

Pigou and the dropped stitch of economics*

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The metaphor may be a bit archaic, but generations of knitters have known the aggravation of a dropped stitch. Miss a loop as one knits a row and a whole column of a sweater's ribbing can unravel, ruining all one's hard work. While no great hardship if caught promptly, when a dropped stitch is only noticed later, one is consigned to the time-consuming process of un-knitting, picking up the dropped loop and then reknitting back up again. A lot of effort just to get back to where you were – or, at least, where you had mistakenly believed you were.

The field of Economics is waking up to the fact that it dropped an important stitch – a century ago! The field completely underestimated the significance of Pigou's formulation of the concept of externalities. In missing this at the time, the way was paved for the development of a hubristic form of economic theory that greatly influenced today's socio-economic arrangements and which remains a root cause of our sustainability problems.

Today, people in the West live in a market-centric neoliberal culture that represents the import of mainstream 20th Century economic theory into the political realm. The central feature of our neoliberal self-coordination is the primacy of markets over non-market institutions. To extend Ronald Reagan's famous phrase, the effective slogan of today's paradigm is: "markets are the solution; government is the problem".

Yet, it is becoming apparent that not only do markets not have solutions for all our social and environmental problems, but also that market primacy exacerbates certain problems in its privileging of economic growth and partial measures of profit.

Even as these problems have become clearer, economics is still assumed to hold the answers. Hence, the memorable exchange between Greta Thunberg and Steven Mnuchin, then US Treasury Secretary, at the 2020 Davos Meeting. To Thunberg's challenge that policymakers should do more to prevent climate change, Mnuchin's defence was that young Greta had not yet learned her economics:

"Is she the chief economist, or who is she? I'm confused... After she goes and studies economics in college she can come back and explain it to us."

Issues of civility aside – he later claimed he had meant it as a joke – Mr Mnuchin expressed a common view that an economics degree might be more help than hindrance in comprehending our world and addressing some of our largest problems.¹ Yet possibly what Greta had noticed is that many of society's influential decision-makers are either formally

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¹ James Walker, "Steven Mnuchin Says Greta Thunberg Jibe Was "Somewhat in Jest" *Newsweek*, 2020 <https://www.newsweek.com/steven-mnuchin-davos-jab-greta-thunberg-intended-joke-somewhat-jest-1484015> [accessed 27 January 2020].

trained or well-practiced in economic thinking and still struggling to find convincing remedies for our sustainability crisis.

Perhaps the economics we have been teaching is the source of the problem?

1. Complete markets or very incomplete markets?

The key issue is not that economics is not a valuable way of thinking – it clearly is – but rather that the discipline lost sight of its boundaries and unwittingly propagated an exaggerated sense of its scope. Ironically, it achieved this by fatefully downplaying the significance of one of its own discoveries made a century ago. Given the profound influence of economics within modern culture, this oversight cannot be dismissed as mere academic error, for it has potentially existential real-world consequences.

In 1920, Arthur Pigou, a Cambridge economist, conceived the idea of externalities to describe how market transactions may create unintended harms or benefits for which no monetary compensation or reward occurs. Market exchanges effectively generate ripple effects for human value that go beyond what is captured by the originating transaction. These ripple effects may be positive – I benefit, too, from you being vaccinated – or negative – think of pollution or congestion. However, there is an important asymmetry. Positive externalities take the form of “free goodies”, whereas certain negative externalities constitute systemic risks that may be catastrophic to “trip” or breach. While you generally cannot have too much of a positive externality – a “free good thing” – too much of certain unwanted harms may induce systemic failure.

Externalities exist because markets have an incomplete grasp of what humans value. Markets work off prices and not everything has – or can have – a price. As such, marketed values – or prices – exist amidst a broader “value field” of things that humans care about and which have an influence on our wellbeing.

Pigou’s proposition was an inconvenient truth for economics. It suggested that there are real limits to what conventional economics might say about matters of human value and, hence, to how far markets might serve human wellbeing. The inconvenience of his idea may be why Pigou is not better known – seemingly more tolerated, than celebrated.

Complete markets...?

As a discipline, economics did the very human thing of trying to ignore a difficult proposition. By not confronting Pigou’s awkward challenge, the door was opened for a line of theorizing that led in exactly the opposite direction. Economists for most of the 20th Century sought to establish economics as a comprehensive corpus of thought with universal application. There was a conspicuous hope that general laws might be found, of the sort that had been discovered in physics and which had granted physicists considerable prestige in the academic firmament. Possibly, similarly great “truths” – and fame – might also be available to economists.

Hence, by the 1950s, a very appealing theory of *complete markets* had been developed. No externalities in this theory, none at all. In a world of complete markets, you can sign a contract today to buy any conceivable good or service, at any place in the world, for delivery at any

point in time from right now to the far distant future. Complete market theory is the laying down of a conceptual blanket over all our preferences that leaves no space for externalities. It is the comprehensive master spreadsheet of human desire – a currency-formatted cell for every preference.

The formulation of complete markets theory was deemed a major milestone for economics. Its authors, Kenneth Arrow and Gérard Debreu, received the “Nobel Prize” in Economics – the creation of which was itself a telling mark of the discipline’s yearning to be taken seriously as a science. Most important, it provided the cornerstone for the discipline’s claim for the superiority of markets as a mechanism for social coordination. The implication of complete market theory is that the market can allocate Earth’s finite resources to promote human wellbeing better than any political system can. Whenever a claim is made for the superiority of market outcomes, complete markets theory is lurking in the background.

To be fair, economists have always recognized that the theory is a hypothetical ideal and have long acknowledged various types of market failures, per Pigou. Textbooks talk of the need for governments – or at least for associations or clubs – to provide lighthouses, national defence, streetlights and more.

Rather, the key mistake made by 20th Century economics was not in misunderstanding externalities, but in grossly underestimating their magnitude and so foreclosing a debate on the innate limits of economic thinking. The discipline considered that markets were “complete enough” to safely proceed as if they were actually complete! We are now waking up to the consequences of that misjudgement.

... Or very incomplete markets?

Consider, for example, a recent study by Robert Costanza and colleagues. They estimated the monetary value of the “services” provided free by the Earth’s ecosystem at \$125 trillion in 2011, nearly twice the value of global GDP (gross domestic product) at the time.² Moreover,

² Robert Costanza and others, “Changes in the Global Value of Ecosystem Services”, *Global Environmental Change*, 26 (2014), 152–58 <https://doi.org/10.1016/j.gloenvcha.2014.04.002>.

The Costanza et al. (2014) estimate is based on monetary estimates from the Ecosystem Services Value Database described by de Groot et al. (2012). This database compiles monetary values of ecosystem services from 320 separate case studies providing 665 usable valuation estimates. However, these estimates cover only 10 of the 12 classified biomes and, on average, only 12 of the 22 recognized ecosystem services for each biome, so it is an incomplete assessment of the ecosystem’s full value. Nonetheless, using this data, Costanza et al. (2014) estimate that the value of the global ecosystem in 1997 was \$145 trillion per year declining to \$125 trillion per year in 2011. The corresponding global GDP figures were \$46 trillion in 1997 and \$75 trillion in 2011. So, annual GDP increased by \$29 while ecosystem services decreased by \$20 trillion. (Slightly confusingly, all dollar amounts are based to 2007). The decline is calculated based only on how land use has changed to increase the extent of certain biomes (e.g. croplands and desert) and decrease the extent of other biomes (e.g. tropical forest and wetlands). The data does not permit any evaluation of change of quality within biomes over the period, though the authors state that it is almost certain that functionality of ecosystems has declined in many cases. The paper cautiously concludes that: “our estimates show that global land use changes between 1997 and 2011 have resulted in a loss of ecosystem services of between \$4.3 and \$20.2 trillion per year, and we believe that these estimates are conservative.” (page 157). Though, earlier in the paper, they indicate a clear methodological preference for the higher number: “...the total net decrease is estimated to be \$20.2 trillion in annual services since 1997. Given the more comprehensive unit values employed in the 2011 estimates [i.e. \$20.2 trillion], this is a better estimate than using the 1997 unit values [i.e. \$4.3 trillion], but certainly still a conservative estimate.” (Page 156). The de Groot database is described at: Rudolf de Groot and others, “Global Estimates of the Value of Ecosystems and Their Services in Monetary Units”, *Ecosystem Services*, 1.1 (2012), 50–61 <https://doi.org/10.1016/j.ecoser.2012.07.005>.

the authors believe this to be a conservative estimate because it grasps only about half of the “services” we know ecosystems provide.

Other studies have contemplated the value of unmonetized social systems, including one estimate that unpaid housework in the UK in 2016 was about 65 percent of GDP – another huge block of value not captured by the market.³ Just combining this figure with the Costanza et al. figure suggests that measured GDP captures about a third of some larger conception of value.

From its very inception, GDP has been derided as an incomplete measure of wellbeing. However, in elevating GDP to its current perch of influence, the working assumption has been that GDP, and the market system it reflects, captures the lion’s share of what matters. What the latest estimates of “externalities” and non-market values suggest – and what our sustainability crisis seems to underscore – is that our perception of GDP’s reach may be horribly off. Such an estimate suggests that it is not that the market does not capture all things of value, it does not even capture most things of value. **Far from externalities being peripheral, they may be the main event!**

Unfortunately, such estimates have appeared late in the day, long after neoliberal ideas had exploited the discipline’s disregard of externalities to seed today’s cultural arrangements.

A dropped stitch

Externalities were generally ignored through most of the 20th Century. After Pigou had identified the problem in the 1920s, there followed a long barren period for “welfare economics”, the natural home for this type of thinking. This lasted until the early 1970s when there were the first stirrings of renewed interest by serious economists.⁴

Language matters and the terminology did not help. Framed as “externalities”, market failures could be more easily dismissed. The term encourages a perception of unpriced damages as being mere residuals to the centrepiece of a priced economy. Since Pigou, some have sought to “beef up” the terminology. K. William Kapp, for example, bluntly described the market mechanism, *in toto*, as a “cost-shifting” institution.⁵ In this framing, externalities are not a bug, but a feature.

The mathematization of economics – another marker of the discipline’s scientific aspiration – exacerbated the situation. The desire for manageable equations and functioning models further pushed troublesome market imperfections away.

Possibly, there was the sense that positive and negative externalities might roughly cancel each other out, leaving GDP incomplete but still reliable enough as a directional indicator.

³ “Household Satellite Account, UK - Office for National Statistics” <https://www.ons.gov.uk/economy/nationalaccounts/satelliteaccounts/articles/householdsatelliteaccounts/2015and2016estimates#main-points> [accessed 27 January 2020].

⁴ William Nordhaus and James Tobin, *Is Growth Obsolete?* (National Bureau of Economic Research, Inc, 1972), pp. 1–80 <https://econpapers.repec.org/bookchap/nbrnberch/7620.htm> [accessed 3 February 2020].

⁵ Clive L. Spash, “A Tale of Three Paradigms: Realising the Revolutionary Potential of Ecological Economics”, *Ecological Economics*, 169 (2020), 106518 <https://doi.org/10.1016/j.ecolecon.2019.106518>. And Karl William Kapp, *The Social Costs of Business Enterprise* (Spokesman Books, 1978).

But, as noted, that rests on the assumption that positive and negative externalities are symmetrical in nature.

In all this, the failure of economics to fully incorporate externalities in its 20th-century theorizing now appears to be the dropped stitch that defines the whole discipline. For a long time, this was a tolerable neglect as markets were more robustly counterbalanced by pre-market institutions that upheld unpriced values, and as the environment was able to absorb the fewer demands of a smaller, less consumptive population. But, with the onset of climate and biodiversity emergencies, the context has changed considerably. It matters more and more that we might not have *slightly incomplete* markets, but *very incomplete* markets.

Alas, in dropping this stitch, the way was paved for today's neoliberal paradigm. The idea of a near infallible market system was eagerly seized upon by post-WW2 "neoliberals", led by Friedrich von Hayek, who were keen to promote individual freedoms and to limit government, as an understandable response to the horrors wrought by authoritarian regimes, but who were less keen on scrutinizing the claims made about the superiority of markets. The market-favouring ideas burst into socio-economic reality via the Reagan and Thatcher governments in the early 1980s and have since settled across most of world by emulation and by the export of a "Washington Consensus" ideology.

A missed warning

Sadly, we missed a warning from another thinker who foresaw the danger, Karl Polanyi. He cautioned in 1944:

"To allow the market mechanism to be **sole director** of the fate of human beings and their natural environment... would result in the demolition of society"⁶ [emphasis added].

Polanyi saw that a culture that believed markets to be complete or "complete enough" would hazardously over-promote markets, leading us to organize our affairs in line with market forces, not fully appreciating that those market forces were largely *disembedded* from social and ecological reality. It is not that the market is *actually* disembedded from social and environmental foundations and benignly detached, but, worse, that it remains embedded in society and ecology and so induces market participants to transform the world with a dulled sense of the consequences of their actions.

In a critical "sliding doors" moment for human history, Polanyi's warning was drowned out by Hayek's *Road to Serfdom* of the same year, which was the launching pad for the neoliberal ideas that shape our contemporary world. The rest, as they say, is history. But it has left us at the start of the 21st Century transforming the matter and energy of the world using economic and financial tools that have only a very limited grasp of the reality they fashion.

⁶ Karl Polanyi, *The Great Transformation* (Beacon Press, 1944).

2. Complete measures or very incomplete measures? Our BESDA economy

GDP and EBITDA

While the deficiencies of GDP as a measure have been well known, less emphasized has been the fact that every single financial statement with which we build GDP exhibits the same deficiency of being a limited barometer of value. Ironically, the main users of these financial statements, in the business and financial sectors, are wise to the incompleteness of certain metrics *within* financial statements, but act in a way that indicates they are oblivious – or perhaps just willing to overlook – the incompleteness of financial statements writ large.

To explain, consider that GDP exhibits clear parallels with the profit metric of EBITDA (earnings before interest, taxes, depreciation and amortization). Though there are technical differences of formulation, GDP and EBITDA both represent partial measures of “wealth creation” *disembedded* from a fuller conception of value. However, while financiers are wise to the deficiencies of EBITDA, they have not acknowledged that the same pattern of incompleteness reappears at the level of the overall financial statement – and then at the yet higher level of GDP.

With the “DA”, EBITDA conveys the profitability of a company *as if it would never again have to spend a dollar on keeping its factories, equipment, property and software in good repair and up to date*. In other words, EBITDA excludes the cost of maintaining in good condition the whole infrastructure upon which a company depends! It is the homeowner’s fantasy of how wealthy they would be if they never had to fix or repair anything in their house ever again.

EBITDA came to prominence during the leveraged buyout (LBO) boom of the 1980s. As Moody’s recounted in 2000: “LBO sponsors and bankers have promoted the use of EBITDA for its obvious image benefits. EBITDA creates the appearance of stronger interest coverage and lower financial leverage.”⁷ As a general rule, beware profit metrics promising image benefits. Forbes was blunter still: “EBITDA is essentially a tool that shows what a company would look like if it wasn’t actually that company.”⁸

EBITDA is now clearly recognized as a “wool-over-your-eyes” measure, such that accounting authorities deny it official status. It is a “non-GAAP” metric – *not* a Generally Accepted Accounting Principle. Its ongoing ubiquity – besides being trivially easy to calculate – is because it masks the fact that a business may be overleveraged – that it may have borrowed against its future more than it can ever repay. But, as Warren Buffett perceptively notes, the measure persists not only because of its power to deceive others, but also to help deny:

“People who use EBITDA are either trying to con you **or they’re conning themselves**”[emphasis added].⁹

GDP is a “wool-over-all-of-our-eyes” metric for the same reason that it excludes the full cost of maintaining in good condition the social and ecological infrastructure upon which the whole

⁷ Pamela M. Stumpp and others, “Putting EBITDA In Perspective Ten Critical Failings Of EBITDA As The Principal Determinant Of Cash Flow” (Moody’s Investor Services, 2000).

⁸ Ted Gavin, “Top Five Reasons Why EBITDA Is A Great Big Lie”, *Forbes*, 2011 <https://www.forbes.com/sites/tedgavin/2011/12/28/top-five-reasons-why-ebitda-is-a-great-big-lie/> [accessed 29 January 2020].

⁹ <http://buffettfaq.com/#your-thoughts-on-ebitda>

economy depends. In steering society by GDP, we are effectively managing the planet on an EBITDA basis. GDP is not just a benignly incomplete measure of wealth, it is the tool with which we are conning ourselves.

Businesspeople – and homeowners - know how these stories end. Eventually the under-investment in infrastructure catches up with you. Of course, by then, you hope to have passed the asset – and the problem – on to someone else. This is feasible, if not best form, where the asset is not the whole planet. The deception works for as long as you can get away with the under-investment and the factories and software hold up.

Buffet's partner, Charlie Munger, is characteristically more forthright on the topic:

"I think that, every time you see the phrase 'EBITDA earnings', you should substitute the phrase 'bullshit earnings'."¹⁰

By analogy, GDP is "bullshit wealth". That we have been able to enjoy the comforts of its deception without mishap for so long is simply because it was introduced against higher levels of social and ecological infrastructure that we have not yet completely run down. The under-investment is only now becoming apparent.

A *BESDA* economy

Long-term or ESG (environmental, social and governance) investors may protest that they understand all this but that their own investment process insulates them from such blinkered thinking. ("We don't use EBITDA"). Yet the point is that *the whole financial system is operating on a "before ecological and social depreciation and amortization" basis* – call it *BESDA*, perhaps.

So, every single financial metric on the Bloomberg screen is a *BESDA* metric – profits-*BESDA*, earnings per share-*BESDA*, return on capital-*BESDA*, return on equity-*BESDA*, etc. The millions of financial numbers processed daily by our increasingly automated markets – which, in turn, steer our economy and drag our culture along behind, ripping up nature in its wake – *are all BESDA numbers*. It might not only be EBITDA with which we are conning ourselves, but every financial number in the book. They all represent different degrees of disembedded value, some of which we have unmasked, some of which we have not.

We have a sustainability challenge because the *entire financial system* repeats the problems of the discredited EBITDA metric *at the level of the whole economy*. This is the invisible conceptual cage we have wrapped around our decision-making and from within which the ESG movement is frantically trying to make a difference. Alas, given the incompleteness of our markets, the ESG movement increasingly resembles a hopeful grafting of good intentions onto an unchallenged accounting reality that remains the largely intact source of our problems. This is the root cause of our collective "greenwish" in which we are hoping that well-intended efforts to make the world more sustainable are much closer to achieving the necessary change than they really are.¹¹

¹⁰ <http://buffetfaq.com/#what-adjustments-to-reported-earnings-do-you-make>

¹¹ Duncan Austin, "Greenwish: The Wishful Thinking Undermining the Ambition of Sustainable Business", *Real-World Economics Review*, 90, 2019, 18.

Creative versus parasitic growth

To recognize that GDP is a measure of value disembedded from a much larger context must complicate our attitude towards GDP growth.

The Costanza et al. study estimated that the Earth's annual ecosystem services had been depleted by \$20 trillion since 1997, during which time conventionally measured real GDP increased by \$29 trillion, for a net gain of \$9 trillion.¹² While conventional global GDP grew by 3.5 percent per annum during the period, a fuller measure of "total wealth creation" would have grown by only 0.3 percent to 1.7 percent per year – that is, "growth" would have been at most half what we registered, at worst virtually non-existent.

In a world of very incomplete markets, things of human value lie in two separate realms – the marketed domain and the non-marketed domain. Some of the growth of the marketed economy genuinely arises from human ingenuity and creativity unlocking better ideas and products from new combinations of inputs. This is "good" growth, which ought to be celebrated and encouraged. However, other parts of monetized "growth" arise from simply running down the stocks of what is valuable but in the non-marketed realm. This is the illusion of wealth creation based on registering the increase in marketed value, but not recording the decrease in unmarketed values. In contrast to growth from genuine ingenuity, this is robbing Peter to pay Paul.

So, our measured economic "growth" overall combines in unknown proportions a "creative growth", which we want to encourage, and a "parasitic growth", which we do not. At an aggregate level, it is almost impossible to trace the origins – creative or parasitic – of GDP growth, and very few official metrics make any attempt to do so.

This should unsettle our views about economic growth. Our working assumption is that all economic growth is good – as it indeed would be if we had complete markets eliminating the possibility of parasitic growth. However, in not knowing the real-world mix between creative and parasitic growth, do we want more GDP growth, or less? It is not clear. And, given that companies work to the same price register as GDP, do we want companies to beat profit expectations or would it be better if they missed them? Who really knows?

The conventional argument – captured by the notion of an Environmental Kuznets Curve – is that it is only by increasing monetary wealth that we can develop better technology to protect the environment. However, it is not clear in the aggregate whether the deployment of such new capabilities ever makes good the damage done by the initial enabling wealth creation. While anecdotes can be summoned to support the idea – electric cars, wind turbines, LEDs etc – thus far, at the global level that matters, data shows we remain in net ecological destruction mode.

The "real" real return on capital

While GDP has long been criticized as a measure, the problem is that the root of GDP's deficiency is the incompleteness of the price system, which cascades all the way through our economy, contaminating the whole historical record of economic and financial metrics.

¹² Costanza and others.. See note 2 above.

To stick with the Costanza et al. numbers, it follows that all our reported corporate profits and returns will *on average* have overstated wealth creation by similar amounts. According to Credit Suisse, over the last century, annualized real equity returns in the US have been approximately 6 percent.¹³ Would we think differently of equity returns if they had been only 0 to 3 percent? What is the “real” real return on equity?

Of course, there would be important variations by industry. Trucost, the sustainable consulting firm, estimated in 2013 that large swathes of primary industry – including agriculture and energy companies – would simply not be profitable if they had to pay the full costs of their environmental damage.¹⁴ In 2011, the *American Economic Review*, published similar work showing that the solid waste combustion, sewage treatment and oil- and coal-fired power production industries generated air pollution damages – *air pollution alone* – that were greater than their economic value added (EVA).¹⁵ On this fuller accounting perspective, these are effectively EVS – economic value subtracted – industries.

There are two ways to interpret such findings. Either that if we moved to a full-cost accounting basis, such industries would go out of business, which is implausible given they serve some basic needs; or that if we were to pay sufficient prices to food, energy and waste companies for them to produce sustainably and make the necessary profit to stay in business, we would collectively have fewer resources to spend on other things. Stated another way, some of our “cleaner” discretionary consumption free rides off the current unsustainability of some of our primary industries.

Hence, just as the long record of GDP growth constitutes an overstatement of wealth creation, so the same must be true of the long record of financial return on capital. As Tim Hodgson of the Thinking Ahead Institute has aptly said of investment returns: “past returns are not even a reliable guide to past performance.”¹⁶

The real dilemma for Central Banks

The cascade continues. In managing our economy with disembodied measures of wealth, the world’s central bankers are effectively agents of the sustainability crisis. They may not wish to be unsustainable by personal inclination, but they certainly are by professional obligation because of how they are duty-bound to act.

An entirely foreseeable response to the climate emergency is that people in wealthier countries may choose to pare back their consumption of non-essentials. Certainly, not everyone has the luxury to do this, but the obvious solution of “buying less stuff” has become an articulated idea in wealthy countries. “Flight shaming” and “consumption shaming” are new memes. Articles in multiple UK newspapers have challenged readers to see if they can go a

¹³ <https://www.credit-suisse.com/about-us-news/en/articles/news-and-expertise/global-investment-returns-yearbook-201902.html>; Page 20. Between 1900 and 2018, a real return on equity of 6.4% per annum.

¹⁴ Trucost, *Natural Capital at Risk: The Top 100 Externalities of Business*, April 2013 <https://www.naturalcapitalcoalition.org/wp-content/uploads/2016/07/Trucost-Nat-Cap-at-Risk-Final-Report-web.pdf> [accessed 15 January 2020]. Page 9 and Table 7.1.2.

¹⁵ Nicholas Z. Muller, Robert Mendelsohn, and William Nordhaus, “Environmental Accounting for Pollution in the United States Economy”, *American Economic Review*, 101.5 (2011), 1649–75 <https://doi.org/10.1257/aer.101.5.1649>.

¹⁶ Tim Hodgson, “Past Returns: Don’t Even Guide the Past”, *Top1000Funds.Com*, 2019 <https://www.top1000funds.com/2019/11/past-returns-dont-even-guide-the-past/> [accessed 27 January 2020].

year without buying any new clothes, contravening the media's normal practice of generally trying to coax the economy along. (It buoys the advertising revenue).

Such behaviours would amount to a direct hit on GDP in developed countries, where personal consumption can represent two-thirds of the total. Critically, any such reduction in consumption will likely show up as a deflationary decline in economic activity that the world's central banks are on hair-trigger alert to prevent. The large and powerful financial bureaucracy stands ready to provide immediate stimulus to any perceived flagging of measured economic activity.

Hence, the arrangement most populations in the world currently live under is that should they collectively choose to buy less, more money will be printed until they have changed their mind. Effectively, our exhausted ecosystem is gasping for a lull in measured economic activity that our financial authorities are pledged to never let happen.

“Model behaviour”

The underlying problem, then, is that we have greatly overestimated the market's grasp of things that are valuable to humans, and this runs all the way through our decision-making from corporate investment to central bank policymaking. We developed a very appealing theory of complete markets and then, reflexively, started to behave as if that were an accurate enough depiction of reality. We built a model and have been fitting our behaviour to the model ever since, rather than asking how true the model is.

Marketized values must be viewed as a *subset* of human values nested in a bigger “value field”. From this perspective, it is not that economics is “wrong” but rather a valid corpus of knowledge, but with less practical reach than we have appreciated.

3. More and less market

So, how to proceed? Awkwardly, we could simultaneously benefit from *more and less* market – *more* markets where they are technically feasible and beneficial and yet *less* market primacy of culture. I recognize the tension, but will take them in turn.

3.1. More market...

If markets are incomplete, an obvious remedy is to try and complete them. While completeness is impossible – certain things of value defy commoditization – the market could nonetheless be beneficially extended in certain areas, as we have long known. The question arises: why hasn't that happened?

The remedy for externalities that Pigou offered a century ago is to price them via government intervention to make them “visible” to the market. Today's environmental economists have built upon this basic insight to describe and advocate carbon and pollution taxes and tradable permit markets, which are now broadly understood and have been implemented in several jurisdictions.

This certainly works for some of our environmental problems, but it relies on the separability and commodifiability of discrete pollution or waste flows. The prime example is a GHG

emission, which is homogenous, emanates from limited and well-understood sources and impacts a global problem regardless of where it arises. Many other pollutants have similar characteristics. Hence, while keeping in mind that markets cannot grasp everything, we could benefit from having more markets than we do.

Yet, in the face of a species-level challenge of unprecedented scale, we are bizarrely underutilizing externality pricing despite the huge lip service paid to the idea. According to the World Bank, about 20 percent of global greenhouse gas emissions are now covered by regional, national and subnational carbon pricing initiatives.¹⁷ However, less than 5 percent of this 20 percent (i.e. less than 1 percent of total global emissions) are currently priced at a level consistent with achieving the temperature goals of the Paris Agreement. This indicates it is technically feasible to price GHG emissions, but that we have a long way to go to before the value of a stable atmosphere is fully represented within our market system.

What is puzzling is that markets have evidently expanded greatly over time. Humans used to have no, or very few, markets. Now we have a great many. And yet, they are not everywhere they might be. This raises a crucial question: how does the market domain evolve in practice?

A still extending order

In 2012, Harvard philosopher Michael Sandel observed that markets seem to extend autonomously – pricing today what was not priced yesterday.¹⁸ Sandel noted many long-established activities that have become marketized in recent times including: child-care; queue-standing for plays, amusement parks and Congressional hearings; access to college; child surrogacy; another female’s sterilization; the right to shoot endangered wildlife; prison cell upgrades; and the right to buy another person’s life insurance policy in hopes they’ll die sooner than expected.

As he observed:

“...markets – and market values – have come to govern our lives as never before... [T]he reach of markets, and market-oriented thinking, into aspects of life traditionally governed by nonmarket norms is one of the most significant developments of our time.”¹⁹

Sandel may not have known he was echoing an observation made 250 years earlier by Adam Ferguson, a philosopher contemporary of Adam Smith. Observing at a much earlier stage the same mysterious creep of markets into social life, Ferguson pondered whence it came. It was seemingly a *spontaneous order*, “the result of human actions, not of human design”.²⁰ Hayek took up the theme in the 20th Century. Though a strong advocate of markets, he disliked the term “capitalism”, preferring “the *extended order* of human cooperation”, to convey the same idea of markets having emerged out of a pre-market historical context.²¹ As noted earlier, Hayek felt markets had extended sufficiently to largely displace the need for non-market institutions.

¹⁷ World Bank Group, *State and Trends of Carbon Pricing Report 2019* (Washington D.C: World Bank, June 2019) <https://openknowledge.worldbank.org/handle/10986/31755>, pp. 9-10.

¹⁸ Michael Sandel, *What Money Can't Buy: The Moral Limits of Markets* (Penguin UK, 2012).

¹⁹ Sandel.

²⁰ Adam Ferguson, *An Essay on the History of Civil Society* (Bell, & Bradfute, 1767).

²¹ F. A. Hayek, *The Fatal Conceit: The Errors of Socialism* (University of Chicago Press, 1990).

Note that Sandel, Ferguson and Hayek ask a markedly different question to that of Adam Smith – not how does the Invisible Hand work, but where did it come from in the first place? And how does it extend? Mainstream economics for most of the 20th Century was more focused on Smith’s question than Ferguson’s – striving to understand how markets worked so that we might manage them better. Promisingly, this is changing. Seemingly over its earlier infatuation with physics, economics has been turning towards biology and its themes of evolution and complexity.²²

Essentially, economics is migrating from where physics has been to where biology is headed. In turn, this is one of many manifestations of a “Systemic Spring”, in which multiple disciplines are racing to incorporate the insights of systems and complexity thinking.²³ This is likely to lead future economists to see that the economy is nested within the much larger complex systems of society and ecology. It will also lead them to recognize that, despite Hayek having been alert to the nascent developments of complexity thinking and cybernetics, his appraisal of the sufficiency of markets was misplaced. Even having “extended” in earnest for some 300 years now, markets still have only a very limited grasp on the totality of what humans value.

Asymmetric extension of the market

On the face of it, then, an ever-expanding market system – a “still extending order” – would appear to be good news because it would bring the market’s genuine power of efficient allocation to more and more items. The key problem, however, is that there is a hazardous and unsustainable asymmetry in the pattern of the market’s extension.

Consider, for example, that over the last decade my Google search for “carbon emissions” has been commodified and now commands a price – not to me, but to the advertisers bidding for my attention – while my actual carbon emissions remain unpriced despite economists making a serious case for such pricing for nearly half a century, now. Personal data suddenly has a price, but not carbon emissions? The market seems to extend in mysterious ways.

The simple explanation is that markets appear where those who have power to make markets would like them to appear.

This power is often *de facto* rather than explicitly granted. Our current socio-economic arrangements empower corporations to reach out and appropriate – to make new property of – new things that may be profitable for them. Such as your internet searches or knowledge of your travel movements. However, corporations also have extraordinary power through lobbying and regulatory obstruction to prevent any new commodification of entities that would result in new costs. Businesses have real powers in the political domain in which markets are nested to determine where markets may or may not extend.

So, our still extending – and so still incomplete – market system continues to annex new, previously uncommodified, realms, *but in asymmetrical fashion*. Markets eagerly reach out to embrace new profit opportunities but rebuff the internalization of new costs. As the decades

²² David S. Wilson and Alan Kirman, *Complexity and Evolution: Toward a New Synthesis for Economics* (MIT Press, 2016).

²³ Duncan Austin, *Can Economics Grasp What Ecology Says?* (Responsible Investor, 22 February 2021) <https://www.responsible-investor.com/reports/duncan-austin-or-can-economics-grasp-what-ecology-says> [accessed 3 March 2021].

go by, this ensures that the market, as an institution, becomes ever more extractive or cost-shifting in nature.

“Enabled markets”, not “free markets”

Hence, the “free market” advocate cheats when he argues the role of government is principally to uphold property rights, or to “enforce private contracts.” That entirely dodges the critical questions of what entities should receive property rights and how we should collectively decide. “Property” can never be a static domain, both because we make new things and because our ever-expanding knowledge of the world leads us to re-perceive and re-value many existing things. As well, technology permits us to commodify – and so make property of – more and more.

The “free market” advocate is in the dissonant position of wishing market actors to be the sole conferees of new property rights while also depending on the government to uphold a general rule of law which is the necessary condition for property to being meaningful at all. Indeed, because of the indispensability of the rule of law, we should be more accurate with our terminology. We never have “free markets”. We only ever have “enabled markets” – markets *enabled* by an authority capable of upholding the rule of law that gives property meaning. Language matters. “Free markets” is a highly misleading term – routinely deployed as an unassailable universal principle to cloak a more parochial agenda. Too often, what “free market” proponents are really advocating is a system of “enabled markets where we want them and not where we don’t.” Or, put another way, the working slogan of neoliberalism has come to be: “*some* markets are the solution; government is the problem”.

Government is in the loop!

The problem, as should now be clear, is that we have created a narrative and cultural norms that limit governments’ ability to correct the huge gaps in the market’s grasp of real value. We expect government to support the market and governments now find themselves “caught in the loop” of promoting unsustainable economic growth.

Governments increasingly use economic performance – even stock market performance! – as a measure of their success, which negates their ability or even interest to introduce new markets that may impose costs. Other reinforcing loops are more tangible, still. For example, corporations use profits to lobby for lax regulations that enhance profits which can be used to lobby for more lax regulations etc. This dynamic – Friedman’s Feedback Loop, call it – has inexorably neutered government’s ability to improve human welfare by modulating market forces.²⁴

3.2. And less market?

Paradoxically, then, to use markets more than we are, to introduce more externality pricing, would require a new cultural level reassertion that markets are a tool within culture. We need not a sustainable economy, but a sustainable culture that has an economy. Such a culture would establish room for governments to introduce new markets which powerful market

²⁴ Duncan Austin, “Milton Friedman’s Hazardous Feedback Loop”, *Responsible Investor*, 14 September 2020 <https://www.responsible-investor.com/articles/duncan-austin-milton-friedman-s-destabilising-feedback-loop> [accessed 3 December 2020].

incumbents may not like, but which improve human wellbeing. In turn, such a culture would also invigorate non-market means to protect our environment, for we must remember that not everything of human value can be priced and “internalized”. The interesting question, worth a moment’s reflection, is: why is that?

“Economic” and “ecological” views of value

Though Pigou identified commodifiable externalities, there are many things of human value that cannot withstand the disembedding from their context necessary for them to be commodified and, hence, be transactable via market exchange. Such values are non-transactable because they are irrevocably embedded either in specific things – they are unique – or in specific relations – they exist “between” certain things. Some examples: friendship, reputation, loyalty, integrity, trust, community, mental health, etc. If you believe you have purchased any of these items, you might want to check the label.

What is tricky is that most things in the world bear both separable transactable values and intrinsic non-transactable values. A tree has both separable value as a feedstock for furniture and paper and intrinsic value as part of the ecosystem in which it is relationally embedded. We tend to value trees in managed plantations for their separable values, but we value *General Sherman*, the 26-story-tall giant sequoia that is the largest known tree on Earth, for its non-separable attribute of being uniquely the tree we call *General Sherman*.

With *General Sherman*, we have chosen to perceive and value its uniqueness over its instrumental value. Indeed, we might say that *General Sherman* is price-less. The “economist” denies the validity of this perspective by arguing that everything has a price. To say that something is priceless is merely to say that nobody has yet offered a high enough price. Give, say, a trillion dollars to the right person and, if you so wished, *General Sherman* could almost certainly be delivered to your door as a very large stack of two-by-fours.

In turn, the “ecologist” denies the “economist’s” perspective, arguing that while you *can* apply such economic thinking to *General Sherman*, it is the *wrong* sort of thinking to apply. Consider that when someone helps you as a favour, you sometimes sense it would be *wrong* to pay them, as they would take offence. Payment would change the nature of the favour from something being uniquely offered as part of a relationship between you and them to something merely transactional. It is not that you could not pay them. Indeed, at other times you may well pay other people for the exact same assistance, and so can *impute* the monetary value of the favour. Instead, both parties agree it is not the right frame of reference for this exchange on this occasion. The context is non-economic. In many other instances, the opposite is true – it is very helpful to be able to buy lunch at a restaurant on a purely transactional basis without having to befriend the seller.

Both the “economic” transactional perspective and the “ecological” intrinsic perspective are beneficial and valid, *but they are incompatible*.²⁵ To act based on one value is to close off the possibility of realizing the other. It is like the famous optical illusion where you can see the young lady or the old crone, but not both at the same time.

²⁵ Austin, *Can Economics Grasp What Ecology Says?*

Values nested in values

So, we always have a choice. In sensing that it is sometimes wrong to put a price on something, we grasp that the boundary of economics and markets is less a technical and more of a moral matter – dependent on deeper values. The priced values that economics so capably juggles appear to be nested within meta-values beyond, or prior to, economics. The prior decision whether to see things for their transactional value or their intrinsic value is the expression of a deeper preference that transcends the economic frame of reference and cannot itself be priced. For example: “how much can I pay you for me not to pay you and to regard this as a favour instead?” It doesn’t work! It is a pre-economic preference.

We are all both “economist” and “ecologist” because we appreciate that some values are separate to the things that bear them, and some are intrinsic. While the choice emanates from us, different “things” coax different perspectives. Some things encourage an “economic” transactional perspective – a biro pen is a biro pen – while other things encourage an “ecological” intrinsic perspective – your pet dog is *your* pet dog not easily replaced by another random dog providing tail-wagging services. Somewhere between biros and beloved pets lies pretty much everything else in the world. We each exhibit our own preferences regarding which perspective to apply to which things.

Yet, our preferences are unavoidably shaped by our culture. Some cultures instil an economic perspective, some an ecological perspective. A market-centric culture primes our perception towards separable and transactable values that can be monetized over the non-separable and relational value in things that generally cannot. In contrast, “traditional” cultures have often cultivated perceptions of intrinsic value by declaring places sacred or by “placing” beings into the natural world. That is, instead of placing a price *on* things, they seek to render things priceless by placing spirits and gods *in* them, from rivers to forests to rocks, even. Daft, really. It would be like naming a tree. After a warrior god.

So, we have transactional values in tension with intrinsic values, nested within even deeper values about which is the most valuable of these two perspectives to apply. The decision to apply an economic perspective to the external world is always a value judgment that necessarily transcends economics. More, it is a value judgment that can never be justified or refuted on economic grounds precisely because it is an argument about the validity of applying an economic perspective.

All this is a discussion that the field of economics may well have taken more seriously 100 years ago, had it been more open to the significance and implications of Pigou’s formulation of externalities. Alas, we are now having to unknit to pick up this dropped stitch in a world now confronting large-scale problems of missed externalities.

Economics might be well served by formalizing an incompleteness theorem that would act as a proverbial knot-in-a-handkerchief reminder about the limits of claims that economics can make. It is an oddity of human intellectual thought that the most logical of our sciences, mathematics, had a formal Incompleteness Theorem as early as 1930, while economics formalized a complete market theory in the 1950s and seemingly still has no definitive statement of incompleteness.

One of the ways, then, that we could better protect ecological values is for economics to recognize – *re-cognize* – the wisdom of culturally ring-fencing where economic thinking is

preferred. In other words, to recognize the non-monetizable value of non-economic thinking. Granting names to things or designating areas as protected are just two means by which societies can explicitly restrain the ever-eager economic perspective. Of course, such boundaries need to be upheld at the social or cultural level to count for anything. If not, individuals can always free ride and extract the monetary instrumental value that others have agreed not to pursue. So, it matters who stands behind a name or a principle. *General Sherman's* sacred status seems well supported; *Standing Rock's* was not.

Conclusion

While economics is undoubtedly a valuable form of knowledge, it is a way of seeing things, not *the* way. A full century after Pigou formalized the idea of externalities, we might mark the anniversary by taking more seriously the effort to clarify the appropriate reach of economics and markets within the broader social and cultural context.

Arguably, one of the most important questions in economics is not even an economic question. The field effectively punts the matter of its own ontology – the things that economics can talk about – to a different discipline. In Abba Lerner's words:

“An economic transaction is a solved political problem. Economics has gained the title of Queen of the Social Sciences by choosing solved political problems as its domain.”

Economics has been strangely content to focus its efforts on pattern-seeking within a domain it leaves other disciplines to define, but in the absence of contemplating its boundaries more explicitly, it has hubristically come to believe it has greater reach than it really has.

In turn, this leaves most economists – and the great many people who think and act economically in conducting their professional duties – dangerously unaware of where economic thinking is beneficial and valid and where it ultimately hits limits. They are effectively blinded to the intrinsic and increasingly large cost-shifting of their decision-making. In the discipline not having recognized those limits earlier, we have delayed our understanding about the ways markets extend and emerge, leading us to have the markets we do and to not have the markets we do not.

Such recognition now calls for us to move from being a market culture unthinkingly in thrall to very incomplete markets to becoming a culture that can thoughtfully uses more complete markets *and also knows their limits*. We need not a sustainable economy but a sustainable culture that has an economy.

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