increasing nearly 12%. It is projected that this year, 2017, real wages on average will suffer a contraction. This increase still leaves Mexican workers below the poverty line and it is a small step on the road that remains to be walked. Mexico is the country with the lowest minimum wage in the OECD, and one of the lowest in Latin America notwithstanding that its labour productivity is –with Chile’s– among the highest in the sub-region (Moreno Brid and Garry, 2015).

It should be noted that, for decades, minimum wages in Mexico have not followed the evolution of productivity. If minimum wages had been linked to market conditions and the performance of workers’ own efficiency, those salaries would have seen a path of increase, not of deterioration. In fact, the loss of the purchasing power of the minimum wage was 75% in 35 years of deterioration and stagnation (see Gobierno de la Ciudad de México, 2014). In addition, it should be stressed that the key indicators of the labor market of the International Labour Organization (ILO) reveal that, for more than 20 years, average labor productivity of Mexico – in constant dollars – has been and still is one of the highest in Latin America. In 2012 it was the second highest, only 3% lower than Chile’s, and widely overtook Uruguay’s (30%) and Brazil’s (60%). Furthermore, labor productivity was more than double that of the average of the rest of the region (Moreno-Brid, Perez-Benitez, and Villarreal, 2016).

Increasing minimum wages in the context of a full commitment to give a more relevant role to the state in promoting a less unequal functional distribution of income is key to reducing the unacceptably high levels of inequality and poverty in Mexico. However, many Mexicans have been understandably reluctant to press for wage increases in response to the demands of the Trump administration, which seem aimed only at reducing Mexico’s competitive advantages. Of course, minimum wages do not generally apply in most export industries, but by setting a floor under the entire wage structure, they can influence other wages as well. That is why it is also important to also raise the minimum wage in the United States at the same time as it is increased in Mexico, so that there is little or no net competitive impact and instead there is simply a redistribution of income toward lower-paid workers in both countries.

5.5 Strengthening coordination of macroeconomic and social policies

To promote a new agenda of development in the United States and Mexico, what are most important are macro-level policies that can boost demand, augment supply capacity, and

ensure full employment. By “macro-level”, we mean not only traditional fiscal and monetary policies, but also other types of measures that are economy-wide and can have a national impact on the bargaining power of workers in labor markets and competitiveness in external markets. And we do stress that increasing productive capacity is essential in order to prevent inflationary outcomes, which means that any fiscal stimulus should focus heavily on capacity-enhancing measures such as infrastructure, education, and innovation.

In regard to monetary policy, exchange rates have played an important part in the success, or lack of success, of exports in all three NAFTA members. At several key points in recent decades (such as 1990-1994 and again around 2000-2007), prolonged periods of currency overvaluation have impeded Mexico’s export-led growth strategy, resulting in disappointing gains from the country’s trade liberalization and economic integration policies. For Mexico, what matters is not only the exchange rate with the dollar, but also “cross-exchange rates” with “third countries” – especially the peso-yuan exchange rate with China. When the peso was overvalued and the yuan was undervalued in the early 2000s, Mexican exports were significantly displaced by Chinese exports in the U.S. market, and Mexico itself experienced significant penetration of Chinese imports (Gallagher, Moreno-Brid and Porzecanski, 2008; Blecker and Esquivel, 2013; Blecker, 2014).

Given that Mexico and the United States both have flexible exchange rates, they cannot directly determine the values of their currencies. However, there are policies that they can use to try to influence those values, policies that will vary depending on whether the other currency in question has a flexible exchange rate with liberalized financial flows (for example, the euro and United Kingdom pound) or a fixed or managed rate or one accompanied by capital controls (for example, the Chinese yuan, which is official flexible, but is still heavily managed, and Chinese capital flows are not fully liberalized). With respect to flexible rate currencies, the best policy is to maintain relatively low and steady interest rates, and not to raise them excessively in response to inflationary pressures (actual or perceived).

One suggestion is that the Banco de México should consider adopting something like the Fed’s “dual mandate” of targeting both real activity (low unemployment or rapid growth) *and* stable, low inflation, instead of having only an inflation objective. More to the point, a monetary policy rule for Mexico could take the real value of the peso into account so that a real overvaluation would lead to a moderation of interest rates. Overall, some coordination of interest rate policy between the Fed, Banco de México, and Bank of Canada could go a long way toward keeping all three North American currencies at competitive levels, without going so far as to make the mistake of the euro zone and adopt a common currency at fixed and unchangeable nominal parities (see Blecker and Seccareccia, 2014).

As stated previously, redistributive policies have to be part of such a package, especially for solidifying the internal market and reducing dependence on exports in Mexico, but the strategy should not rely on redistribution alone. In the long run, it is solid and sustained growth that ultimately raises wages in step with productivity growth and – if Mexican productivity rises faster than U.S. productivity, as would be expected given Mexico’s lower initial level of productivity – leads to upward convergence (as has been observed in other cases, such as South Korea and China). The best scenario should arise from conditions in which real wages can increase along with productivity and worsening inequality can be reversed.

For Mexico, we agree with the recommendations of the Grupo Nuevo Curso de Desarrollo of the National Autonomous University of Mexico (UNAM, in its Spanish acronym) (GNCD, 2017). In this spirit, we consider it an urgent priority to start a process of frank discussion and reflection, inclusive and democratic, leading to the creation of a national consensus and a pact prioritized on the following twin objectives:

“To address both the conjunctural challenge posed by the external shock and the structural challenges imposed by our development framework requires undertaking policy actions with two different time horizons. The first is an emergency response that reduces risks and negative impacts for the most vulnerable populations in the country following the announced protectionist actions, investment diversions, and migrant restrictions [of the Trump administration]. The second and more far-reaching is to promptly build a political consensus to launch a new development agenda in which equality and the strengthening of the internal market hold the highest priority.” (GNCD, 2017, authors’ translation)

In this endeavor, placing inequality at the center of economic policy concerns is a central requirement for Mexico, as is to successfully tackle Donald Trump’s threats, in order to escape the slow-growth trap in which Mexico is currently stuck, thereby reducing social vulnerabilities and political instability in the long term. At the same time, we hope that the United States will reverse the trend toward nationalism, xenophobia, and isolationism that has emerged under the Trump administration, and will turn instead to a more cooperative approach to fostering upward convergence of Mexico within North America as well as a return to more progressive (Esquivel, 2014) and economic policies at home. In all of this, the renegotiation of NAFTA can play at most a small part, if it is done with a cooperative, win-win spirit; whereas a nationalistic rewrite of NAFTA or a hasty U.S. withdrawal from it would only complicate the task of making North American integration work more in the interest of average U.S. and Mexican citizens.

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Assessing the impact of austerity in the Greek economy: a sectoral financial balances approach

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Abstract

The principal goal of the Economic Adjustment Programmes applied in Greece since 2010 was the elimination of the economy's so-called 'dual deficit problem' by a mix of austerity and internal devaluation. This policy prescription was originally expected to put the country's public debt back on a sustainable track and boost the competitiveness of the Greek productive sector, thereby promoting export-led growth. Whereas the implemented policy agenda resulted in a sharp reduction in fiscal deficit and unit labour costs, Greece still faces a high creditworthiness risk, lacklustre export growth and an uncertain macroeconomic outlook. The root cause of the failure could arguably be found in the detrimental impact of austerity on private sector performance and the ensuing repercussions in the aggregate economy. The paper aims to propose an alternative framework of explaining and assessing the cost of creditors' policy, pointing out the way it has undermined the quality of the private sector's balance sheet and disturbed intersectoral linkages within the economy, eventually engulfing the entire economy in a debt-deflation trap.

JEL Classification E21, E22, F32, H31, H32

Keywords fiscal consolidation, sectoral financial balances, recession, financial stability

1. Introduction

The principal goal of the Economic Adjustment Programmes (EAPs) applied in Greece since 2010 was the elimination of the economy's so-called 'dual deficit problem' by a mix of austerity and internal devaluation measures. This policy prescription was originally expected to put the country's public debt back on a sustainable track and boost the competitiveness of the Greek productive sector, thereby promoting export-led growth. Whereas the implemented policy agenda has resulted in a sharp reduction in fiscal deficit and unit labour costs, Greece still faces a high creditworthiness risk, lacklustre export growth and an uncertain macroeconomic outlook. This paper attempts to explain the failure of creditors' policy agenda in view of the profound transformations it has unleashed upon the economy's sectoral balances and the macroeconomic implications of this process. We argue that balancing public finances through austerity is neither an optimal nor a feasible policy option for crowding in private spending and thereby reviving economic growth in Greece. By contrast, austerity has harshly impaired the private sector's balance sheet and disturbed inter-sectoral linkages within the Greek economy, eventually engulfing the economy as a whole in a full-blown debt-deflation trap. This does not only account for the prolonged recession experienced in the country since the introduction of EAPs. It has also severely undermined Greece's long-run growth and development prospects, damaging its economy's productive potential.

The remaining paper is structured as follows. In section 2, we briefly describe how economic units' financial balances are closely intertwined within modern-day economies and investigate the way through which policy-induced changes in inter-sectoral balance sheets define the underlying macroeconomic and financial conditions in a country. In so doing, we try to build an analytical framework for providing insights on the effects of austerity in Greece. In section

3 we present empirical evidence of the adverse impact of fiscal austerity on private sector behavior, with a view to assessing the potential impact of EAPs on the aggregate macroeconomic performance in the country. Section 4 analyses the development of private sectors' financial balance in Greece over the macroeconomic adjustment period and critically evaluates its implications on the growth dynamics of the Greek economy. Finally, section 5 concludes and summarises the main argument of the paper.

2. Austerity and inter-sectoral balance sheet adjustment

It is well-known that real-world economies are essentially complex monetary production systems (Wray, 2011). Monetary aspects arise from the pivotal role of financial contracts in fostering investment, creating income streams essential to meet debt obligations and shaping financial conditions. Complexity, on the other hand, arises from the fundamental uncertainty surrounding any debt settlement agreement and the multitude of economic agents involved in the process. Finance, uncertainty and economic units' cash flows are therefore closely intertwined with macroeconomic stability and growth dynamics. In periods of economic stability, an adequately high actual (or expected) cash flow improves units' solvency prospects, thereby permitting the financing of an expanding level of production on reasonable terms. In crisis periods, generating sufficiently high income flows towards economic units becomes an indispensable prerequisite for restoring financial stability and reviving growth.¹ In this system, sectoral balance sheet adjustments do not emerge in isolation, but under conditions of interconnectivity and interdependence.

In order to present such complex interrelationships we make use of the accounting equation that links the financial balances of the main sectors of the economy. Drawing on Hein and Truger (2014), sectoral balances can be presented by the following formula:

$$(S - I) + (T - G) = (X - M) \quad (1)$$

where (S-I) denotes the private sectors excess savings (S) over investment (I), (T-G) indicates the excess of total tax revenue (T) over government spending (G) and (X-M) displays the net financial position of the external sector, i.e. net exports.

The abovementioned formula provides valuable insights into the inter-sectoral balance sheet relations existing within any given economy and the channels through which economic policy is likely to influence them. Equation (1) merely informs that, for a given level of aggregate spending and income in the economy, the capacity of one single sector to modify its financial balance autonomously hinges on the readiness and responsiveness of the remaining two sectors to properly adjust their spending patterns so that together register a net financial balance of the opposite sign. For example, if the private sector needs to save more (S>I) to lessen its debt burden, then both the public and external sector must jointly list at their financial position a deficit of an equal size. Accordingly, excessive private spending (S<I) entails a positive amount of net savings in the other two sectors. In this constellation, inter-sectoral mismatches concerning the preferred direction of balance sheet adjustment may exist, but imbalances not. Balance is always and everywhere restored through two channels:

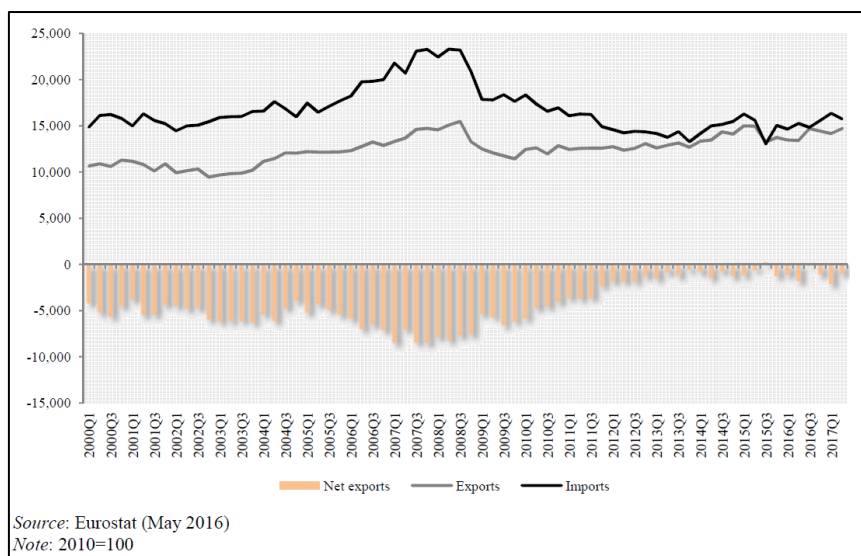
¹ See Argitis and Nikolaidi (2011).

either through mutually compensating adjustments among sectors, or through changes in aggregate output (Semieniuk et al., 2011).²

It is exactly this phenomenon that brings policy-making into play and makes austerity relevant to the macroeconomic and financial performance of a country. As known, budgetary austerity implies public spending cuts and increased tax burdens. The ultimate objective is to bring fiscal balance into equilibrium, arrest debt dynamics and thereby restore market confidence on the long-run sustainability of public finances (see IMF, 2010). Achieving this target, however, presupposes sufficient levels of aggregate demand in the economy in order for the total volume of tax revenue to remain intact and guarantee public sector's excess saving and improved solvency status. Yet, in an open economy framework, this can only be attained if the private and the external sector run a deficit in their overall financial balance. The magnitude of the deficit shall also be such as to balance out dampened demand due to austerity and keep income levels afloat (Kregel, 2015). This condition, in turn, brings into the fore the crucial role of export competitiveness as a tool of macroeconomic stabilisation.

Admittedly, this role is implicitly recognised by the adjustment programmes imposed on the Eurozone's periphery over the last few years. In fact, according to the internal devaluation strategy, labour cost reductions are required to reduce export prices and thereby revive external demand (Lizoain, 2013). What is not recognised, however, is that this approach lacks sound theoretical foundations and contradicts with the growth model of the Greek economy (Argitis et al., 2017). There are several reasons why this happens. One is that in 'real world' economies prices are principally determined by firms' profit margins and the degree of market competition. As such, wage squeeze is hardly possible to translate into sizeable, if any, gains in price competitiveness. This is especially true for Greece, where oligopolistic market structures are particularly widespread and resilient (INE, GSEE, 2015). In addition, a country's competitiveness and export growth appear more responsive to the quality of its export products, the policy stance of its trading partners (ETUI, 2015) and its openness to world trade (Theodoropoulou, 2016).

Figure 1 Volume of exports, imports and net exports of goods and services (Greece, 2000Q1-2017Q2, million euro)



² See also Kregel (2015) for a similar presentation along these lines.

Against this backdrop, it appears unreasonable to anticipate a dynamic rebound of external demand in economies like Greece, marked by poor innovative capacity and outward-looking orientation, especially under the current deflationary environment in the EU. In fact, empirical evidence suggests that, despite the wide-ranging deregulation measures implemented in Greece since 2010, export performance has been particularly feeble (Passas and Pierros, 2017). Any correction in external balance has been instead the result of imports contraction in the face of deficient internal demand and tenacious deflationary conditions (see Figure 1).

Thus, lacklustre export performance severely confines the path of balance sheet adjustment in the domestic economy, as well as the range and success of policy choices in place. In fact, Greece's fiscal commitments³ and deficient export competitiveness imply that the burden of macroeconomic adjustment will inevitably be passed to the private sector.⁴ This, however, makes the success of the whole process heavily reliant on the specific conditions prevailing in the economy. Whereas in times of thriving demand and stable expectations the private sector could potentially spend more to offset the economic contraction caused by fiscal tightening, this may not apply in times of crisis. In the latter case, the prospect for a smooth balance sheet adjustment without income and job losses crucially depends on whether fiscal austerity cultivates adequate conditions that in turn would allow the private sector to expand. This is the second crucial macroeconomic assumption underlying the EU/IMF adjustment programmes, the validity of which we attempt to assess in the following section.

3. The effect of fiscal austerity on private sector performance

A core idea of the adjustment programmes imposed in Greece is that front-loaded austerity is crucial for restoring fiscal balance and long-term debt sustainability. Being an element of the so-called 'Frankfurt-Brussels' consensus (Sapir and van de Noord, 2004) and a keystone of the EMU's fiscal regime (ECB, 2006), this idea is vindicated on the allegedly expansionary effects of fiscal consolidation (Alesina, 2010). According to this view, not only do strong and persistent consolidation measures not depress the level of economic activity and employment. They may also favourably impact private consumption, investment and growth, by signalling a reduction in tax burdens and governments' borrowing costs in the imminent future. As a matter of fact, 'non-Keynesian' confidence effects tend to dominate in the economy (see Afonso, 2006), with private sector spending behaviour overcompensating for any detrimental effect of austerity on jobs and growth dynamics.⁵

Does empirical evidence justify this conventional argument? Evidently, it does not, at least for the period 2011-2015 when austerity has been dominant across Europe. Figure 2, for instance, traces the correlation between the average size of fiscal consolidation and the corresponding percentage change in private consumption for the period 2011-2015 across Eurozone member states. It is apparent that fiscal discipline is adversely related to private consumption. Hence, contrary to the standard theorisation, bridging fiscal imbalances through austerity curbs, rather than stimulates, households' expenditure. This evidence comes as no surprise bearing in mind that austerity turns a blind eye to the critical role of deficit spending as a stabiliser of employment and private sector's liquidity, especially in phases of economic

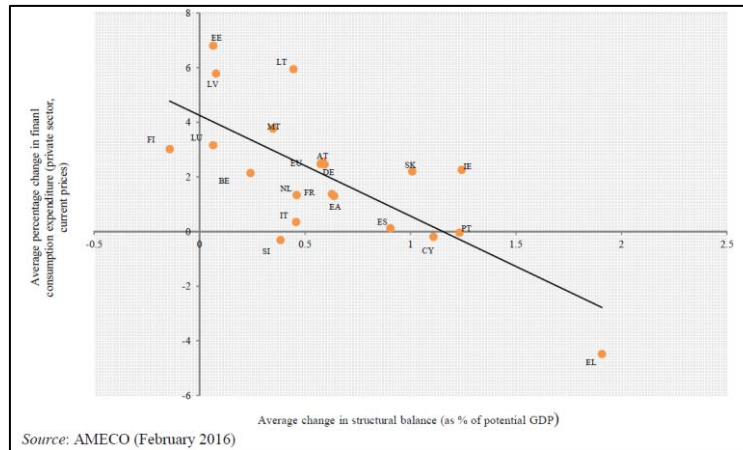
³ Note that according to the third Memorandum of Understanding (MoU) between Greece and its creditors, the Greek government is committed to reaching a primary fiscal balance-to-GDP target of 1.75% in 2017 and 3.5% in the period 2008 -2021.

⁴ See Kregel (2011) for a similar analytical framework.

⁵ See also Afonso (2006) for an empirical investigation of this effect across the EU economies.

downturn and financial distress. Therefore, in such conditions, any attempt to restrain public expenditure tends to depress employment and exacerbate solvency problems that both drive consumption down. Moreover, public spending cuts typically raise social precariousness. This induces households to save more (EPSU, 2014), thereby reinforcing the contractive effect of austerity on private consumption.⁶

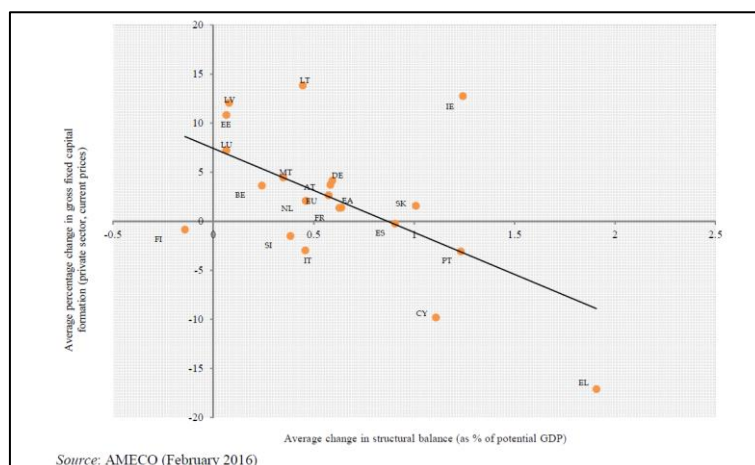
Figure 2 Fiscal stance and private consumption in the EU and Eurozone member states (2011-2015)



On top of that, consolidation plans usually bring with them reductions in public sector wages with negative spillovers to the wage-setting process in the private sector. This not only suffocates directly consumer spending. As long as private consumption represents an important, if not the most important, determinant of aggregate demand (Onaran, 2015), it also negatively feeds back on employment, ultimately endangering a vicious spiral of depressed consumption, employment and growth.

Given the abovementioned finding, there is no convincing reason to anticipate that lower deficits tend to improve private investment performance, either. In fact, as displayed in Figure 3, there is a clear trade-off relationship between the scale of fiscal adjustment and private investment over the last six years.

Figure 3 Fiscal stance and private investment in the EU, Eurozone and EMU member states (2011-2015)



⁶ See also van Treeck (2013) on the effect of austerity on precautionary saving.

This is sensible as government spending not only produces liabilities, but also expands internal demand (De Grauwe, 2014), thereby making private investment more attractive and profitable (Collignon, 2013a). This 'crowd-in' effect of fiscal policy becomes more acute in turbulent times, as the current ones, when economic outlook darkens, confidence ebbs away and the credit channel breaks down. Under such circumstances, fiscal austerity is clearly a self-defeating strategy for placating investors' sentiment. Reducing the level of internal demand and private sector's cash flows, it further weakens profit expectations, thereby disincentivising investment (Keynes, 1936).

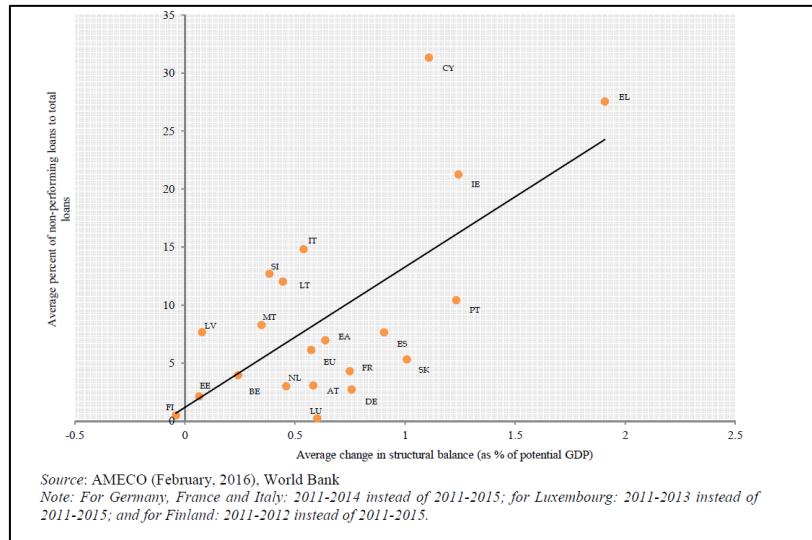
Critical to note is that the harmful impact of austerity on investment becomes even more daunting in view of the role of investment as a driver of private profits and the growing shareholder value orientation of modern management that squeezes firms' internal means of financing investment (Stockhammer, 2008). Besides this, austerity not only neglects the role of public spending in fostering private investment. It also undermines economic development and technological progress and thus the economy's growth potential (Collignon, 2013b). The latter effect is of utmost importance for the Greek economy, given its lacking productive capacity and the long-standing inability of Greek entrepreneurship to undertake innovative investment projects (Argitis, 2008 and Papagiannakis, 2008).

Another channel through which austerity discourages private spending refers to its effects on the private sector's financial profile. The austerity-driven rise in unemployment, wage compression and tight liquidity conditions have all severely undermined the financial structure of basic units of the economy, entrapping them in a state of insolvency and high default risk. This development is partially captured in Figure 4 that illustrates the worrisome evolution of the number of non-performing loans (NPLs) to total loans over the period 2011-2015 across Eurozone member states.

From the data set it is clearly presented the skyrocketed surge of the ratio of NPLs in the peripheral economies, as well as the significant contribution of the dominant austerity policy to unleashing this phenomenon. It is important to note that this jump in NPLs in the countries hit the hardest by austerity directly threatens the health of their national financial sector because it weakens banks' balance sheets and thereby impedes credit expansion. In this manner, austerity suppresses further private spending and effectively disseminates solvency problems to the entire macroeconomic and financial structure.⁷

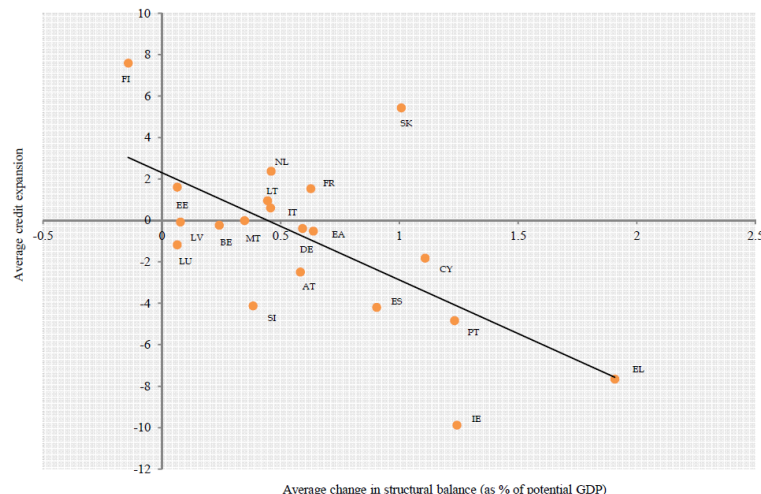
⁷ In the next section, we further elaborate this issue in the case of the Greek economy.

Figure 4: Fiscal stance and the ratio of non-performing loans to total loans in the EU, and Eurozone member states (2011-2015)



In fact, an important corollary of this trend has been the marked deceleration of credit flows over the years of relentless austerity. As exposed in Figure 5, the average growth of bank loans has registered a negative correlation with the size of fiscal drag during 2011-2015, with the steepest fall of credit supply observed, as expected, in the peripheral economies. However, apart from the volume of credit supply, strained financial climate and impaired balance sheets have also adversely impinge on lending cost, with loan rates being constantly higher in the periphery compared to core Eurozone economies since 2011, amidst diverging inflationary dynamics and demand conditions (iAGS, 2015).

Figure 5 Fiscal stance and credit expansion in the EU and Eurozone member states (2011-2015)



All these developments arise from the deflationary impact of pro-cyclical fiscal tightening, that lifts the real value of private debt and inhibits deleveraging and private spending. They also reflect an alarming break of the transmission mechanism of the ECB's monetary policy. Common policy rates are translated into different real interest rates across member states,

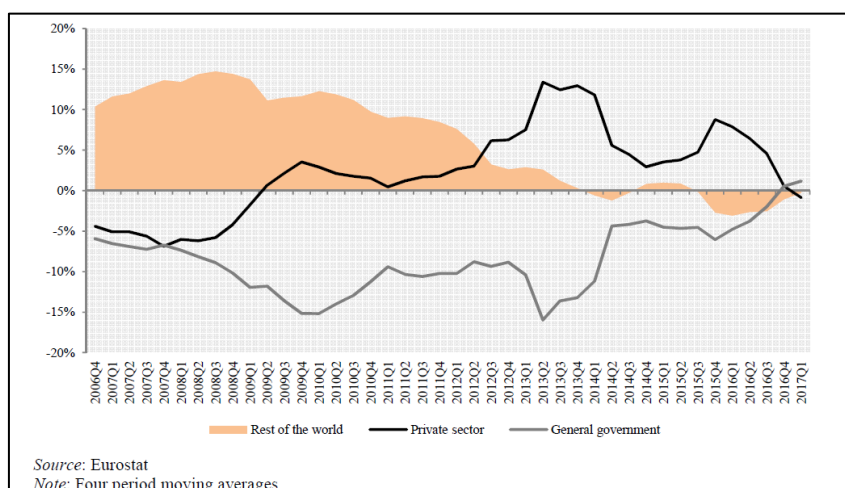
thereby entrenching solvency constraints and stagnation in the periphery. In doing so, the austerity-driven recession reinforces diverging dynamics in terms of growth and macroeconomic stabilisation within the Euro area (ibid).

In the light of the data set above, it appears that the purported expansionary outcome of fiscal discipline remains more a wishful thinking than a stylised fact. Instead of boosting private sector's confidence and expenditure, austerity exacerbates uncertainty and forces the private sector to economise, prolonging recession and financial instability. In the context of our analysis, this implies that fiscal austerity does not create incentives for the private sector to fully compensate for the contractive impact of consolidation efforts. The predicated result is therefore that macroeconomic adjustment will unavoidably stem from the drop in aggregate demand, employment, income and savings. This, however, will likely make things worse, eventually culminating in a self-reinforcing process of recession and financial instability, which will aggravate the economy's fiscal profile and long-term dynamics.

4. Implications of the austerity-driven policy for the Greek private sector

The austerity-driven policy of the past seven years had severe implications for the financial inflows of the private sector, given the inadequacy of Greece's productive capacity to contribute to the attainment of a sustainable current account surplus. Figure 6 provides an overview of how the financial balances of all the three institutional sectors have evolved during 2006Q4 - 2017Q1. Before 2009 both the government and private sector have been at a deficit net financial position, whereas the external sector's financial balance has been in surplus. This fact mirrors, and indeed is fully consistent with, the domestic demand-led growth model prevalent in Greece before the crisis, when public and private sector's spending constituted the primary demand engines of the Greek economy.⁸

Figure 6 Sectoral financial balances in Greece (2006Q4-2017Q, % GDP)



This condition virtually reflects the unsustainable track on which the Greek economy was evolving. In fact, the dynamics behind the unsustainability of the Greek economy resembled

⁸ For a similar discussion on balance sheet developments in the Greek economy, see INE GSEE (2016).

those prevailing in the US before the 2007/2008 financial collapse. The negative financial balance of the US private sector, along with large current account deficits, has been considered as one of the main process that rendered the US economic system unsustainable, ultimately leading to the financial crisis of 2007/2008 (Godley 1999).

In the case of Greece, the external sector was also experiencing a large financial surplus, reaching almost 15% of GDP in 2008. In other words, the liquidity flowing from the public to the private sector was offset by a financial outflow from the private to the external sector. The combination of these two processes, that is a private sector financial deficit and a balance of payments deficit, rendered the Greek economy clearly fragile. In this respect, the similarities between the US and the Greek economy are telling (Papadimitriou *et al.* 2013).

Nonetheless, things have profoundly modified with the advent of the global financial crash in 2007/2008 and the application of creditors' policy strategy thereafter. On the one hand, following the 2008/2009 fiscal breakdown spurred by the steep plunge in economic activity, austerity has succeeded in delivering an astonishing fiscal adjustment in the country, shrinking the hitherto excessively high deficit of the public sector. In addition, there was a substantial reduction of the balance of payments deficit confining considerably the out-flowing liquidity. Yet, this process has not been due to a restructuring of the productive sector, or the attainment of export-driven growth, as creditors' plan was supposed to deliver. As already stressed, the correction of the country's external imbalance has largely been driven by the sharp reduction in imports volume in the face of falling internal demand and economic slump (see Figure 1).

In any case, the financial balance of the private sector has seemingly improved after 2013, though the underlying dynamics driving its financial balance do not hind to an ameliorating of the financial conditions of the private sector. In particular, in 2013 and in the last quarter of 2015 the balance of the private sector improves due to the recapitalisation of the domestic banking sector. It is not surprising that, given the sluggish export performance and the continuous austerity the private sector is found again in the negative territory in the first quarter of 2017.

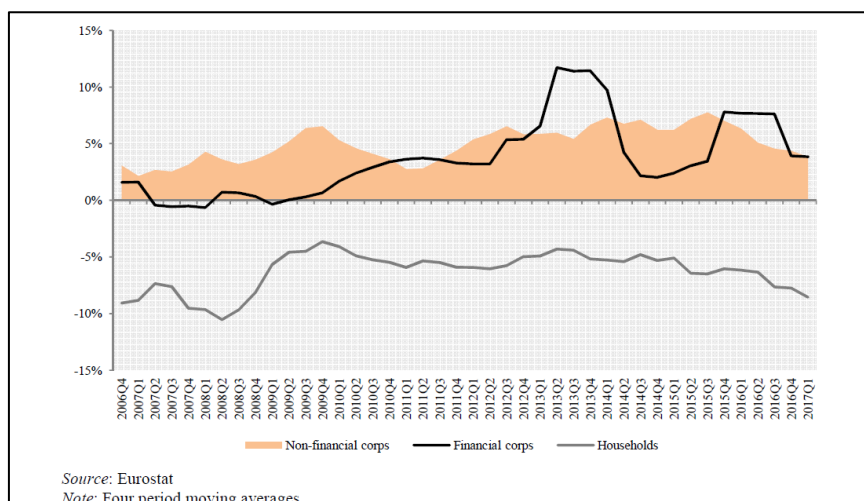
It is therefore apparent that austerity, along with the internal devaluation strategy, has virtually curtailed some of the most valuable sources of demand stimulus to the economy. Sensibly, this undesirable consequence of austerity measures is not only to blame for producing the unparalleled in scale socio-economic disruption experiencing Greece over the last seven years. More alarming, it has also propelled deep-seated ramifications in the economic behaviour and financial profile of each sub-sector of the economy, thereby mitigating uncertainty and instability in the entire macroeconomic system and circumscribing any real potential for sustainable and inclusive recovery in the country.

A clear picture of the changes brought about by the austerity regime can be drawn by Figure 7 that breaks up the aggregate financial balance of the private sector into its three constitutive components, i.e. households, non-financial corporations (NFCs) and financial institutions. From Figure 7, it follows straightforwardly that the observed inverse V-shaped trajectory of the private sector's financial balance can plausibly be explained by the increase in both NFCs' and financial institutions' savings.

The most alarming characteristic of this figure is the persistent negative financial balance of households. In parallel, NFC's and financial institutions both experience a positive financial

balance, with that of the former being on the rise at the peak of the recession, up until 2015. This state of affairs, in conjunction with the current account deficit, reflects the conditions prevailing in a debt-led consumption boom regime (Hein 2012, ch. 6).⁹

Figure 7 Intra-sectoral financial balances (Greek private sector, 2006Q4-2017Q1, % GDP)



In what follows, we shed some further light on the growth regime of the Greek economy through the provision of a detailed analysis on the evolution of NFCs' and households' financial balances. In particular, the focal point is turned on the factors that have contributed to their developments both before and during the crisis. The reason for focusing almost exclusively on households and NFCs' financial balances, leaving aside the financial sector, is two-fold. First, the financial sector, due to its very function and role in the economy, typically registers positive financial balance. As a result, changes in its financial balance will not add much to our understanding about the impact of austerity on the private sector spending behaviour during the crisis period. Second, and related to the previous assertion, we are interested in looking on how austerity has influenced financial balance developments in the 'real-side' of the economy, particularly on whether the regime of austerity has eventually induced private sector to expand or not.

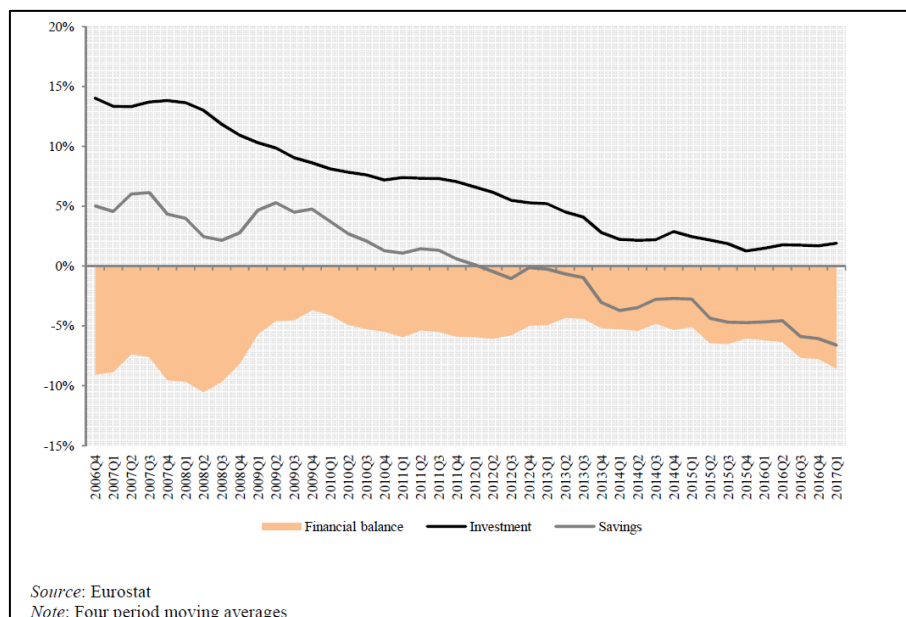
4.1 Household income, depression and deleveraging

The financial balance of households depends on the difference between gross savings and gross capital formation, provided that the net capital transfers are negligible.¹⁰ Figure 8 presents the evolution of the financial balance of the Greek household sector for the period 2006-2015. As already stressed above, households have run a deficit in their overall financial balance over the entire period under examination. However, the improvement of households' financial balance in recent years has been the result of the narrowing of the gap between savings and investments, which both nevertheless follow a simultaneous declining trend.

⁹ See also Dodig *et al.* (2016) for a similar argument.

¹⁰ The investment of households relate to housing and purchasing of durable goods.

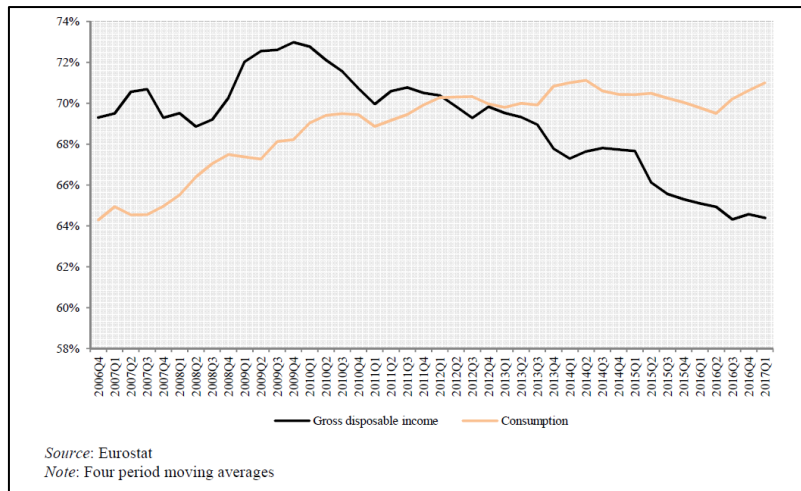
Figure 8 Gross capital formation, gross savings and financial balance of households in Greece (2006Q4-2017Q1, % GDP)



During the period of austerity not only households' investment, but also households' savings have collapsed. More in advance, a matter of utmost importance is that from 2013 the negative financial balance of the Greek household sector has primarily been due to an ever increasing volume of negative savings. In fact, the gap between savings and investment has increased during 2016, with negative savings exceeding the 5% of GDP. As argued below, this trend has created serious macroeconomic and financial implications, which lie at the heart of the undergoing economic and financial distress in the country.

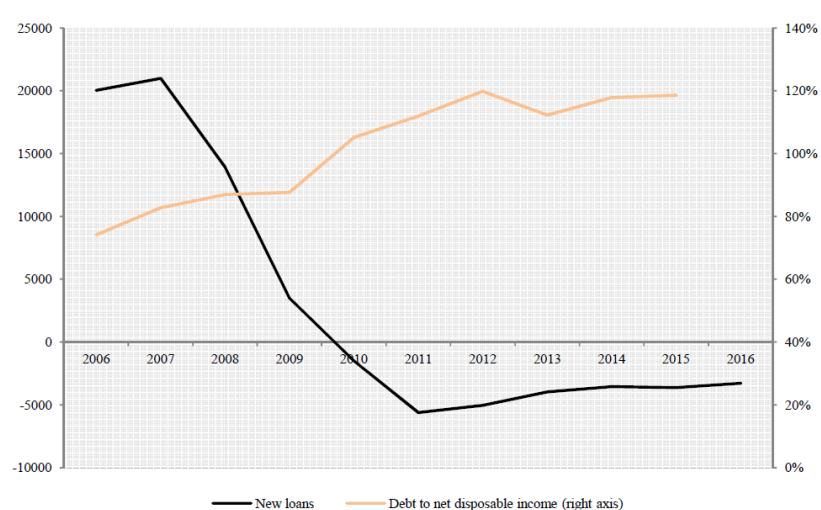
Such implications can be explained by Figure 9 that presents the evolution of households' consumption and gross disposable income during the period 2006Q4- 2017Q1. As can be seen, in 2009 households' disposable income has begun to decline as economic recession started to bite, and it has continued to do so subsequently following the dramatic rise of unemployment and the introduction of harsh austerity measures, typically tax hikes. A similar downward pattern is observed for households' consumption, which between 2008 and 2015 has registered a decline of 24 percentage points. It is notable that the decline of household consumption has been more modest than that of disposable income, thereby contributing to the squeeze of households' savings. Furthermore, from 2013 onwards the fall of private consumption has begun to wind down, with its level eventually exceeding that of disposable income. This development highlights households' efforts to maintain consumption and standards of living at a descent level in an environment of steadily declining disposable income and savings caused by austerity. Nevertheless, the reduction in households' income has produced further effects in the Greek economy that can also explain the economic decline and financial instability prevailing in Greece under the regime of fiscal austerity.

Figure 9 Households' disposable income and consumption (Greece, 2006Q4- 2017Q1, % GDP)



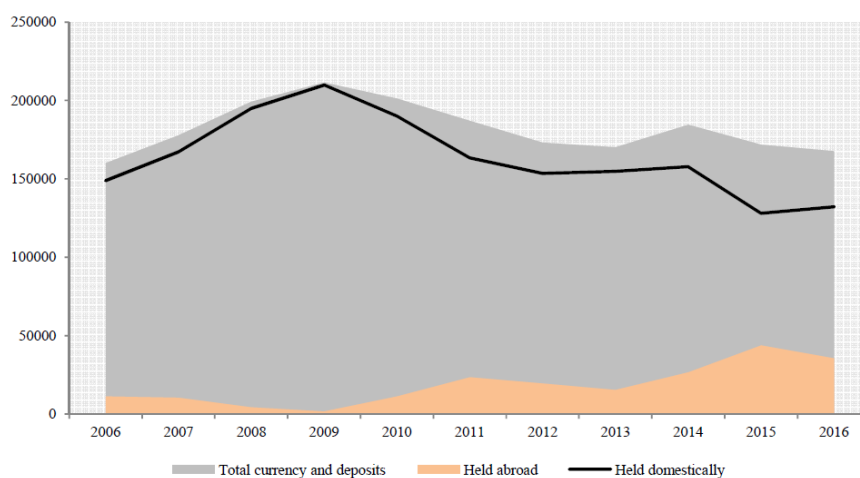
The first effect is associated with the astonishing rise of households' debt ratio despite the collapse of households' credit expansion (see Figure 10). As observed, the debt-to-disposable income ratio has been constantly on an upward trajectory from 2009 on, mostly due to the sharp decline of households' disposable income propagated by the economic crisis and the imposition of harsh austerity measures in the domestic economy. This process has severely degraded the financial structure of households, thereby exposing the Greek banking system to greater credit risk and eventually leading to a precipitous deceleration of households' credit expansion. As a result, Greek households have been forced to enter into a phase of deleveraging in the last eight years, which has negatively fed back on consumption and internal demand, thereby exacerbating economic decline and financial distress.

Figure 10 Household debt (as % of net disposable income) and new loans (in million euro) in Greece (2006-2016)



Clearly, with credit loans growth on a virtual collapse during the recent years, the possibility for a credit-boom expansion in the Greek economy cannot be envisaged. Similarly, debt-fuelled excessive consumption is also rejected. As a result, the part of the consumption exceeding households' disposable income has been primarily financed through households' private wealth. Figure 11 partially corroborates this assertion, exhibiting the evolution of households' currency and deposits in Greece during the period 2006-2016. It is plainly evidenced that the total volume of households' currency and deposits has been on a constant decline throughout the period of relentless austerity.¹¹

Figure 11 Households' currency and deposits held domestically and abroad (Greece, 2006-2016, million euro)



Source: Bank of Greece

Although this reduction in households' wealth may have in the short-run a positive effect on consumption and GDP, this trend is clearly unsustainable in both economic and social terms in that it has brought with it an irritating deterioration of living standards in the country. In fact, anchored poverty in Greece has nearly doubled over the last five years, with income inequality spreading and an ever-increasing share of ordinary population suffering today from episodes of severe material deprivation. Under such circumstances, it is clear that being locked to the bandwagon of harsh austerity is not a recipe for descent recovery, but certainly one of further deepening economic crisis and social insecurity in the country.

All in all, the imposition of the austerity regime in Greece has sparked profound transformations in the wage-consumption nexus within the Greek household sector with serious macroeconomic and financial implications. Public spending cuts, tax increases and labour cost restraint enforced by the country's creditors' agenda have succeeded nothing more but in slashing income streams towards households, hence provoking an unduly negative shock to their disposable income and consumption spending in the economy.

At macroeconomic level, this has choked off internal demand and employment creation, thereby impeding GDP to gather momentum and public finances to improve through increased tax receipts. Caught in an inexorable austerity trap, Greek households have thus struggled to sustain consumption levels and pay off debt obligations by depleting savings and

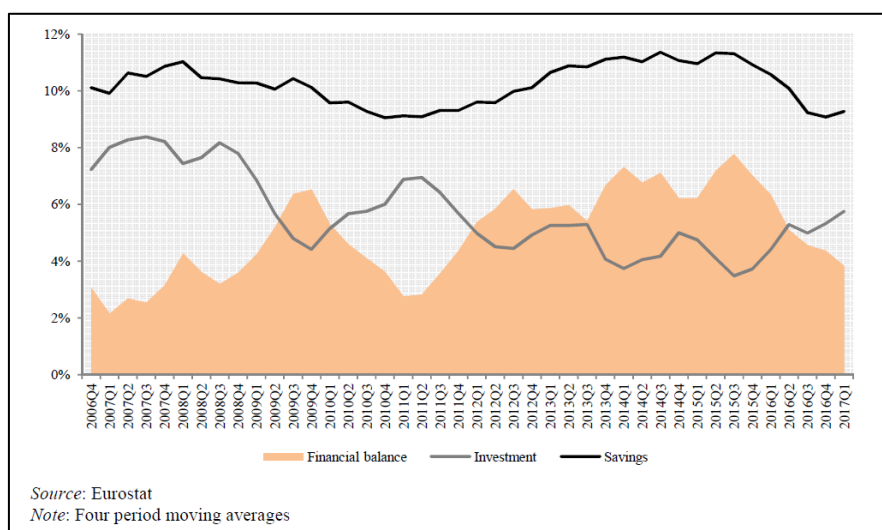
¹¹ According to data provided by the Bank of Greece, the one-off rise of deposits in 2014 is attributed to the liquidation of non-registered equities, mirroring the state of uncertainty of the Greek households.

liquidating accumulated financial wealth, so raising their solvency and credit risk and gravely disrupting the entire financial and macroeconomic system of the country. The extent and depth of the Greek crisis could in large part be attributed to these disruptive outcomes of austerity that have ultimately created poverty, inescapable indebtedness and little prospects for a sustainable recovery of the economy.

4.2 Austerity and balance sheet adjustments in the non-financial corporate sector in Greece

Unlike households, the financial balance of non-financial corporations (NFCs) has been on a positive net position throughout the 2006Q4-2017Q1 period. As exposed in Figure 12, NFCs' gross capital formation has been rather sluggish prior to the crisis. For instance, in 2007 the level of investment slightly exceeded the 8% of GDP when the corresponding magnitude for households was close to 15% of GDP. In retrospect, the adoption of the euro currency provided little gains for Greece in terms of productive investment. The lower interest rate bound to the Euro Area membership and the corresponding financial deregulation rendered the access to credit easier for firms and households. However, it was only the latter that took over higher debt for investment purposes, which by default do not add to the productive capacity of the economy. On the contrary, new credit provided to firms was mainly used for the financing of operating costs.

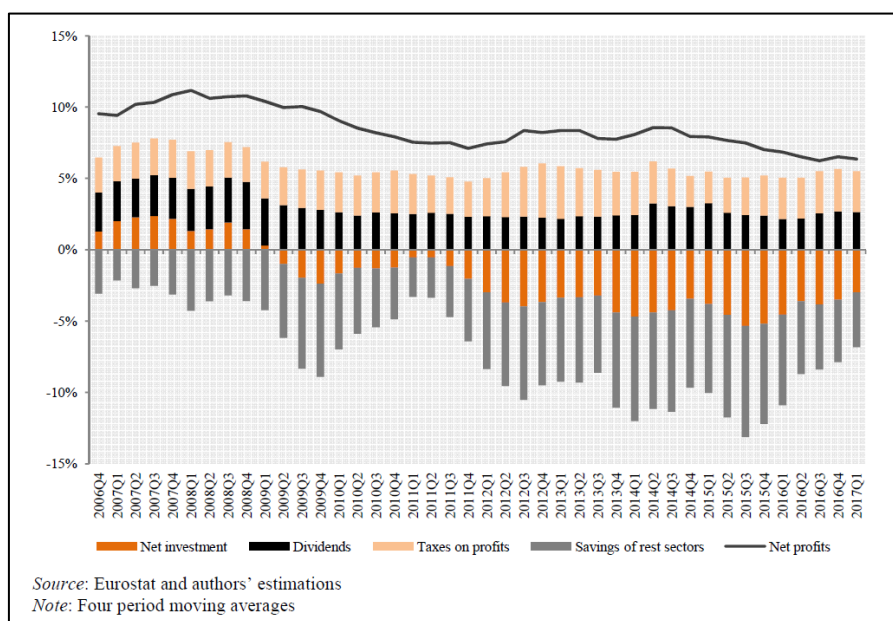
Figure 12 Gross capital formation, savings and financial balance of NFC's in Greece (2006Q4-2017Q1, % GDP)



After the outbreak of the crisis, the NFC's investment followed a declining trend, picking up only moderately at 2014, before dropping again in 2015, mainly due to the high uncertainty amidst the negotiation process between the Greek government and the troika at that time. Investment is steadily growing since the third quarter of 2015, but at a pace unable to prompt robust growth. Meanwhile, NFCs' gross savings have fluctuated slightly around their initial levels, something that contributed to the increasing surplus of NFCs over the last six years. A likely explanation for this is that firms have sought to retain funds to meet their debt payment commitments that have accumulated in the past years within a highly unstable and uncertain macroeconomic environment and in response to weak demand conditions due to austerity.

An important side-effect of austerity and a notable corollary of NFCs' unsatisfactory investment performance has been the significant drop of corporate profits. Figure 13 sheds some light on this effect, depicting the level and the main determinants of NFCs' profits for the period 2006Q4-2017Q1.¹² It is clear that the total volume of NFCs' profits has recorded for the entire period under consideration a remarkable decline. A prominent reason behind this development has been the damaging process of disinvestment that has commenced in 2009, with net capital formation staying since then persistently at a negative territory, having a detrimental impact on the productive capacity of the economy. Therefore, austerity has not only adversely affected corporate investment performance, but, in so doing, it has also led to a gradual reduction in corporate profits. On the other hand, the persistent financial deficit of households and the improvement in the balance of payments have provided some stimulus to corporate profits, thereby weighting on the destructive impact of austerity-driven disinvestment on NFCs' cash flows. Nonetheless, this condition is highly unsustainable as long as profits depend on households' dissavings. Against this backdrop, it becomes obvious that continuing with creditors' restrictive policy mix is very likely to further feedback negatively on NFCs' investment and profits in the foreseeable future, thereby reinforcing economic decline and financial stability in Greece.

Figure 13 NFCs' net profits and their main determinants in Greece (2006-2015, % GDP)



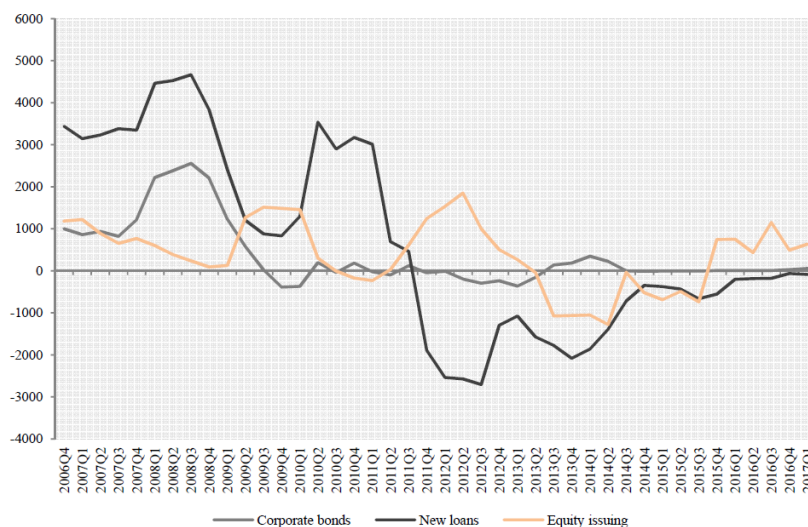
Important conclusions can also be drawn by examining the level and the evolution of NFCs' external financing between 2006 and the present. It is clear that prior to the crisis, Greek NFCs have predominately made use of the traditional banking channel of borrowing (see Figure 14). On the flipside, capital markets have, as a rule, constituted a rather minor, if not negligible, source for the NFC to raise capital and finance investment projects.

The global financial crisis in 2007/2008 and subsequently the imposition of austerity measures in the country have profoundly altered this pattern both in terms of the total volume

¹² In order to investigate the impact of austerity on NFCs' net profits, we have made use of the wellknown Levy–Kalecki profit equation (see Levy 1943, Kalecki 1971), i.e. $P=NI-NFS+D+T$, where P denotes net profits; NI , net investment; NFS , non-firm savings; D , dividend payments and; PT , taxes on profits.

of credit provided to NFCs and the relative significance of external sources of financing. Following the global financial shock and the economic crunch caused by austerity, the amount of NFCs' new loans from the banking sector has virtually collapsed. Borrowing from capital markets has followed a similar, though more moderate, pattern, eventually becoming the main source of external funding for the Greek NFCs. Arguably, such changes uncover the destructive impact of austerity on the health and orderly function of the domestic banking system and thereby on the supply of credit. They are also indicative of the sharp fall of credit demand brought about by the ongoing deleveraging process in the Greek corporate sector as a result of the collapse of internal demand.

Figure 14 NFC's external sources of financing (Greece, 2006Q4-2017Q1, million euro)



Source: Bank of Greece

Note: Four period moving averages. The new loans during 2010 seem higher due to new accounting rules of the BoG and not because of real phenomena.

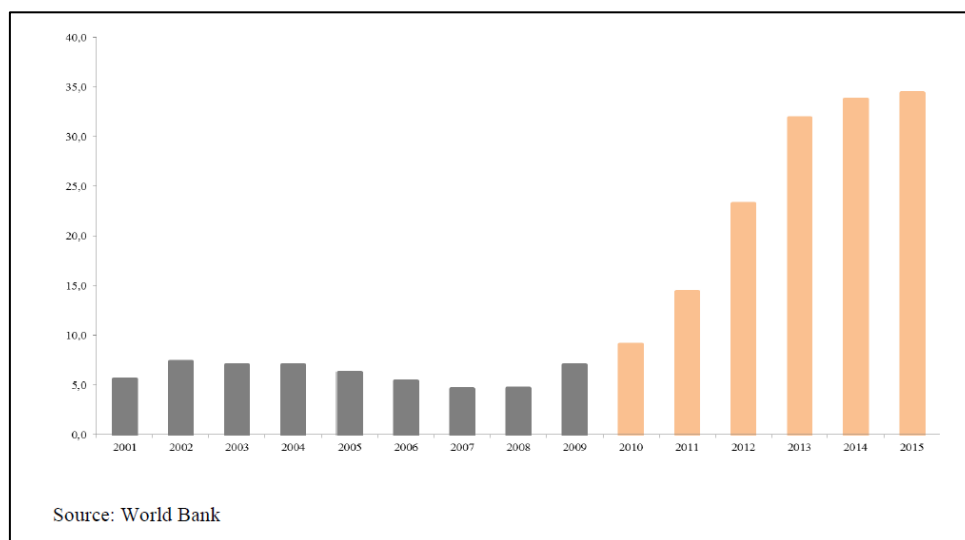
Against this backdrop, the EAPs have done nothing more but to establish the conditions for a balance sheet recession in the economy,¹³ with both firms and households reducing borrowing in an attempt to meet their payment commitments. Consequently, the policy mix of exceptionally front-loaded fiscal tightness and internal devaluation does not represent a viable prescription for Greece to exit the crisis, but one of deepening and perpetuating deficient demand conditions, economic decline and financial turmoil in the country. A prominent reason behind this failure is that the Greek economy has been, and still is, functioning under a wage-led regime (see Onaran and Obst, 2016 and INE GSEE, 2015) and lacks an export-oriented, tech-intensive, competitive productive structure. In the absence of a dynamic external sector to compensate the contractive effects of creditors' strategy, Greece is therefore doomed to be stuck in a low demand-low liquidity trap that systematically sustains its economy's solvency risk and undermines any possibility for a quick and sustainable economic recovery in the near future. Hence, an ambitious and credible crisis resolution strategy cries out either for the complete reversal of the current creditors' strategy or for the restructuring of the productive sector, or both. Alas, austerity has provoked such profound transformations in the financial and economic structure of the private sector that inevitably makes it harder for this prospect to be realised.

¹³ For more on balance sheet recession see Koo (2011).

4.3 Implications for the financial sector

What merits particular attention for evaluating the impact of austerity on the Greek economy is also the effect of the deleveraging process in which both NFC's and household sector are entrapped in recent years, on the financial soundness of the banking sector. The importance of this issue becomes even greater in view of the enormous pressure that exerts the interplay between deleveraging dynamics and credit expansion on the private sector's solvency status and thereby on the ordinary operation and stability of the entire banking system in the country. A good starting point for analysing the disruptive impact of austerity on the country's financial stability could be the examination of the evolution of non-performing loans in Greece. Figure 15 shows the fivefold rise of the ratio of the non-performing loans in gross loans in 2015 as compared to 2009. Especially in 2011 and 2012 the ratio has registered an annual increase by 58% and 62%, respectively.

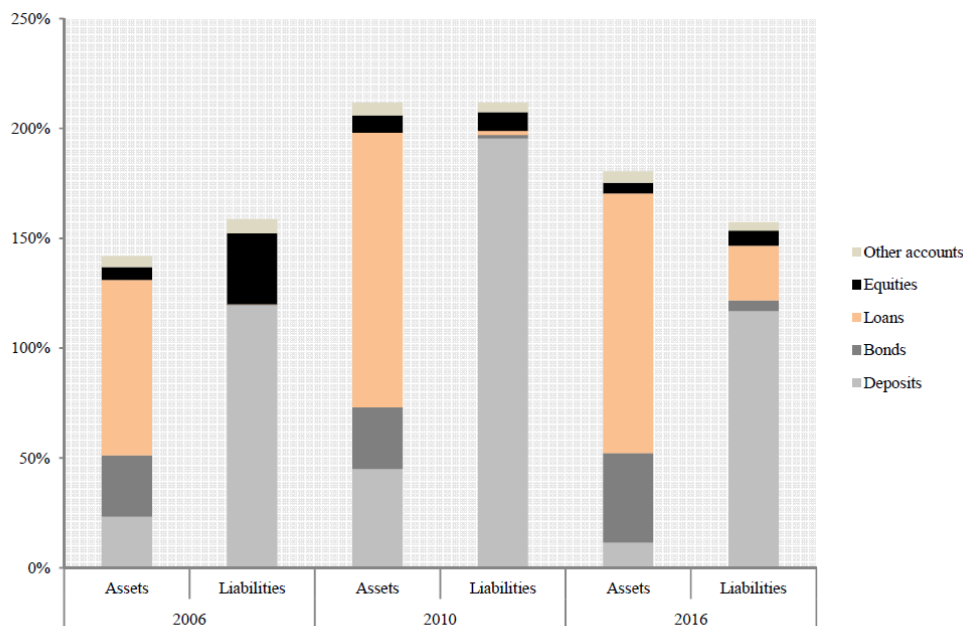
Figure 15 Non-performing loans over gross loans (%), Greece (2001-2015)



Such an astonishing increase in the volume of non-performing loans has in turn adversely impinged on money demand and the provision of bank credit in the Greek economy. Amidst the deleveraging process on the internal front and the restricted access in the foreign markets, the financial status of the domestic banking sector is rather fragile. This becomes apparent in Figure 16 in which the balance sheet of the banking sector is reported, expressed as a ratio of GDP.

Banks' balance sheet which has been inflated between 2006 and 2010, partly due to the drop of the GDP in 2009 and 2010, eventually followed a steep reduction in the austerity period. The fall in the overall assets and liabilities is even greater than the one depicted, if the fall of the GDP is taken under consideration. What is most troubling for the financial sector is that the majority of assets are consisted of loans provided to the rest sectors amounting to 118% of GDP. Taking under consideration that more than one third of these loans are non-performing (see Figure 15), the financial repercussions of the austerity-driven policy are likely to be severe in terms of fragility.

Figure 16 Balance sheet of the Greek banking sector (2006-2016, % GDP)



Source: Bank of Greece and authors' calculations

This pessimistic overview is enhanced by the conditions prevailing on the liability side. The overall debt of the banking sector amounts to 150% of GDP, with deposits being an important, yet decreasing, constituent of the liabilities. It comes not with surprise, the fact that the loans that the banking sector has received, which correspond to its recapitalisation in 2015 currently standing at 25% of GDP, constitute the second most important element of the balance sheet on the liability side. Given the continuation of austerity conditions and the deleverage process of the private sector it would not be unrealistic to expect a further recapitalisation of the banking sector in the near future.¹⁴

5. Conclusion

After seven years of painstaking austerity and wide-ranging neoliberal reforms, the Greek economy continues to be engulfed in a highly unfortunate situation of protracting deflation, skyrocketed unemployment and financial instability, with the prospects for a quick and robust recovery still remaining gloomy and highly uncertain. The depth and duration of the Greek crisis vividly highlight that austerity as both theoretical concept and policy option has failed to deliver its promised outcomes. This paper has attempted to provide an alternative framework for explaining the economy's negative track record, by focusing on the adverse impact of austerity on the overall performance and financial stability of the private sector. We have argued that in an economy such as Greece any effort to bridge fiscal imbalances through austerity is both futile and counterproductive. Contracting internal demand and depriving the economy of liquidity, it only adds solvency problems, hence destroying the economy's actual and future growth capacity.

¹⁴ For instance, if the non-performing loans are excluded from the balance sheet, then the net worth of the Greek banking sector is negative.

There is no doubt that Greece is today in the urgent need for turning the page on the creditors' failed experiment and moving on a new, socially inclusive, policy strategy agenda that would be fully compatible with and responsive to the idiosyncratic aspects of its economy. At first stage, this change requires a deep understanding of the specific structural characteristics of the Greek economy and an awareness of its position within a highly heterogeneous and quite fragmented monetary area. Against this background, a pragmatic approach to dragging the country out of the crisis should arguably involve concrete actions at least two different, though interconnected, levels. At domestic level, Greece needs a positive demand shock through the enactment of various consumption-enhancing measures that would stabilise the macro and financial environment and thereby provide adequate incentives for productive investment. Important measures in this direction could be the undertaking of ambitious employment creation programmes, the mobilisation of an innovative investment agenda to foster the economy's growth potential, as well as the implementation of a range of progressive reforms in labour markets for supporting social cohesion and stability (see INE GSEE 2015). Needless to mention, such a reform agenda should be part and parcel of a wider plan for modernising and advancing the economy's productive capacity.

It is clear that any viable crisis resolution agenda for Greece could not be stamped with success without being accompanied with a profound reconstruction of the institutions governing the Eurozone. In fact, EMU should undertake a thorough reform, abandoning its unreasonable and harmful fixation on price stability, budgetary discipline and labour market deregulation and embarking on a new progressive policy strategy that would put employment creation, financial stability and improved living standards as top policy priorities. For this to happen, the mandate and monetary operations of the ECB should alter and be put at the service of a common fiscal regime entrusted to deliver macroeconomic stability and rapid economic growth in the euro area. Moreover, EMU-wide, labour protective regulations should also be put in place to assure descent wages and working conditions with a view to operate as a buffer stock against deflation, support the level of internal demand and sound financial conditions. These changes would not only foster economic recovery in Greece. They would also stabilise EMU and create the conditions for pushing Europe to a more sustainable, more just and more balanced growth trajectory.

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Why Buddhist economics is needed: overcoming large scale biophysical and socio-economic dysfunctions¹

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Introduction

Every society has a particular world view that reflects their people's values, especially their values concerning how their economies should function. The world view of Western societies has typically reflected to a considerable extent the principles and concepts of mainstream economics. In recent years, an alternative to mainstream economics, Buddhist economics, has been increasingly discussed; it incorporates a world view very different from the world views of Western economies (see, for example, Brown, 2017 and Magnuson, 2017). There is good reason to believe that, due to Western economies' reliance on mainstream economics, these economies are deficient with regard to dealing with issues like social justice and environmental sustainability. The purpose of this paper is to explain how these two world views differ and why, in light of the very difficult problems facing the world, adopting the values and perspectives of Buddhist economics can be expected to do much more to overcome large scale socio-economic dysfunctions and improve societal well-being than can be expected from utilizing the world views of industrial capitalist economies (see Zadek, 1997, pp. 241-243).

Mainstream economics has focused on individual, self-interested motivation, and it has viewed people's desires as socially determined and given. On the other hand, according to Buddhist economics, people are often suffering and struggling to overcome their socially programmed desires, their strong self-interests, and their desires to take advantage of others (Zadek, 1997, p. 242). Arguably, Buddhist economics is better equipped to understand people's collective concerns and interrelationships. Mainstream economists' analyses of human behavior all too often boil down to evaluating how individuals assess the benefits and costs of their prospective actions. Due to mainstream economics emphasis on self-regard as opposed to regard for others, it places little value on relational virtues such as generosity and compassion. In mainstream economics, relationships are typically a means for achieving something else; whereas in Buddhist economics relationships are an end in itself. Mainstream economics attempts to be value free. Buddhist economics, on the other hand, is explicit about its values and ethics (pp. 242-243).

As Zadek (1997, p. 244) and others have recognized, an economy needs to be built on an explicit set of values, values that are associated with and contribute to true human well-being. I argue here that there are many reasons to believe that if societies were to adopt Buddhist economics and follow its dictates this would improve societal well-being, as societies would experience less social and environmental dysfunction. This is because important contemporary dysfunctions such as climate change, chronic diseases (for example, obesity and cancer), and other severe social problems will be substantially lessened if people were to

¹ Tom DiCiurcio, Len Marowitz, and Marianna Khachatryan read early versions of this paper and made comments that led to improvements in the paper.

live in accord with the values and morality of Buddhism. To put it another way, we need Buddhist economics because “mainstream economics helplessly legitimizes the convergence of the world economy towards an uncontrollable explosion of excesses and inadequacies of almost every conceivable form” (p. 246).

The plan of the paper is as follows. Section 1 explains about the essential nature of Buddhism, its fundamental teachings and values, and its importance. Section 2 explains how the world views embodied in Western economies differ from the world view of Buddhism. Section 3 explains how the world views of Western economies contribute to the biophysical and socio-economic dysfunctions that are all too common today. Examples of these dysfunctions are provided and analyzed. Section 4 argues that the adoption of Buddhist economics is essential if the world's societies are to make significant progress in overcoming the dysfunctions. Section 5 concludes.

Buddhism

Buddhism deals with the spiritual realm. It concerns wisdom about how best to live one's life in light of the realities of human existence. To understand the essence of Buddhism, it is important to start with the most basic teachings of the Buddha, i.e., the Four Noble Truths. The first of these truths is the existence of suffering. Suffering includes birth, old age, sickness, and death as well as anger, jealousy, worry, anxiety, despair, dissatisfaction, and discontent. The second truth is the cause of suffering. Suffering occurs because of ignorance of important life truths that cause people to cling, crave, or otherwise become attached to external worldly phenomena in the erroneous belief that their possession will bring sustained, consummate happiness or satisfaction (Nhat Hanh, 1991, p. 147; Daniels, 2010, p. 957). The third truth is that there is a way out of suffering. We can free ourselves from attachment and clinging by making transformative life changes (Magnuson, 2017, pp. 31-35). To make such changes requires us to gain understanding of important life truths, gaining the wisdom that not only enables us to cease suffering but to realize the rise of peace and joy (Nhat Hanh, 1991, p. 147). To overcome suffering, people may need training and changes in their mental attitudes (Daniels, 2007, p. 162). Old harmful habits of thought and action need to be dissolved. The fourth truth is that there is a path (along with particular practices) that leads to the cessation of suffering. This path is known as the Noble Eightfold Path. “The Eightfold Path details the multifaceted nature of changes in understanding, mental processes, patterns and thoughts, and actions and behavior that are required for progress towards reducing suffering” (p. 162; see also Magnuson, 2017, pp. 35-38). At the heart of this path is living mindfully. Mindfulness involves the kind of concentration and understanding about oneself and others that helps us live compassionately and with peace and joy (Nhat Hanh, 1991, p. 147).

“According to the teachings of Buddhism, human beings are born in a state of ignorance. Ignorance is a lack of knowledge, and it is this lack of knowledge that causes problems in life” (Payutto, 1998, p. 29). This is because people without knowledge or wisdom simply follow their desires or cravings for sense pleasures. When people act in a blind craving manner, they are unable to perceive what is of true benefit (pp. 29-33). However, “when ignorance is replaced with wisdom, it is possible [for people] to distinguish between what is of true benefit and what is not” (p. 33). Wise actions occur when people's efforts and actions are founded on intelligent reflection. If not, people's actions will too often be based on self-interested feelings and ignorant reactions. When people acquire knowledge and wisdom during their lives, they can become more skillful and improve their relationships with people and the things around

them. Then they are much more inclined to act out of a desire for the well-being of others (p. 36).

According to Buddhism, “human beings are naturally endowed with a special aptitude for development” (Payutto, 1998, p. 33). While Buddhism recognizes humans’ ignorance and cravings, it also recognizes humans’ desire for self-improvement through the acquisition of knowledge and wisdom. When people through substantial effort gain wisdom, they are able to intelligently reflect on their life situations and understand the nature of true well-being. Accordingly, they will tend to make choices that are right and beneficial (pp. 33-34). In the absence of positive human development, people are too often led to choose “objects which pander to [their] self-interests and are supported and nourished by ignorance” (p. 34). To summarize, when our chosen efforts are based on ignorant desires for worldly phenomena, which we strongly cling to, and are not based on intelligent reflection, we are not led to choose beneficial outcomes. On the other hand, when our chosen efforts are founded on wisdom and intelligent reflection and not based on clinging to desires serving our self-interests, it leads us to choose truly beneficial outcomes.

“From the Buddhist point of view, economic activity should be a means to a good and noble life. Production, consumption, and other economic activities are not ends in themselves; they are means, and the end to which they must lead is the development of well-being within the individual, within society, and within the environment” (p. 35).

Note that another fundamental economic activity is acquiring wealth. The purpose of wealth acquisition (and other economic activities) should be to facilitate the development of the highest possible human potential and thereby contribute to people’s overall well-being (p. 36). Having some wealth certainly contributes to person’s material security but in addition it provides a foundation for people’s mental well-being and inner freedom. Also note that Buddhism makes a distinction between outer (material) wealth and inner (spiritual) wealth. Inner wealth “includes our capacity to appreciate our experiences and relationships and life as it unfolds around us” (Brown, 2017, p. 22).

Another important Buddhist teaching is the “pervasive theme of interconnectedness and interdependence of all things in existence” (Daniels, 2010, p. 956). This relates to Buddhism’s concept of causality. According to that, the reality of any thing is understood to be dependent on the thing’s connections to all other phenomena despite what might seem to be the thing’s independent existence. An example of this is one’s self. One’s “self” is [conceived of as] an agglomeration of constantly changing physical and mental constituents” (Zsolnai, 2007, p. 145). The essence is that the condition and character of anything (for example, a flower, tree, chair, lake, etc.) is “determined by that of all other entities in the universe through a complex web of cause and effect” (p. 957). The manifestation of a flower, for example, depends on such things as rain, clouds, sun, earth, and human and animal actions. This is understood to be an aspect of the truth of universal oneness. Our human selves are thus understood to be part of the oneness of all things; we are not independent unconnected entities. This relates to the first and second noble truths. When we think of ourselves as independent selves having a specified character, we are no doubt clinging to an erroneous concept of ourselves (Stanley, Loy, and Dorje, 2009, p. 9). This in the view of Buddhism is an important cause of our suffering.

Buddhism distinguishes two kinds of value reflecting the two kinds of desires considered earlier: 1) desires based on wisdom and intelligent reflection, and 2) ignorant desires for worldly phenomena. The first kind of value, true value, is associated with the first type of desire. “A commodity’s true value is determined by its ability to ... [provide] well-being” (Payutto, 1998, p. 40). The second kind of value, artificial value, relates to “a commodity’s capacity to satisfy the desire for pleasure” (p. 40). According to Payutto, “fashionable clothes, jewelry, luxury cars, and ... [goods that are status-symbols] contain a high degree of artificial value because they cater to people’s vanity and desire for pleasure” (p. 40). Goods that are craved due to their sensual appeal tend to have a strong degree of artificial value. And too often people’s desire for goods with artificial value can overwhelm their desire for goods with true value. Right consumption, according to Payutto, involves using goods that satisfy true values, whereas wrong consumption involves the use of goods satisfying artificial values (p. 41). Moreover, when people heedlessly indulge in goods which largely have artificial value, especially goods that are likely to lead to harmful effects on the user or others, they will suffer a loss of true well-being. It is notable that when many people compulsively consume goods whose values are mainly artificial, that tends to breed societal dissatisfaction (pp. 41-42).

The above Buddhist view regarding the true and artificial values of consumer goods is similar in some respects to Tomer’s (2008; see also Daniels, 2010, p. 957) analysis of consumer preferences. Tomer distinguishes three types of consumer preferences: actual preferences, metapreferences, and true preferences. A person’s actual preferences reflect his or her wants and desires when the individual makes an ordinary choice among alternative goods (Tomer, 2008, p. 1706). Metapreferences are a person’s preferences about one’s actual preferences. A person may reflect on his actual preferences, judge their worth, and find that he aspires to better (or different) preferences than he has. These better preferences are his metapreferences. In contrast to the first two preference types, true preferences are a person’s ideal preferences; they are the preferences that “represent the ultimate, unique truth about what is really right and best for that person” (p. 1706). Further, “true preferences are the preferences that a person would have if she were perfectly informed and on the path toward becoming a fully self-realized and spiritually enlightened human” (p. 1706). If a person were consistently choosing goods that have a very high degree of true value, it makes sense that she would be choosing in line with her true preferences.

What is the true purpose of our consumption of goods and services? In the Buddhist view, the answer is that although consumption may satisfy many different desires such as the desires for pleasurable tastes in the case of food, desires for status in the case of many luxury items, desire for interesting experiences in the cases of travel and entertainment, ultimately the true purpose of consumption according to Buddhism is to provide well-being (Payutto, 1998, pp. 41-42). If consumption involves indulging oneself in order to satisfy desires without consideration of its harmful effects, that is, without consideration of whether it is consumed compulsively, whether the consumption is associated with pathologies, or whether the consumption is nutritious and otherwise physically and mentally healthy, then the consumption is not likely to contribute to our true well-being. In other words, unless the consumption is contributing in some significant way to our physical, mental, and spiritual health and welfare, and thereby, contributing positively to some aspects of our human development, it is not contributing to our true well-being (p. 42).

The wisdom of moderation is at the very heart of Buddhism (Payutto, 1998, p. 42). Recall that the values of Buddhism are oriented to the objective of attaining human well-being, not to satisfying endless desires or attempting to maximize the satisfaction of desires. When well-

being becomes the goal, it helps to control economic activity, thereby limiting excess, over consumption, or over production (p. 42). This is because with the focus on well-being people can take the time to reflect on their true purposes. And then they tend to produce or consume the “right amount”, i.e., not too much. Instead of economic activities being controlled by market events like shortages or scarcities, they are controlled by an appreciation of moderation. One example of how this appreciation is fostered is that “Buddhist monks and nuns traditionally reflect on moderation before each meal” (p. 42). In general, Buddhists’ aspire to moderate the use of all goods by “taking the time to reflect on [goods’] true purpose, rather than using them heedlessly” (p. 42). Food, for example is eaten “not simply for the pleasure it affords, but to obtain the physical and mental energy necessary for intellectual and spiritual growth toward a nobler life” (p. 42).

How the world views of Western economies differ from the world view of Buddhism

The world views of Western economies are strongly influenced by the perspectives of mainstream economics, and those world views are fundamentally different from the world view embodied in Buddhism. As mentioned earlier, mainstream economics is solidly based on individual self-interest motivation. According to this view, individuals are strongly motivated to satisfy the many desires of their ego. More specifically, they seek to obtain goods and services and acquire wealth in a way that maximizes their satisfactions. Relationships and interactions with others are generally sought only as a means to achieving other ends (Zadek, 1997, p. 243). In mainstream economics, “even if one gets what one desires, greater desires always emerge. The ego mindset cannot be fulfilled” (Zsolnai, 2007, p. 146). This generally results in greedy behavior, i.e., excessive self-interest seeking, not to mention suffering. Further, people are encouraged to develop greater desires so that businesses will have growing demand for their products. This strong orientation to desiring consumer goods contributes to people’s materialistic values which have been found to be associated with lower personal well-being and psychological health compared to people whose materialistic orientation is lower (p. 148). The hallmark values of Buddhism such as wisdom, generosity, compassion, loving-kindness, moderation, human development, minimizing suffering, and true well-being are not the values embodied in the world views of Western economies. It is noteworthy that an important part of the difference between the perspectives of mainstream economics and Buddhism is the concept of self. Whereas in mainstream economics the self is permanent and unchanging, in Buddhism the self consists of continually changing physical and mental constituents. According to Buddhist teachings, individuals can reduce their suffering by letting go of their clinging to their selves’ desires. Thus, Buddhists understand the individual to be “selfless”, even though the self is understood to be an essential determinant of a person’s individual interactions (p. 146).

Mainstream economics accepts people’s desires as a given; they are not something to be questioned. These desires are merely an individual’s motivation to act in order to attain satisfaction for the self. In contrast to this, as indicated earlier, Buddhism approves of individuals’ actions to acquire and use goods that provide true value but does not approve of goods providing only artificial value. In other words, Buddhism approves of goods that are in accord with people’s true preferences, goods that contribute to human well-being and development. Moreover, Buddhists have high regard for consumption decisions that are based on wisdom and intelligent reflection, not decisions based on ignorant desires for pleasure which often have harmful effects and do not contribute to true well-being.

How the world views of Western economies contribute to biophysical and socio-economic dysfunction

The basic purpose of this section is to explain why competitive markets, especially those in Western capitalist economies, are often seriously dysfunctional in biophysical and socio-economic ways. Let's consider the nature of these problems starting with those having a biophysical impact on the earth's environment. It is becoming more and more apparent (and harder to deny) that human activities on the Earth are having, and are likely to increasingly have, massive negative consequences. This is due to the

“biophysical scale of human activities ... [that are] having substantial impacts upon conditions for life within the ecosphere. A partial list of evidence includes the human-induced loss of fisheries, forests and wetland, the unprecedented rate of species extinction, ... extensive land degradation through desertification, soil erosion and salinization, water quality and availability problems, and the ... imminent and severe potential of global warming and peak oil. These impacts all stem from the significance of the material or energy scale of human intervention in natural cycles and processes such as carbon, water, nitrogen, and phosphorous cycles and net photosynthesis” (Daniels, 2007, p. 155).

While there is much evidence of the Earth's biophysical dysfunction, there is also growing recognition of many types of serious socio-economic dysfunctioning. Among the latter are the dysfunctions contributing to the increasing incidence of obesity, serious chronic ailments such as cancer, heart disease, stroke, Alzheimer's disease, and diabetes, and ailments deriving from adverse childhood experiences related to poverty and inequality (see, for example, Tomer, 2016).

Why don't the competitive markets in Western capitalist economies serve us well by contributing to the diminishment of biophysical and socio-economic dysfunctions? One important part of the answer can be found in Akerlof and Shiller's book *Phishing for Phools: The Economics of Manipulation and Deception* (2015). This book carefully explains how competitive markets often fail in the sense of not serving the interests of consumers. Market failure is indicated when consumers wind up paying too much for products they do not need. At the heart of the failure is the manipulation, deception, and trickery committed by negatively opportunistic, excessively self-interested businesses that are oriented to profiting by taking advantage of their customers (Tomer, 2017). According to Akerlof and Shiller, these “phishing” companies are actively seeking to learn about consumers' lack of information, biases, emotionality, and other weaknesses that make these consumers vulnerable. Once companies understand consumers' vulnerabilities, they can figure out how to take advantage of this knowledge at the expense of the customer (p. 8). Essentially, these opportunistic companies are “about angling, about dropping an artificial lure into the water and sitting and waiting as wary fish swim by, make an error, and get caught” (Akerlof and Shiller, 2015, p. xi). This exploitive conception of business behavior is largely in accord with the business norms prevailing in Western economies and is not inconsistent with conceptions of business behavior found in mainstream economics.

There is another way to understand why markets in Western capitalist economies tend to serve us poorly with regard to biophysical and socio-economic dysfunctioning. The essence is that businesses and consumers in Western economies generally do not behave in ways that

contribute to ideal economic functioning. Let's consider how these business and consumer behaviors are important to understanding the dysfunctioning. First, people in Western economies typically consume goods without much thought or reflection. They do not make the efforts that would be necessary to discover their true preferences, the ideal preferences that are really right and best for them. They consume too many goods high on artificial value and low on true value. As a result, the goods and services they consume do not contribute a lot to their own true well-being or to their society's well-being. It can be argued that these consumers do not progress very far on the path of human development. Too often such consumers wind up choosing goods that are unhealthy or otherwise harmful. The upshot is that the consumption behavior of people in Western economies can generally be characterized as ignorant, immoderate, ungenerous, inconsiderate, unkind, and insensitive to the suffering of themselves and others. Not surprisingly, businesses in Western economies often cater to, and profit from, these unwise consumers. Additionally, these companies are not trying to help consumers discover and adopt better consumption patterns and habits.

Second, as explained in the above sections, businesses in Western economies generally have an opportunistic, exploitive orientation. Therefore, in the absence of clear market incentives for better behavior, these businesses generally do not act in a way that dependably serves the best overall interests of their customers. These companies are not attempting to produce and sell goods that satisfy people's true preferences, goods contributing very strongly to the well-being of individuals and society. These businesses are not choosing to be socially responsible. Socially responsible companies are ones that choose to behave in ways that are simultaneously good for their owners (and various stakeholders) and good for everyone else in the society. Such socially responsible companies choose to avoid imposing costs on others (Tomer, 2017, pp. 5-6). Ideal socially responsible companies are interested in helping their customers discover their true preferences, and correspondingly, consume the kind of goods that are truly right and best for them. This implies that ideal companies would help their customers overcome their habitual attachments to unhealthy goods and lifestyles. Moreover, companies with high ethical ideals presumably would help their customers avoid the possibly negative consequences of using their purchased goods, thereby lowering the risks associated with the use of their customers' purchased products. There is some truth to the view that economic and business norms are changing and in some quarters higher ideals and more socially responsible behaviors are in evidence. However, for the most part, neither the contemporary business norms of Western economies nor mainstream economics' conception of business behavior contain normative views that come close to the socially responsible and ethical norms explained above. In the absence of business norms reflecting socio-economic ideals, it seems unreasonable to expect Western businesses to manifest better behavior than they do.

In light of the above, let's contemplate what's happening in the Svalbard archipelago located midway between continental Norway and the North Pole. Doing this can help us better understand how a change in the world view from that of Western economies to that of Buddhism can be important. Svalbard features an Arctic climate; sixty percent of it is covered with ice. Svalbard is distinctive and important because its islands and the sea surrounding them "hold some of the last pristine environments left on earth, home to some of our planet's most incredible and mysterious creatures which thrived in this remote area that was [largely] off-limits to humans, protected beneath the ice" (Zsolnai, 2016, p. 24; for basic information, see Svalbard Wikipedia). Unfortunately, the sea around Svalbard "has lost fifty nine percent of its ice coverage since 1980, uncovering new territory open to exploitation by industrial fishing fleets. And greedy, profit-driven Norwegian companies [have] started to exploit Svalbard"

(p. 24). Their activities represent the worst kind of profit motivated, opportunistic efforts to gain at the expense of the environment. Because of this, much of the environment in this region is being turned into a marketable resource with little consideration being given to the value of the natural environment. What is happening in Svalbard is indicative of how the values of Western economies and mainstream economics seem to automatically assert themselves when an opportunity in the form of nature's vulnerability presents itself.

Consider a more conventional example that illustrates a way in which Western economies contribute to large scale dysfunction. This is the story of Cinnabon, a company that has been very successful in the usual sense of its growth and volume of business. Cinnabon is a company that makes a very tasty cinnamon roll that has an attractive, strong smell, has 880 calories, and is slathered in frosting (Akerlof and Shiller, 2015, pp. 2-3). It is very tempting to buy Cinnabons, but they are not a healthy food. The success of Cinnabon is an example of a company that has phished for a long time and found many phools to buy its product. Moreover, it is an example of how "the free market system exploits our weaknesses" (p. 3). There is good reason to believe that the choices made by Cinnabon's customers are not choices that are in their best interests, certainly not from a health perspective. It can be argued that customers who buy Cinnabons, at least if they buy them with any regularity, are being taken advantage of. Besides being unhealthy, consuming Cinnabons is ignorant, immoderate, likely adds to one's suffering, and thereby takes away from one's well-being. Eating Cinnabons is an example of consumption that provides artificial value, the type of consumption that takes away from one's well-being. Of course, in the grand scheme of things, if consuming Cinnabons is your only deviation from your true preferences, it is not likely to have a great deal of negative impact on your well-being. The problem, of course, will be much greater if an individual's Cinnabon consumption is part of a person's overall unwise consumption of goods that lack true value. And the problem will be much worse for the Earth if a very large part of the Earth's population shares this unwise consumption pattern.

Consider the example of the obesity problem. Obesity in the United States is a chronic health problem that has grown rapidly in the last three or four decades. From the standpoint of health science, Mark Hyman (2006) and Gary Taubes (2007) find that obesity is caused by poor diet and behavioral patterns. Most notably, obesity is strongly associated with the consumption of foods that are high in refined, processed carbohydrates, high in bad fats, and low in fiber. Obesity is also associated with lack of exercise, eating too rapidly, and eating when stressed. To fully understand the causes of obesity, it is important to go beyond health science and consider the factors that influence an individual's choice of diet and life patterns. The important external factors include: 1) technological changes that impact markets causing changes in the prices of food and exercise, 2) the infrastructure of obesity, especially the behaviors of various suppliers of processed food, and 3) socio-economic factors contributing to chronic stress in individuals. The important internal factors include individual endowments of: 1) personal capital, 2) social capital, and 3) health capital.

"The essence of the argument is that obesity tends to occur when vulnerable individuals who have low personal capital, low social capital, and low health capital ... encounter stressful situations, lower prices of unhealthy food and higher prices of exercise, ... and the large and growing infrastructure of obesity" (Tomer, 2013, pp. 88-89).

People vulnerable to obesity find it hard to make wise food choices. All too often, they crave non-nutritious foods providing artificial value which overwhelms any desire they may have for

foods with true value. Quite clearly, many of these consumers do not reflect intelligently on their food and exercise choices. It usually does not take long for suppliers of processed foods and fast food to recognize this consumer vulnerability. These businesses have then taken advantage of such ignorant and unsophisticated customers by supplying foods that are tasty and attractively marketed but are habit forming even addictive and have little nutritional value. The food suppliers who have taken advantage of these unwise consumers often have been very successful in the sense of making very substantial profits. For the most part, however, they have not seemed concerned with the health and well-being of their customers.

Consider the kind of dysfunction that typically takes place in the food markets of the advanced Western economies where the obesity problem is particularly prominent. In these food markets, many consumers are not sovereign with respect to food businesses. This means that although these consumers may be able to get what they actually prefer from food businesses, they are not able to get the nutritious food that they truly prefer. That is, they are not able to satisfy the food preferences they would have if they were perfectly informed and mindful. This market failure involves what I refer to as socio-economic dysfunction. At the heart of this dysfunction is the unwise, opportunistic, self-interested, greedy behavior of food businesses. The unwise, ignorant behavior of food consumers is, of course, also a significant factor in the market failure. What is needed in these food markets is socially responsible business behavior. Unless businesses behave better in the sense of being concerned with their customers' true well-being, a solution to the food market's dysfunction is unlikely to be realized. It should be noted that there is reason to believe that reliance on mainstream economic analysis, which is exclusively preoccupied with self-interested, maximizing motivation, will not be helpful in finding a solution. As a consequence, economists in many Western economies that rely on mainstream economics may struggle in vain to analyze and subsequently resolve their problematic obesity situations.

Climate change is perhaps the most important example of market dysfunction; it is a biophysical dysfunction. As many people understand, the climate change problem has come into being because of the growing scale of the Earth's economic activity. The growth in economic activities has been accompanied by a very rapid rise in the use of fossil fuel energy. That in turn has led to rising emissions into the atmosphere of greenhouse gases such as carbon dioxide, methane, and nitrous oxides. A great deal of evidence indicates that the impact of these events is causing "unprecedented disturbance of the critical life support systems of the Earth in terms of its rapidity and geographical extent. This outcome is widely accepted as entailing significant risk of severe distress upon human and other life on the planet" (Daniels, 2010, Part 1, p. 953).

In early years, as economic activities grew, the increased output was primarily devoted to meeting people's basic physiological needs. Later growth, however, has increasingly involved not only satisfying ever-expanding human wants, but growing consumption of fossil fuels, and rapidly changing technology (Daniels, 2010, Part 1, p. 953). Besides the growth in relatively tangible inputs, changes in people's beliefs, values, ethics, goals, wants, needs, intent, and choices are having an increasingly strong influence on the environmental outcomes (p. 953). Important in this respect are changing patterns of consumption, especially those related to the changing lifestyles associated with growing affluence. These are the "deeper underlying drivers behind human activities that generate greenhouse gas emissions" (p. 956).

The great concern about climate change is that the factors fueling it are continuing to grow, making the predicted impact ever larger and more uncertain. Why can't we stop the alarming

path of climate change from threateningly people on the Earth? Buddhism's second noble truth helps us understand the heart of the matter. The essence is that people, especially people in advanced Western countries, have very strong desires for the material benefits deriving from their economies. People are attached to and clinging to these external worldly phenomena, not only in the form of goods but also in the form of social and economic roles and status. They believe that the growing consumption of these kinds of things is an inherent part of their life path, a path that will bring them sustained and consummate satisfaction or happiness (Daniels, 2010, Part 1, p. 957). Unfortunately, "people do not seem to realize and learn that this attachment-seeking does not bring the desired results" (p. 957). These kinds of satisfaction ultimately tend to disappoint. When that happens, people attempt to find other sources, other goods (or greater quantities of goods and worldly experiences), to attain satisfaction of their desires. The greater economic activity required to produce satisfaction of these increasing desires makes the environmental impact of climate change even greater. It is an unsustainable situation. There has become an eternal gap between the magnitude of people's desires/wants and the biophysical ability of the Earth to provide what people are craving (p. 957). Therefore, climate change and other negative environmental impacts are likely to grow continually worse unless people can overcome the striving and craving that are associated with the behavioral and thought patterns inherent in the world views of Western economies and the conceptual perspectives associated with mainstream economics.

How Buddhist economics is essential to overcoming dysfunctions

The heart of the matter

Thich Nhat Hanh said it very directly:

"If we continue abusing the Earth this way, there is no doubt that our civilization will be destroyed. This turnaround takes enlightenment, awakening. The Buddha attained individual awakening. Now we need a collective enlightenment to stop this course of destruction. Civilization is going to end if we continue to drown in the competition for power, fame, sex, and profit" (Loy and Stanley, 2009, p. 3).

The basic argument here is that if modern Western economies were to replace their present world views and adopt the world view embodied in Buddhist teachings, that would go far to eliminate a great deal of the biophysical and socio-economic dysfunctioning of these economies. In the view of David Loy and John Stanley (2009, p.8), "New technologies alone cannot save us without a new world view, one that replaces our present emphasis on never-ending economic and technological growth with a focus on healing the relationship between our species and the Earth." There are important reasons to believe that human behavioral patterns consistent with the perspectives of mainstream economics are in large part the cause of many of these problems and that adopting the Buddhist world view along with its perspectives, values, and ethics would lead to better behavioral patterns. Arguably this would go far toward eliminating much of the biophysical and socio-economic dysfunction.

Before providing more explanation about the role of Buddhist economics, let's be clear about what introducing Buddhist economics is not. It is not the same as changing the structure of an economic system such as when a socialist economic system is transformed into a capitalist system. In that kind of transformation, system specific attributes such as the ownership of the

means of production are changed. When these kinds of changes are made, it is expected that the changed structure will “influence deeply the realities of society, politics, the economy, culture, and daily life” (Kornai, 2000, pp. 28-29). There are, however, some similarities between introducing Buddhist economics and changing the structure of the economy. Both kinds of changes are expected to change the pertinent socio-economic realities of society, and therefore, to produce different, presumably better, socio-economic functioning. These two kinds of changes do this in very different ways. It should also be noted that Buddhist economics is not about practical, mundane, nuts and bolts matters such as introducing tax and budgeting changes or interest rate and monetary changes.

How replacing the world views of Western economies with the Buddhist world view is key to overcoming market dysfunctions

Let’s return to the main reasons for the dysfunctions that contribute to the failure of markets in Western economies and consider how such situations could be dramatically improved if people’s behavior and intentions in these markets were in accord with fundamental Buddhist teachings. First consider the all too common scenario in which the market activity of business people is characterized by negatively opportunistic, excessively self-interested behavior that is oriented to gaining advantage at the expense of consumers. According to Akerlof and Shiller (2015, pp. 1-2), this all too familiar type of behavior is considered to be the normal state of affairs in Western markets. This behavior, however, is explicitly counter to the values, ethics, and precepts of Buddhism. Buddhist precepts clearly state that any form of lying or stealing is wrong (see the five precepts of Buddhism (Nhat Hanh, 1991, p. 155)). Further, Buddhism teaches that any person, in business or not, can develop wisdom and find paths to improve themselves and live in harmony with others. Doing this involves following the eight paths in the teaching known as the Noble Eightfold Path. Among these paths is right livelihood. “To practice right livelihood ... you have to find a way to earn your living without transgressing your ideals of love and compassion” (Nhat Hanh, 1998, p. 104). The seven other right paths are: Right View, Right Thinking, Right Speech, Right Action, Right Diligence, Right Concentration, and Right Mindfulness. All these paths provide teachings regarding how a person can behave with wisdom and mindfulness in all areas of life including people’s roles in markets as buyers or sellers.

As explained earlier, the second important aspect that contributes to the market dysfunctions of Western economies is the ignorant behavior of consumers. Too often, people’s consumption of goods is guided by their strong compulsive desires, not intelligent reflection on what will contribute to their true well-being. Such consumption patterns are unwise in that they are generally immoderate and not in line with people’s true preferences. According to Buddhism’s second noble truth, this behavior inevitably leads to suffering. To overcome this suffering, one must follow the Noble Eightfold Path. Only when people learn to consume mindfully will it be possible to eliminate the excessive, unwise consumption that contributes not only to individual suffering but to the suffering associated with unsustainable use of the Earth’s resources.

Let’s return to the problem of obesity. As indicated earlier, at the heart of the obesity problem is the behavior of opportunistic, overly self-interested food businesses that have taken advantage of vulnerable unsophisticated consumers. In Western economies guided by the values and perspectives of mainstream economics, it is not surprising that food businesses have generally conformed to exploitive modes of behavior rather than adopting socially

responsible behavior. If, instead of the typical pattern of modern Western economies, the Buddhist world view were to be adopted, it would arguably lead to very different behavior in the realms of business and economics. Business behavior could then be guided by the Buddhist precepts against lying and stealing, by the practice of right livelihood, and by the seven other right paths (particularly the practice of mindfulness). Such food businesses would be socially responsible and would be attempting to produce and market food in line with people's true preferences. If that were the case, it seems that there would be no possibility for the obesity problem to have become such a large and threatening factor for the Western economies of the world. Note that although the obesity problem has been singled out here, there are quite a few other significant socio-economic problems that are caused by very similar factors. Notable in this context are the problems associated with chronic non-communicable diseases such as diabetes, cardiovascular disease, hypertension, stroke, and various forms of cancer, which have grown rapidly, particularly in industrialized nations that have experienced substantial economic growth. There are reasons to believe that the key cause of these problems is not industrialization (or economic growth) *per se* but the lack of the kinds of ethical behavior and wisdom that are the part and parcel of Buddhist teachings. That is why replacing the world views of Western economies by the world view of Buddhism is a key to overcoming these kinds of socio-economic dysfunctions.

Now let's return to the climate change problem. As indicated earlier, at the heart of the climate change problem is the large growth in economic activity required to produce the goods needed to satisfy people's continually expanding wants. It is clear that people in modern industrialized Western economies have become overly attached to attaining satisfaction from their consumer oriented lifestyles, lifestyles that generally provide too little true well-being. To deal with this, it would help if Western economies were to adopt the Buddhist world view (along with important Buddhist teachings). The essential idea is that the strong Buddhist influence will lead these economies to utilize more sustainable and ethical business and economic practices. Note that in contrast to this, what is unlikely to work is simple reliance on piecemeal and incremental policy moves such as adopting emission trading (or price changes). The latter lack the necessary fundamental sociocultural, economic and technological qualities that would be required for a fully sustainable solution (Daniels, 2010, Part 2, p. 962).

Essentially the desired purpose of introducing a strong Buddhist influence is to create a thriving world (Raworth, 2017, p. 198). Another way to look at it is that the goal of Buddhist economics is to "maximize [the economies'] well-being with minimum consumption and nature impact" (Daniels, 2010, Part 2, p. 970). The Buddhist world view helps by influencing the form that economic development takes, thereby making development much more sustainable. Sustainable economic development is that which not only meets the current needs of people but which does not jeopardize the needs of future generations by contributing to systematic deterioration of the Earth's capacity (Magnuson, 2017, p. 179). Moreover, sustainable development is about biosphere stewardship; this is understood to be the kind of leadership that is responsible for leaving the world in a better state than it was (Raworth, 2017, p. 185).

Sustainable development is by nature generous; it gives back to the living systems of which we are a part (Raworth, 2017, p. 185). It is generous (an important Buddhist value) because it emphasizes creating enterprises that are designed to be regenerative. Regenerative enterprises "mimic life's cyclical processes ... in which one creature's waste becomes another's food" (p. 186). In this kind of economy, "the leftovers from one production process—be they food scraps or scrap metal—become the source materials for the next" (p. 187).

There are two kinds of regenerative processes or cycles. One involves “biological nutrients such as soil, plants and animals”; the other involves “technical nutrients such as plastics, synthetics and metals” (p. 187). These “materials are never ‘used up’ and thrown away but are used again and again” (p. 187). Biological nutrients are regenerated by processes that capture the value at each stage of decomposition, and technical nutrients are restored through repair, reuse, refurbish, and recycle processes (p. 188). The Buddhist world view encourages production processes that are regenerative, and thus, in accord with nature. This is in contrast to the degenerative industrial processes of contemporary industrial economies of the West that emphasize maximizing monetary values and the intensity of material throughflow.

If the world’s economies were to adopt a Buddhist world view, it would no doubt lead to an evolutionary process involving systematic institutional change (Magnuson, 2017, p. 62). There is reason to believe that societies based on Buddhist teachings would develop stable, accountable, creative, community oriented, democratic institutions that contribute to people’s true well-being (pp. 65, 112). In Magnuson’s view, Buddhist values would lead to the creation of small scale cooperative enterprise and alternative monetary institutions (pp. 101-102). According to Daniels (2010, Part 2, p. 966), drawing on Buddhist wisdom would create an “effective [societal] path [that] lies between the extremes of hedonistic self-indulgence and sensual pleasure, and excessive self-mortification or asceticism.”

Daniels (2010, Part 2, pp. 967-970) provides an interesting illustrative list of more specific outcomes that could be expected in societies that adopt Buddhist economics. Below is a partial list of these outcomes:

- 1) “undertake research into conditions and outcomes that actually make people and society ‘happier’ ... This is a matter of identifying and revealing people’s true preferences;
- 2) design effective strategies to
 - a) shift behavior and choices to reduce the absolute and relative size of ‘harmful’ consumption and
 - b) promote eco-efficient technological change to reduce environmental and societal disruption or harm in ... [important] production and consumption sectors;
- 3) devise strategies that aim to reduce private car transportation ... and implement low fossil carbon integrated alternatives;
- 4) change energy intensive leisure ... towards activity which has lower energy needs;
- 5) change diet or nutrition choices away from livestock-based production ... towards vegetarian produce;
- 6) adjust market prices to incorporate the full interdependence costs and benefits of production and consumption;
- 7) encourage socially productive enterprises that produce ‘compassion’ or positive ‘interdependence’ goods and services; and
- 8) provide basic goods such as food and shelter to impoverished [people]” (pp. 967-970).

Note that although climate change is the particular type of biophysical dysfunction analyzed here, the earth is now suffering from quite a few other biophysical problems. Among these are ocean acidification, ozone layer depletion, chemical pollution, air pollution, biodiversity loss,

land conversion, nitrogen and phosphorus loading, and freshwater withdrawals (Raworth 2017, pp. 38-44). These other types of biophysical dysfunction are to differing degrees caused by many of the same factors as climate change.

Conclusion

Buddhist economics embodies a world view that is very different from the world views of Western economies. The world views of the latter are largely based on the tenets of mainstream economics. Every society has a particular world view that reflects their people's values, especially their values concerning how their economies should function. The functioning of all economies needs to be built on an explicit set of values related to the society's economic goals. The world views associated with Western or modern capitalist economies are typically narrowly oriented and emphasize growth of output. The world view of Buddhist economics, on the other hand, emphasizes a very broad view of what contributes to well-being. It emphasizes the ideal relationships that humans can develop with each other and with nature. This paper has analyzed and outlined why a society adopting Buddhist economics can be expected to experience much less socio-economic and biophysical dysfunction than conventionally oriented capitalist societies. Relatedly, note that in contrast to Western economies, Buddhism teaches that economic activity should be a means to a good and noble life, not an end.

Human activities are increasingly having massive negative consequences for both the biosphere and socio-economic relationships. Climate change is a prominent example of biophysical dysfunction, and obesity is an important example of socio-economic dysfunction. The world view and orientation of mainstream economics does little to help us understand the causes of these large dysfunctions, nor to understand what is necessary to resolve them. Mainstream economics does not provide key insights into the socio-economic causes of the market failures involved. For example, it provides little appreciation of the tendency of businesses to be excessively self-interested, opportunistic, and exploitive in its relationships with consumers and others. The idea that businesses might embrace social responsibility and attempt to serve people's true preferences rather their actual preferences is foreign to mainstream economics. Mainstream economics also does not help us understand the excessive growth of the Earth's economic activity and the excessive use of fossil fuel energy. Further, it does not mention that consumers' ignorance and inability to find satisfaction with their consumption are principal factors in contemporary biophysical dysfunction.

Because important, large scale dysfunctions such as climate change and obesity have been largely outside the scope of mainstream economics, the types of analysis most suitable for understanding them have not been developed. It follows that mainstream economists are unlikely to propose viable solutions for these dysfunctions. It turns out that many of the answers can be found by turning to the wisdom embodied in Buddhism. As Thich Nhat Hanh has stated, what is needed is a collective enlightenment. We need to draw on Buddhist teachings such as the Four Noble Truths and the Noble Eightfold Path. These teachings can help us understand why dishonest businesses that are not concerned with the true well-being of its customers are part of the problem. It will also help us understand that ignorant, compulsive consumer behavior is an integral part of the dysfunctions. Ideally, people ought to consume mindfully and moderately, using intelligent reflection on their choices in order that their consumption contributes to their true well-being. If a society were to adopt Buddhist economics, and if people and businesses were to behave in accord with the ideals articulated

in Buddhist teachings, there is good reason to believe that the result would be sustainable use of the Earth's resources and that both biophysical and socio-economic dysfunctions will be avoided or resolved. Clearly, we need Buddhist economics.

This paper has focused on what is needed and why. As some readers may discern, this paper has not focused on a number of more practical concerns. Readers may ask: 1) What might lead to or instigate the desired changes in socio-economic values?; 2) Have leading Buddhists given thought to the nature of the desired socio-economic change processes?; 3) Are there ways in which policy makers and others can be persuaded to change their thinking and values?; 4) Is there any evidence that supports the contention that Buddhist economics would have the efficacy that theory claims?; and 5) Can we find exemplars of change stimulated by Buddhist economics? These are no doubt important questions. However, I have considered them to be outside the scope of the present paper. Nevertheless, I (and perhaps others) plan to focus attention in the future on answering some of these questions. My hope in writing this paper has been to point to the nature of the problem and the theoretical solution, not to practical how-to matters. Hopefully though, many others (not just authors) will eventually figure out how to do all the things that need doing. We should not, however, delude ourselves that it will be possible to make dramatic progress in combatting biophysical and socio-economic dysfunctions without making fundamental changes in people's world views, values, and insights. Doing these things will not be easy or rapid; it is the work of lifetimes.

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Independent thinking in an interdependent world: Edward Fullbrook on the state of contemporary economics

Edward Fullbrook, *Narrative Fixation in Economics* World Economics Association, 2016, 157pp. ppk. ISBN: 978 1 84890 228 2

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Pluralism is not the enemy of truth

I am going to start with what may seem a pedantic and abstract set of concerns, bear with me, these help to explain why Edward Fullbrook's *Narrative Fixation in Economics* is such an important book. Consider also if you are tempted to simply think of this as "philosophy and all that" not worthy of further consideration, just think of the effort and resources that are directed to master mathematical models, techniques and statistical methods. These are no more naturally "economics" than are the insights and arguments that philosophy affords. Arguably, the latter helps to shed light on whether the former ought to take the form and have the primacy it does, so the latter ought perhaps to concern us *more* (and not least if we are "rational" optimisers of use of time (sic)).

It is misleading to confuse the importance of truth with truth statements (the current "stock" of truth): *it is true that x*. The process of truth *seeking* also matters, and perhaps matters more in the long term; it is through *justifying* that we license the transition in claims to currently *justified*, truth in any non-trivial sense has acquired this status and this speaks to the underlying importance of the *current* "hows" of justification, such as the use of evidence, checking, testing, argument etc.; the "stock" of truth is perpetually renewed through this "flow".

- Such truth seeking has at least one predicate: there is something to engage in truth seeking *about*.
- And it has at least one condition: truth seeking is an actual commitment, rather than merely a form of words; as a commitment, it must be a *practice*.

Truth seeking is basic to knowledge. This is circular: no academic would claim that they sought ignorance or falsity, and if they did claim this then we would respond they are not contributing to what we know, merely to the sum of ignorance and falsity.¹ This formally declared wilful ignorance or falsity is different than contesting the work of an academic that formally (or by convention) positions their work as knowledge. One might contest the

¹ We are exploring this with a view to relevance to economics, and the context for this is not primarily aesthetics, art etc. There are other ways of considering what is central to knowledge – here I am simply setting out a standard form in epistemology that contests "deflation" (the elimination of truth from the concept of knowledge). One, of course, may also formally position work as falsity to make a point and so in science and the humanities this may shade into art, which may tell us something about what we think we know, introducing a set of meta issues of epistemological interest. Note also I am by no means suggesting that truth seeking should not seek inspiration or insight from experience extending to art and literature; this, for example, would be to produce a problem identified by Heidegger in terms of the Greek legacy, and would also sit uncomfortably with much of the inspiration for Fullbrook's work (phenomenology, existentialism etc).

correctness of their work or contest their motives for producing that work. One might contest whether the work contributed to the sum of knowledge, but this as in the previous, presupposes knowledge as a truth seeking endeavour.

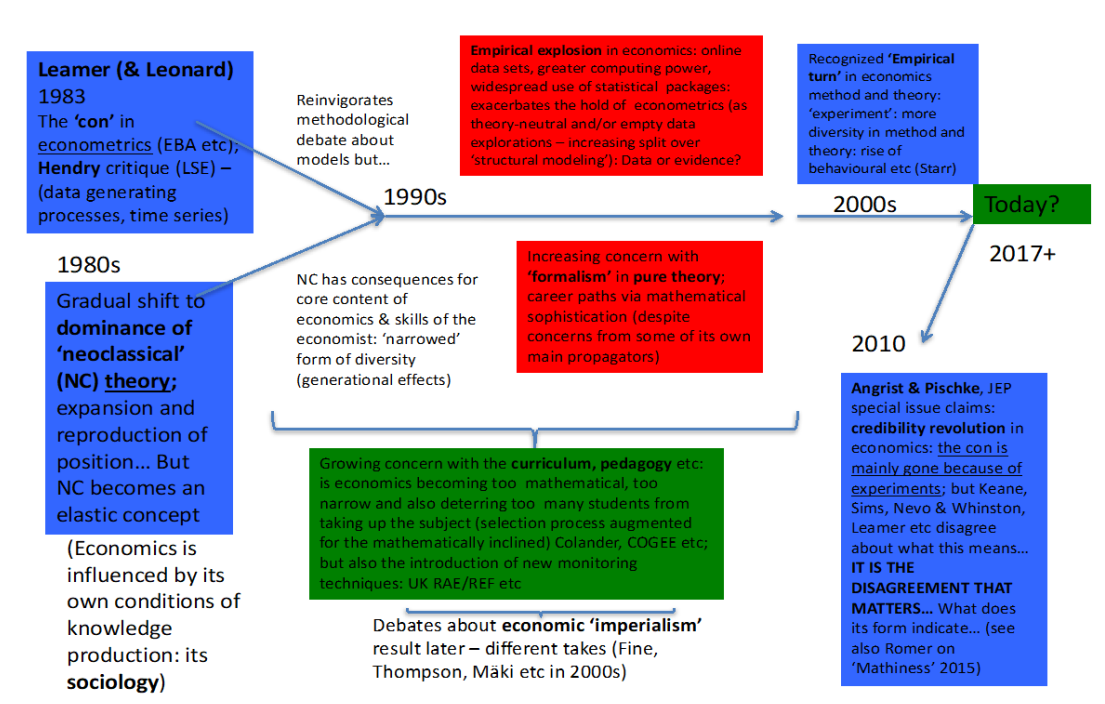
Though we can play games in philosophy based on logic, language and distinctions (analytic, synthetic etc), in a very basic sense we can be wrong, we *know* we can be wrong, and this has an elasticity in terms of language use – we speak colloquially of degrees of correctness, half right, part right etc, and engage in activity that spans a spectrum from refute, reject and so forth to the absorption or encompassing of work within new or modified ways of knowing. But these are simply extensions and more subtle ways of stating we *know* we can be wrong. So, all knowledge is in this non-trivial sense “fallible” (contingent). Equally as important, there is no necessary *a priori* in terms of limits within theory of knowledge that dictates truth must be truth about something that does not change. Only truth seeking can inform us about the constituents of the world to which truth seeking is applied. Some aspects of it may involve principles or mechanisms that are enduring, under some description of time (since under ultimate descriptions not even time is eternal, given the universe is on the clock), and others not. Some may also be extensive to the point of pervasive, under some description, and others not. Reductively (irony intended), we sometimes refer to the former characteristics as eternal and universal. However, given the range, there is no *a priori* that demands truth seeking disallows a world of change, and a world of change within which what we think is real, true, false, constructible, impossible or desirable can have consequences for what subsequently is part of the world that truth seeking explores as an “about”. More than this, the continual confounding of our frameworks, theories, concepts, ideas, beliefs and intentions tends to confirm, in so far as anything can, that one of our more robust truth claims is that we live in precisely this kind of world. That is, a world that exceeds our knowledge but which is, in many different ways, sensitive to what we think we know and what we then *do* based on what we think we know. As such, performance, policy and alternative futures are not antithetical to truth seeking but consequent components of truth claims from truth seeking.

“Knowing” that we live in this kind of world raises a number of important issues. Knowledge itself has a history and sociology. It is produced, and the ways in which it is produced have developed. We can look back over this history and consider this sociology and ask ourselves whether both have been conducive to truth seeking:

- Have they and do they contribute effectively to exploring the *aboutness* of our world?
- Have they and do they encourage and nurture truth seeking as a commitment and actual *practice*?

This brings us to the state of contemporary economics and to Fullbrook’s *Narrative Fixation in Economics* (2016) and the issue of pluralism (see also Fullbrook, 2008, 2013). According to Fullbrook, though he does not put it quite like this, the history and sociology of economics has resulted in a situation in which the mainstream has become “anti-knowledge”. It engages in practices that produce and reproduce a single framework or perspective and that framework or perspective is inadequate as a way to explore the economy. We might say then that its body of knowledge has ceased to be an effective form of truth seeking in both the senses above. The mainstream is deficient both as a source of truth claims (its “stock”) and as a discourse able to encourage and nurture a commitment and practice of truth seeking (its “flow”).

This kind of claim, of course, is not new. The history of economic thought shades into the philosophy of economics in terms of recognition of contemporaneous critique of emerging theory positions, schools and methods: Marx and vulgar political economy, Marshall, the contrast between John Neville and John Maynard Keynes, and all the way to Palley's "Gattopardo economics" or the differing positions taken on Rodrik's *Economic Rules* or Raworth's *Doughnut Economics* today. And many works explore in different ways the socialisation of economists, the history of the field and its knowledge forms, and the scope or limits on diversity; and the positions taken within this commonality are themselves diverse (for some of the range see, Fourcade et al 2015; Colander and Klammer, 1987; Klammer and Colander, 1990; Colander et al, 2004; Colander, 2005; Davis, 2006; Arnsperger and Varoufakis, 2006; Fine, and Milonakis, 2009; Fine, 2013; Starr, 2014; Morgan and Rutherford, 1998; Morgan, 2015, 2016a). Some of this is captured in the following schematic:²



What makes Fullbrook's *Narrative Fixation* important is the argument it makes regarding the status and role of pluralism.

According to Fullbrook, the characteristics of the mainstream are partly a product of the elimination of pluralism, and the continued dominance of the mainstream, including perhaps a "fake pluralism", is partly attributable to that elimination as an ongoing exercise. Specifically, the mainstream remains wedded to a perspective regarding adequate knowledge based on classical mechanics, and to a theory of knowledge formation that expects and prefers a single dominant perspective, on the basis that the existence of a single perspective is a hallmark of science, and this conforms to the self-identification amongst economists of economics as *the* social science most akin to the natural sciences.

² JEP refers to *Journal of Economic Perspectives*, authors' names will be familiar based on discursive relevance. RAE refers to the research assessment exercise, REF to the Research Excellence Framework and COGEE to the US Commission on Graduate Education in Economics.

For Fullbrook, the consequence has been scientific in both theory and practice. Fullbrook makes the argument that success in the natural sciences, and in physics in particular, has *not* been based on the dominance of a single perspective, but rather on the willingness to accept multiple perspectives, and to realise that adequate knowledge can be produced based on each, so it is not just a case of any given scientist being wedded to a particular position, it is rather a case of science being capable of switching for the purposes of the inquiry. Relativity and quantum mechanics have both been empirically successful, and no physicist experiences shifting from one to the other as a profound dislocation. Both are truth seeking and yet limited, and even the acknowledgement that neither is the last word on their respective subject matters, with the concomitant commitment to one day perhaps superseding both, accepts that the achievement of this goal is *subsequent to* the existence of multiple perspectives, so the continued openness to seeking out new perspectives and drawing them into a “mainstream” is a recognized positive *perennial* characteristic of that mainstream in physics and the sciences (rather than merely a source of anxiety – it drives some to seek for unity but does so without compromising openness to significant diversity).

As such, the hallmark of progress and success over the last century in physics has *not been* a stark one of just ruthless theory competition and elimination in pursuit of a single position, but rather continued diversity, openness and progressive change: an environment conducive to the combination of truth seeking as aboutness and an environment encouraging and nurturing a commitment to truth seeking rooted in actual practice. So, physics has resisted its science becoming scientific. This is quite a different way to position physics and natural science as a framework of knowledge to be “emulated” by the social sciences than mainstream economics seems to have pursued. However, one must, of course, acknowledge this description of the natural sciences is an archetype, and the natural sciences are also career driven processes. Funding matters and corporations and governments can exert significant influence on the direction of research, creating constraints on the trajectories within which knowledge is produced and reproduced and suppressed in these sciences. Fullbrook’s main insights are not antithetical to the obvious point that all sciences have their dark side. Fullbrook’s point is that, *on balance*, a pluralistic science is one whose very form resists a slide into stultifying “orthodoxy”, but making this point does not require an idealised version of the natural sciences, merely a recognition that the overall pluralist ethos in that environment of commitments and practices matters.

So, if one were to try to encapsulate the spirit of Fullbrook’s *Narrative Fixation* in a single phrase it would be that pluralism is not the enemy of truth, rather it is the companion of truth seeking.

Contrast this with mainstream economics (and perhaps not just the mainstream). The pursuit of a single underlying/overarching framework has become a straightjacket: an *a priori* that acts to exclude and is used to eliminate alternatives. The mainstream is not just lacking in pluralism, it regulates its lack of pluralism. It is thus through its regulatory practices antithetical to knowledge. Moreover, this problem of practice becomes substantively anti-knowledge because the theory and methods that are produced and reproduced take as their *point of departure* fundamental assumptions and restrictions that are profoundly unrealistic, and thus provide poor traction or focus or insight for urgent problems of economies, societies and polities in the modern world. “Progress” becomes a matter of deviations from profoundly unrealistic initial assumptions and restrictions, and so remains wedded to them. Any diversity that arises is thus not genuinely pluralistic, but rather limited difference according to a defined spectrum, and Fullbrook’s major contribution is to suggest it is the lack of pluralism that

provides the prison bars for this prism: a limited position becomes ideological. *Narrative Fixation* is one hundred and fifty pages or so long, so there is greater nuance and sophistication to Fullbrook's argument than is provided by this brief summary, and this includes his more extended argument for the significant differences of context for knowledge of society (economy) because of its constitution. However, it should already be clear that there is something subtly different about Fullbrook's take on the state of contemporary economics in terms of the role and significance of pluralism. In the following section I provide some comment on selected quotes from the book in order to provide more of a sense of *Narrative Fixation's* sophistication.

The *Narrative Fixation*: open minds not empty minds

In the preface Fullbrook sets the scene for the argument that follows:

In the same decades that Neoclassical economics was being created, physics was moving rapidly away from its insistence upon the determinist-atomistic narrative and towards narrative pluralism. The achievements resulting from this opening up of physics to other narratives have been even more spectacular than those that came from classical mechanics. Without that intellectual liberation, human reality would be radically different from what it is as I write. But economics – except among a now widening fringe heavily supported by the young – remains locked in the same narrative dogmatism from which physics escaped a century and a half ago. Meanwhile economic evolution has continued. And as the gap between economic reality and the Neoclassical portrayal of it grows ever wider, Neoclassical voices become shriller and their arguments, when placed within the context of the real-world, ever more farcical. Understandably in self-defence, but shamelessly and ultimately at great cost to humanity, economics in its traditional centres moves ever further away from the ethos of science and becomes ever more ruthlessly devoted to scientism (2016, pp. 1-2).

Fullbrook contrasts the “narrative pluralism” of physics with mainstream economics single narrative fixation. According to Fullbrook all perspectives have a narrative structure and this includes knowledge seeking enterprises, “every theory, paradigm and research program – launches itself from a conceptual framework, including a set of presuppositions about the nature of reality” (2016, p. 4). This structure affects what and how one views. Narrative pluralism provides different ways of looking at one reality and:

Different but non-competing narratives of the same domain give prominence to different dimensions of that domain. Each narrative functions as an interpretative system, as a *special* way of perceiving some corner of existence (2016, p. 6).

Narrative selection matters and one can explore how narratives are constructed based on the way they simplify, classify and express properties. In this latter sense:

ontologies are the most elemental because they make assertions about the fundamental nature of reality--about what sorts of entities, properties and relations compose existence. But all narratives, and especially knowledge narratives, postulate a sort of proto-ontology in the sense of identifying a

certain range of phenomena (a “universe of discourse”) whose existence, real or imagined, they wish to take into account. In the formation of these proto-ontologies, the classification of entities typically requires the predication of various properties, making these two processes inextricably intertwined (2016, p. 11).

There is clearly some crossover here with ideas and issues raised by Cambridge Social Ontology (see Faulkner et al 2017; Lawson, 2015, Pratten, 2015 and Fullbrook, 2009). However, Fullbrook’s focus on narrative is subtly different, albeit involving some of the same inference and claims (contrast also with Dow, 2004). A key issue for Fullbrook is the nature of the narrative itself rather than the nature of reality per se (though this is also a subject of concern as ontology, see chapter 2 and 4). Specifically, is the narrative form open or closed:

Some narratives are *closed* in the sense that they describe all their events as predetermined, whereas others are *open* in the sense that they admit indeterminacies. Narratives divide between these two categories. Those of the closed or determinate variety claim that give X, Y must follow, whereas open or indeterminate narratives explain Y in terms of X without the presumption that Y *always* follows X. If a field of inquiry is not seen as wholly determinate, meaning that chance, contingency, choice, uncertainty, randomness, or spontaneity enter into the relations between events, then the sets of events open to explanation by the determinate and indeterminate approaches are not coextensive. With these different ranges of application, the choice between the two forms of narrative linkage is one of selecting a method appropriate to the perceived subject matter. As such, this question of finding a suitable narrative form must not be conflated with the metaphysical question of whether reality in general is determinate or not (2016, p. 15).

Fullbrook argues both open and closed narratives have their uses, but widespread tolerance of open narratives is relatively new. Mainstream economics lacks both narrative pluralism and effective open narratives articulated and pursued by a narrative community (though many in the mainstream might want to contest this in one way or another). This is in part because of the valorisation of a misconceived image of science that (in addition to the construction of early theory following classical mechanics) owes something to philosophy of science’s focus on theory competition and then paradigm shifts. Yet:

Kuhn’s narrative assumes that the scientific mind is so deficient in agility as to be incapable of alternating freely between incommensurable conceptual systems. I would be the last to deny that examples of this stereotype exist in every discipline and that in some disciplines this intellectual ineptitude dominates. Nor do I deny that narrative communities sometimes exist in bondage to their conceptual system because they have failed to make explicit its primary presuppositions. But it seems a cruel travesty of the truth to portray the scientist in general as, on the one hand, an intellectual bumpkin, incapable of shifting between conceptual gestalts and, on the other, as a moral midget, committed primarily to the glorification of a particular narrative point of view rather than to the understanding of the empirical domain to which that narrative and others refer (2016, p. 27).

And yet anti-knowledge has become a problem in the social sciences and in economics in particular. Following Horton, Fullbrook identifies a problem of the dominance of closed narrative communities in social science that make social sciences more like traditional frameworks, in so far as they suppress the development, awareness or engagement of alternatives. According to Fullbrook, one source of this subversion of what we think of as the great source of progress in modern culture (problems of modernism and the Enlightenment notwithstanding) is that few domains generate conditions which decisively allow any narrative community to reject a conceptual system. There is a “freedom to forever evade reality when combined with monist beliefs and true-believer mentalities” (2016, p. 31). So, closed narratives or conceptual systems, closed narrative communities and a sufficient ambiguity of interpretation enabled by the openness of reality allow each closed narrative community to sustain itself. Though this is a problem for mainstream economics it is equally a potential problem for other schools and positions. For Fullbrook, what matters is whether the narrative community engages in pathological narrative practices, of which he identifies four (pp. 31-40):

1. Narrative cleansing: based on definitions and principles, alternatives are excluded as alien, rather than treated as genuine competitors, which must be given due consideration in relation to an empirical domain;
2. Fake pluralism: limited diversity is created from common points of departure that serve to commonly constrain;
3. Narrative inversion: the knowledge narrative becomes its own subject of inquiry, e.g. progress becomes a matter of iterating or innovating models, rather than explaining and exploring the empirical domain – this becomes secondary or subordinated – one thinks of the possible *subsequent* relevance of the iteration or innovation once the iteration or innovation has been produced, and so the mechanism of theory change is not real world oriented, though it may be claimed to be more or less realistic;
4. Concealed ideologies: in so far as a narrative community acts to regulate the production and reproduction of knowledge, its epistemic commitments can recursively enforce its content and principles as a form of ideology; if only one perspective is used and taught then that one *becomes* an ideology.

Clearly, Fullbrook has something slightly different in mind than Marx when setting out a concept of ideology. It is not a ruling set of ideas produced and reproduced as common sense of society that encapsulates an economic class’s interests, whilst turning the world “upside down”. The use is nonetheless reasonable and relevant in so far as it captures a state of affairs many would recognize as widespread in economics (indoctrination and disciplining). This can be more or less subtle, for example, many of the proponents of the new INET supported CORE curriculum are genuinely convinced that it is pluralistic and represents diversity. However, some refuse to engage or include heterodox economics, and the CORE units assimilate and re-express the work of many of the “alternative” thinkers and positions used within a basically mainstream “narrative”, subordinating the whole to a set of core concepts deemed universal useful points of departure (and neutral in this sense).

Fullbrook’s ultimate point is to argue that narrative pluralism is not only permissible but also desirable, and that for it to become an effective practice (more than mere words), requires a continual empirical concern. This is not naïve empiricism, it is not a claim that one just needs to look at the real world to solve all problems of theory. Fullbrook, like Lawson, is aware that the greatest impediment to progress in economics is not a world that is under-determined by theory, so there can be several possible theories that remain unfalsified; but rather the

existence of theory that never quite has to justify or renew its realisticness or relevance in the first place (Morgan and Patomäki, 2017, p. 1415). For Fullbrook, open narratives and narrative pluralism change the context and so improve the capacity for progress to be made. There is no algorithm for this, no precise set of philosophical criteria, just a sense that we know the current state of affairs is problematic. And we can all, socialisation and indoctrination and true believer problems etc notwithstanding, know this to be the case. We may be in denial, we may deflect, we may suggest that the problems are not my problems or that they are at a scale about which I can do little (since I too must conform in so far as I have a career and a mortgage to pay), but these do not militate against recognition and understanding of what Fullbrook is attempting to convey. We need open minds, but not empty minds.

Moreover, though there can be no simple solution to complex problems of knowledge formation, of truth seeking, one can at least consider different ways to contribute to a conducive environment for progress. One can, as Fullbrook has done, dedicate time to the principles you profess in a practical institution building sense: the *World Economics Association*, *Real World Economics Review*, the PAE Blog etc. And one can, as a corollary, encourage work on urgent and contemporary problems (for example, Fullbrook and Morgan, 2014, 2017). And, following the claim that “ontologies are the most elemental because they make assertions about the fundamental nature of reality,” (2016, p. 11) one can also explore the different fundamentals that affect substantive narrative constitution. This is what Fullbrook turns to in Chapter 2 of the *Narrative Fixation* where he sets out fundamental problems in terms of an intrasubjective focus that sits awkwardly with an intersubjective one.

Fullbrook begins by noting how British empiricism was influenced by Descartes’ dualism. Descartes’ looking within (beginning an intra focus) led to a concept of a universal foundational thinker detached from an embodied self, one that is autonomous and self-identical. This, in turn, accepting there is more complexity to, as well as a tendency in, the history of philosophy and social theory, led to a separation of subject and the object of thought, such that an abstract nature of the human is outside of society, which creates a conceptual break between a concept of the human subject and the ongoing development of human agents in society. Complex and abstract as this sounds, it means no more than that the underlying philosophical development that influenced foundational concepts that would infuse the social sciences began with a problematic relation of the human to her environment – a problem precisely of how she is constituted in her environment of relations (which fails to adequately encapsulate that there are such relations). This then becomes a problem to be recognized and solved: creating a tension between methodological individualism and holism, agent structure issues etc. (see also Fullbrook, 2002).

Intersubjective philosophy and social theory, notably phenomenology, attempt to provide one reconciling solution based on interdependency of constitution: a focus on experience, becoming and so forth, which considers the difference that difference makes. That is, how the world can be quite different based on gender, race, history, language etc. To be clear, that this is Fullbrook’s focus does not contradict the points I began with in terms of truth seeking, rather it indicates how truth seeking embraces the constituents of the world to which truth seeking is applied. This is very different than naïve empiricism, it is taking the world as it is, a world that includes the way we are constituted in that world and how we also contribute to make that world (whilst accepting that knowledge is conditional and contingent). This may seem peripheral at best to immediate issues for economics, but it is actually central when one

considers the nature of the basic problems of axioms, assumptions and agents. These struggle with interdependency and an adequate account of intersubjectivity.

For Fullbrook, the world of experience is real in its constitution and consequences, and a single standpoint can serve to disguise this (so this itself is false). As Fullbrook notes, this may contradict a dominant version of the Enlightenment, in which one seeks universal eternal atomistic disembodied singular truths, not least because these are positioned in ways that oppress. So, a neoclassical universal concept of marginal product is not just false by construction (a technical problem of its failure to encapsulate reality), it is problematic in so far as it can explicitly or implicitly be used to justify embedded discriminations that are the product of how power has been expressed in social relations. Its falsity has real consequences, and one needs a sophisticated account of knowledge (what I would suggest is truth seeking) to establish this. Though anyone can “know” this, it is because we experience the world differently that it has mattered more to some than others, and so became a source of critique from within marginalized groups. Narratives can never be neutral in social settings in this sense, even if they can be comprehensible and adoptable in a pluralist sense. Of neoclassical economics Fullbrook states:

Neoclassicism's hypothetical exogenizing of the economic agent resulted in changes in economics infinitely more fundamental than its abandonment of the labour theory of value. Firstly, it effectively walled-off the greater part of the realm of economic phenomena from scholarly and scientific enquiry. In the name of axiomatic certainty, which it mistook for science, economics turned its back on some awkward but central empirical realities. Secondly, this cognitive disaster led to a moral one. Its turning its back on all economics phenomena that are not intrasubjective, that do not conform to its Cartesian metaphysic, gave rise to a spurious naturalism and the unarticulated but culturally powerful line of racism and sexism that it logically entails (Fullbrook, 2001). As George Akerlof gently puts it, “Neoclassical theory suggests that poverty is the reflection of low initial endowments of human and nonhuman capital” (Akerlof, 2002, p. 412). Poverty, as we all know, is not distributed evenly between races and sexes. So, when it is said that poverty reflects the “low initial endowments” of the people suffering it, a statement is being made about natural differences between races and sexes (2016, p. 58).

But Fullbrook also notes that:

Neoclassicism is neither a useless nor an inherently intolerant, antiscientific undertaking. Pretending that economic agents are radically different from how they are offers one point of view, even if a narrow one, from which to study economic reality (2016, p. 61).

This seems more controversial than it is. By this Fullbrook simply means that neoclassical constructs if taken as thought experiments that provide points of comparison are not necessarily without value. This is an open issue. It is the claims made in their regard and the exclusion of all else that has made neoclassical economics a problem for the whole of economics (including the whole of the mainstream that has developed from a more narrowly defined neoclassical economics). This then becomes the subject of Chapter 3 on ideology, and then extends into Chapter's 4, 5, and 6. Chapter 4 sets out an anti-naturalist position, by which Fullbrook is arguing against reductive essentialist versions of the human and in favour

of intersubjective constitution, without denial that there are biological components etc – which may cause some confusion since some modern philosophers who would describe themselves as naturalist accept this (including Lawson). Chapter 5 deconstructs the neoclassical narrative's key commitments in seven parts, and Chapter 6 brings the book to a close with a discussion of the increasing sense of influential irrelevance that the narrative fixation of neoclassical economics (extended to a broader mainstream) retains.

I could go on at this point to provide more detail, but given the intent is to encourage anyone interested in the state of contemporary economics to go on and read the *Narrative Fixation*, that might be counterproductive. This is an excellent read and an important work. It sits comfortably alongside the long list of works already referenced in the introduction and provides an additional and original contribution – as one would expect from someone who has defined their life in terms of independent thought and action. This, of course, is not a contradiction, in so far as the world is intersubjective. It is a matter of consistent principle in so far as Fullbrook has done a great deal to articulate and implement the principles that are core to the *Narrative Fixation*, but are, as he notes, rare in social science. It takes independence of mind to oppose conformist strictures and argue for narrative pluralism. In any case, rather than continue to set out content it might be more effective to contrast *Narrative Fixation* with Robert Shiller's (2017) more prominent recent attempt to bring a concept of narrative into economics. Arguably Shiller's narrative economics exhibits some of the fixation and encourages some of the narrative pathologies that Fullbrook identifies.

What the *Narrative Fixation* is not: Shiller and narrative pathology

According to Shiller, economics has paid insufficient attention to narratives. By narrative he means popular stories of “human interest and emotion” that express explanations of events and “stimulate” concern. Shiller's point of departure is that “purely economic” mechanism that economist's “love to model” do not capture these, but they can be a subject of “quantitative study”. Given that the focus is stimulation of concern, then for Shiller narratives are dynamic causal traces that indicate the growth of a story in popular consciousness. Specifically, “narratives might well be thought of as important, largely exogenous shocks to the aggregate economy” (Shiller, 2017, p. 3). As he also notes, nothing “beyond sunspots is truly exogenous”, but narratives can be treated as such, since they originate in an individual mind and become an effect from the few to the many. Data on these narratives can provide an *additional* component to explore the dynamics of economic fluctuations. Accordingly, Shiller sets out to “offer a class of mathematical models for some of these determinate and known causes of the path of narratives, quantifying the dynamics of narratives” (2017, p. 4). By fitting this to cases (the Great Depression, the Great Recession, and the US presidential election 2016) Shiller sets out to enhance our “understanding” of major economic events.

The point Shiller wants to make is that narratives are central to “human thinking and motivation” and that these embed in “social interactions”, and when focused on major tumultuous events or possibilities, provide “vectors of rapid change in culture, in zeitgeist and ultimately in economic behaviour” (Shiller, 2017, p. 10). To explore these “vectors of change” Shiller adopts and adapts a three equation epidemiological model used to trace infectious diseases: the SIR (susceptibles, infectives and recovered), which can be used to describe “word-of-mouth transmission of an idea” (Shiller, 2014, p. 14). Ideas and so forth as narratives are reconceived as “social epidemics”. For Shiller, ideas are significant based first on their impact once triggered. As social epidemics they follow a hump shape – if they catch on, then

at the moment they do they experience rapid diffusion followed by a trail off. Second, they can have a long run impact based on how the idea embeds, which is a legacy of the epidemic rather than indicative of the necessary correctness of the narrative. Following the model demonstration Shiller then looks for matches based on a set of illustrative cases using key terms associated with narratives. Data is extracted from ProQuest and Google NGrams and one is looking for similar hump shapes (an explosion of language use or reference).

Shiller summarises what he thinks his narrative economics has achieved and what prospects it creates:

Narrative economics, to the extent that it has ever been practiced by scholars, has had a poor reputation. In part, it may be due to the fact that the relation between narratives and economic outcomes is likely to be complex and time varying. The impact of narratives on the economy is regularly mentioned in journalistic circles, but without the demands of academic rigor. The impact of journalistic accounts of narratives may have been connected to aggressive forecasts which often proved wrong. But, the advent of big data and of better algorithms of semantic search might bring more credibility to the field. Research in economics is already on its way to finding better quantitative methods to understand the impact of narratives on the economy. Textual search is a small but expanding area in economic research... But much more could be done. The historical analysis could be carried further into databases of personal diaries, sermons, personal letters, psychiatrists' patient notes and social media. There should be more serious efforts at collecting further time series data on narratives, going beyond the passive collection of others' words, towards experiments that reveal meaning and psychological significance (Shiller, 2017, p. 48).

However, what Shiller has achieved can be looked at quite differently based on Fullbrook's *Narrative Fixation*. For Fullbrook a narrative is a framework that shapes one's perspective, and knowledge narratives provide alternative adoptable perspectives. For Shiller a narrative is an idea or story. In terms of Fullbrook's broader argument it seems closer to a social theory attempt to articulate an intersubjective position. However, this is not quite the case. Its final form is questionable as should become clear below.

That Shiller finds narratives important is important, though perhaps not in the way he thinks. One can reread his narrative economics and think about it as a paper implicitly addressing an audience of mainstream economists. One can ask what points of departure make sense of how arguments are positioned, phrased and constructed? This provides some insight into how it is limited or constrained.

First, in writing for his audience Shiller is able to take it for granted that they will accept his general claim that what people think, feel and believe is not central to the kind of economics they are familiar with. This reinforces the received position that the standard modelled economic agent is not one for whom "narratives" have mattered. Any concept of a more sophisticated "social" and of social diffusion is alien, and so requires further explanation and justification. Shiller provides this with reference to literary theory, anthropology, Sartre, Durkheim and various others, which ostensibly broadens the horizons of economists familiar with standard economic agents. It thus follows similar themes as his work in behavioural economics. This is laudable, but consider also that the point is not to refute an asocial subject

and embrace an intersubjective position, but rather to suggest economists might want to take seriously the *additional* possibility that beliefs, culture and social norms have consequences. There is thus both a standard and an additional, but surely these are profoundly incompatible?

To be clear, Shiller is not providing a different take on a common world where any attempt is made to justify the nature of the common world, and the relation of the different “takes” as genuine alternatives based on that common world, and evidence in its regard. Instead he is attempting to assimilate this “new” avenue of research to the prior knowledge narrative (in Fullbrook’s terms). This involves basic problems of conceptual tensions, incompatibilities and the subordination of evidence. These are not reconciled, and yet serve to reinforce what ostensibly should require more overt critique of the position to which it *seems* to be assimilated (an expanding mainstream whose point of departure still influences its expansion – the narrative *fix* has a fluidity, but within limits).

If Shiller gives genuine credence to a more complex social human that is intersubjective in all but name, then he cannot simultaneously consider this to be additional. This would require a “base” human reality reducible to the concepts economists are more familiar with and then some other realm of conduct; one that is in some ill-defined way separate rather than merely separable – since if only separable than it matters for the base human reality. Bear in mind, Shiller is not suggesting that the standard is merely one position among many where incompatibility matters for dialogue and development between profoundly different positions. The uneasy tension that occurs here is first manifest in Shiller’s acknowledgement that popular narratives are exogenous, but that nothing is really exogenous. If they are not then why make this statement – except in so far as it allows the standard itself to be preserved. The statement uses a language an audience will be familiar with, comfortable reading, and which creates a framing that will induce them to continue to read *despite* that the claim itself is fundamentally problematic for the standard, based on the actual significance of the underlying theme of the paper. One might, if feeling unsympathetic, consider this as an attempt to initiate something analogous to the popular narrative whose diffusion and impact owes less to its correctness than it does to its capacity to be accepted and disseminated. This would be ironic if we read the subconscious intent as an attempt to preserve the sense that economics is a science as understood by a readership whose idea of science is already *fixed* by the strictures of the standard. Another way of thinking about this is to consider how “narrative” is considered to be insightful. It is not as a refutation of the economics it addresses, but rather as, again, an additional, this time, an additional area that can be modelled and quantified - something that can be given “rigour” (and it is this that renders it “economics” with “credibility”).

So, one might argue then that Shiller’s narrative economics is not changing anything about economics but rather changing the way we think about narratives in ways that are conducive to a mainstream narrative *fix* in Fullbrook’s sense.³ There is deviation from a point of

³ As Fullbrook notes in Chapter 5: “Except among the very old and the clinically neurotic, dogged consistency of choice has never, outside economic theory, cut much ice as a behavioral ideal. It is at odds with the contingency and indeterminacy of human existence, with the developmental character of a healthy personality, with the humanist tradition, and, most especially, with the temper of detraditionalized societies.... Economics’ interest in choice behaviour has in the main been so far removed from the spirit of empirical, let alone scientific, inquiry that perhaps the brief, tentative and provisional explorations of the previous section of this chapter into the phenomenology of economic choice will not be without some interest. Each of the aspects of consumer behaviour considered above

departure, but this creates some diversity rather than leads to (as it might otherwise do given what it also states and suggests) fundamental critique: if beliefs, intentions and ideas embed as social norms, and these affect all behaviour, then this is perennial (since we never stop believing, intending and thinking and we are always doing so in social contexts), and not simply a matter of single exogenous shocks - epidemics. This is the basis of an intersubjective complex social reality of process, one that can perhaps be divided phenomenologically, as Fulbrook argues, but which cannot be assimilated in the way Shiller attempts, at least not *consistently*.

The very need to assimilate, indicates something: in order to be taken seriously as economics one must first conform to a narrow received position on economics. This, amongst other things, indicates also a loss of sense of what an empirically directed engagement could allow as potential, subject to narrative pluralism. The model in Shiller's narrative economics serves no actual purpose in terms of the mathematical construct; it is there merely so Shiller can say there is a model and it has a mathematical expression; in terms of the argument it has only metaphorical significance (it is not something whose precision matters), and yet it is included in detailed mathematical form (he could just have written, "ideas sometimes spread a little like an epidemic and by this I mean***. However, since people think and diseases do not, then there are definite limits to the analogy even though people transmit diseases through behaviour, which leads to ***"). The case for narrative economics concerns traces as quantities, as though the statement of something was the same as its social significance. Its actual significance is not its mention but meaning to the person, which is a hermeneutic issue writ large, and it is a matter of social positioning since it is specific persons in roles in social relations in organizations and systems that make decisions and enact policy (there can be causation for the many and causes by the few and many other possibilities). Meaning, influence and prevalence are not the same, so it is spurious to associate quantities with causes in events per se. This simply shortcuts what is actually required to explore those events, and shortcuts in a way that tacitly implies that it is through epidemics that beliefs become important (as though the rest of the time we were more like a standard agent – the normal "aggregate economy" from his p. 3). Yet if one goes back to the extended quote above from Shiller, the credibility of narrative research rests on its quantification, which in turn is framed as "rigour". What does this really *mean*? It may have some merit in terms of "going beyond the passive collection of others' words, towards experiments that reveal *meaning* and psychological significance", but this is not "rigour" it is shifting from data to consideration of evidence based on multiple sources. Still, one should not ignore that Shiller is genuinely interested in developing economics beyond its standard. However, this does not in and of itself indicate he is effective in doing so. One might instead argue that the form of argument constructed is indicative of and conducive to narrative pathology – a more sophisticated form of limitation on pluralism. Thus, not only is Shiller's narrative economics quite different than Fullbrook's *Narrative Fixation*, the latter helps to shed light on the former.

is widespread today, more or less understood by marketing professions, and influential in market outcomes. What is intended by the term "non-narrative rationality" is nothing neither less nor more than that the identification of rational or reasonable economic behaviour should be regarded as an empirical task, rather than a logical one dictated by the *a priori* foundations of a knowledge narrative. Projects to understand the logic of economic choice are also doomed if they do not avoid subordination to an antiquated and discredited theoretical framework. This is not easy. Neoclassicalism operates a successful programme of division and co-optation. By making the "mathematically well-behaved consumer" its standard, all others are regarded as deviant" (2016: pp. 121 and 123).

Questions arising from what the *Narrative Fixation* is

Though Fullbrook's *Narrative Fixation* is a book I would encourage anyone with an interest in the state of contemporary economics to read, it is not without its potential pressure points, or at least issue areas where more might be said and clarified. The book places great emphasis on phenomenology, but this is a wide-ranging set of theories and positions based on different originating insights leading to different concerns. It has its own problems of narrative plurality. There is, for example, the qualia issue raised by Nagel's "What is it like to be a bat", which creates a platform for the basic insight that we experience the world as we "are" rather than as it "is" (alluded to p. 111). Nagel's point was to refute psychophysical reduction as an argument for greater objectivity in problems of the mind, since this removes species-specific points of view, something that makes no sense when talking about sense experience. This is about being but says nothing about the capacity to adopt multiple perspectives that are in turn (in part) justified because of phenomenological range within society: a world differently experienced because of history, gender etc. This, which is Fullbrook's main focus, owes more to Husserl and others, but even here there is also a split with Heidegger (over Dasein), and also a plethora of specific lines of reasoning explored by various existentialists, of which Fullbrook no doubt knows far more than I do. That he knows far more, however, does not prevent the use of the many strands of thought appearing to be one that emphasises commonality over difference, as though the whole was being marshalled to provide an exterior solution to an observed interior problem (economics as is). This is not underhand but it does rather downplay the problems of the solutions (or at least of the insights that one tends to read as solutions), and to be clear, this by no means refutes any of Fullbrook's arguments - since it is an observation on the structure of argument and not its substance. Still, it seems germane since the book is ultimately about how the way we think and argue are structured and how pluralism can be a different way to structure. In terms of that structure there are also a set of further issues that might arise based on the difference between what accounts for experience and what experience is experienced as. Phenomenology may be basic to my world, but it is not exhaustive of what explains my world including what, how and why I have the experiences I do. I by no means intend to suggest Fullbrook thinks it is exhaustive, but it is worth noting that an intersubjective reality, open narratives, narrative pluralism, narrative communities, and a capacity for the human to switch between narratives create serious challenges in terms of expressing this interdependency of an interdependent reality. This is over and above any initial account such as Fullbrook's, which makes the case that it is plausible to suggest this is a problem set and potential we ought to be addressing. This is to say no more than a great deal of work remains to be done once an initial case for narrative pluralism is made and illustrated using the negative consequences of economics' current "Narrative Fixation".

Conclusion: lest we forget the importance of truth seeking in a "fake news" world

I began by making the argument that if one were to try to encapsulate the spirit of Fullbrook's *Narrative Fixation* in a single phrase it would be that pluralism is not the enemy of truth, rather it is the companion of truth seeking. The importance of this cannot be understated given the current state of the world. Every era sees itself as simultaneously civilization in decay and the pinnacle of progress, so there is nothing extraordinary in shrill cries that we live in extraordinary times. And yet we do. Just as economists are famed for predicting 8,9,10 or whatever of the last 3, 4 or 5 recessions, the failure to align does not negate the possibility of the problem. Look around. Fullbrook is surely correct to feel the urgent need for a better

economics, one that can actually address the cumulative problems we *experience*: amazing technological progress whose potential is used to hone our consumption, render us consumables, nudge our behaviour, and augment our fears, a banking system that has normalised financialization in the name of financial deepening, fiscal and monetary systems that punish societies in the name of sensible economics, condemning whilst reproducing wealth concentration, inequality, privilege and abuse, economic systems that recognize and yet seem incapable of addressing their own environmentally disastrous consequences, perpetuating unsustainable trends in the name of sustainable development etc etc. We don't need knowledge as ideology, there is enough propaganda in the world, enough relentless repetition of falsity in order to create real outcomes. Peter Pomerantsev's book *Nothing is True and Everything is Possible* may capture the dispirit of modern Russia, but we should remember that only some things are true or can be made true, and these are important to what we prevent, what we prefer, and what we make possible.⁴

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⁴ See Jo et al (2017), Lee and Cronin (2016) Morgan (2016b).

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