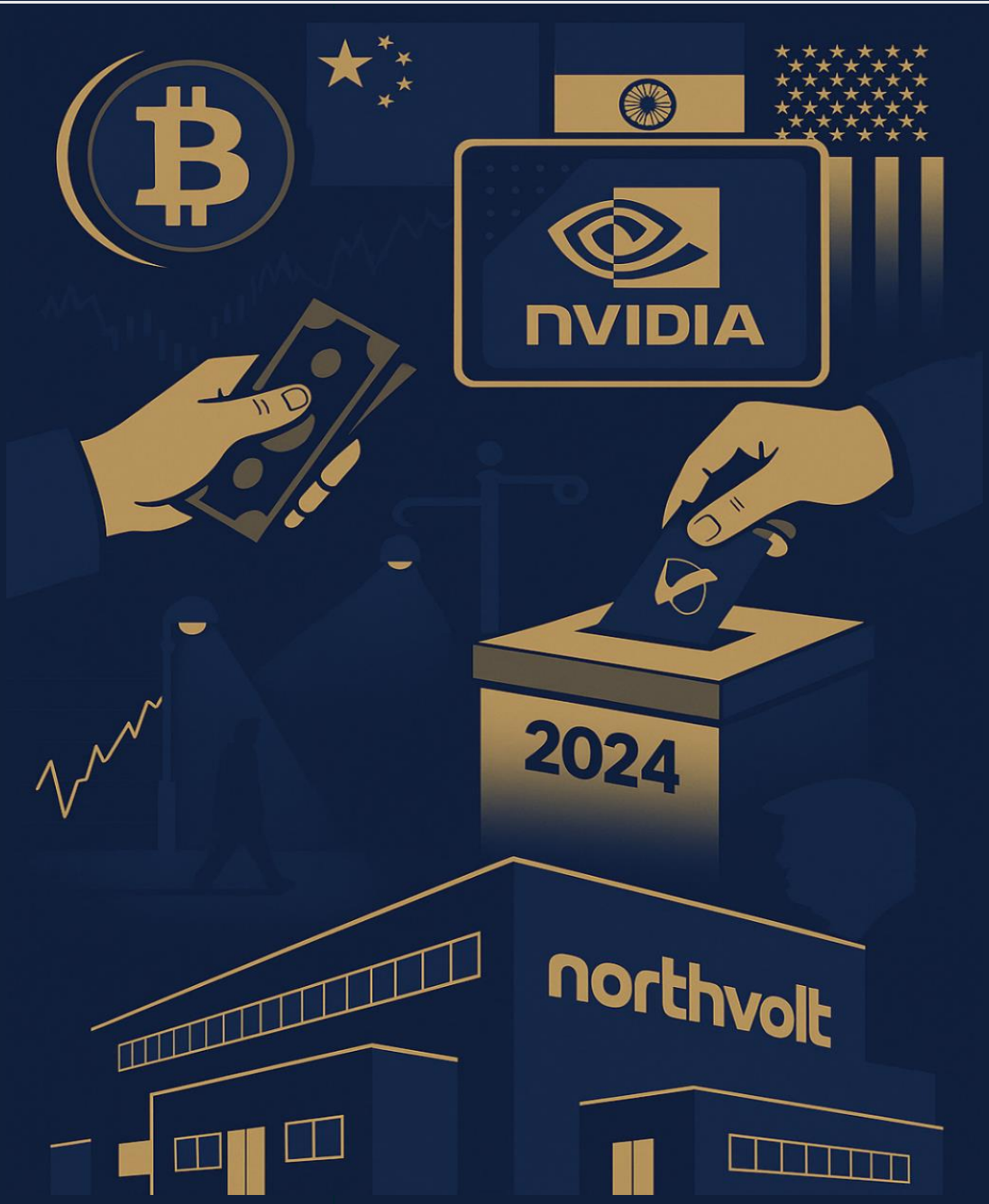
Issue No. 1 | **June 2025**

MACRO MATTERS



RGS Economics Society

Introduction

Welcome to the inaugural edition of the RGS Economist. Compiled and edited by Nisna, Suyash and Anoushka (many thanks), this is of huge credit to all those who took part and will, hopefully, be the first of many. Well done, everyone!

Mr Neil (Head of Economics)

For the 500th Anniversary of RGS, the Economics Society has produced a magazine, collating articles written by students throughout the school, demonstrating their ability to research and apply taught economic principles beyond the classroom. This magazine displays the strong calibre of students that have been motivated by their love of learning and ambition to succeed. It has been a pleasure to illustrate the students' shared interest of Economics in this first issue, '*Macro Matters'*.

Note from Editors

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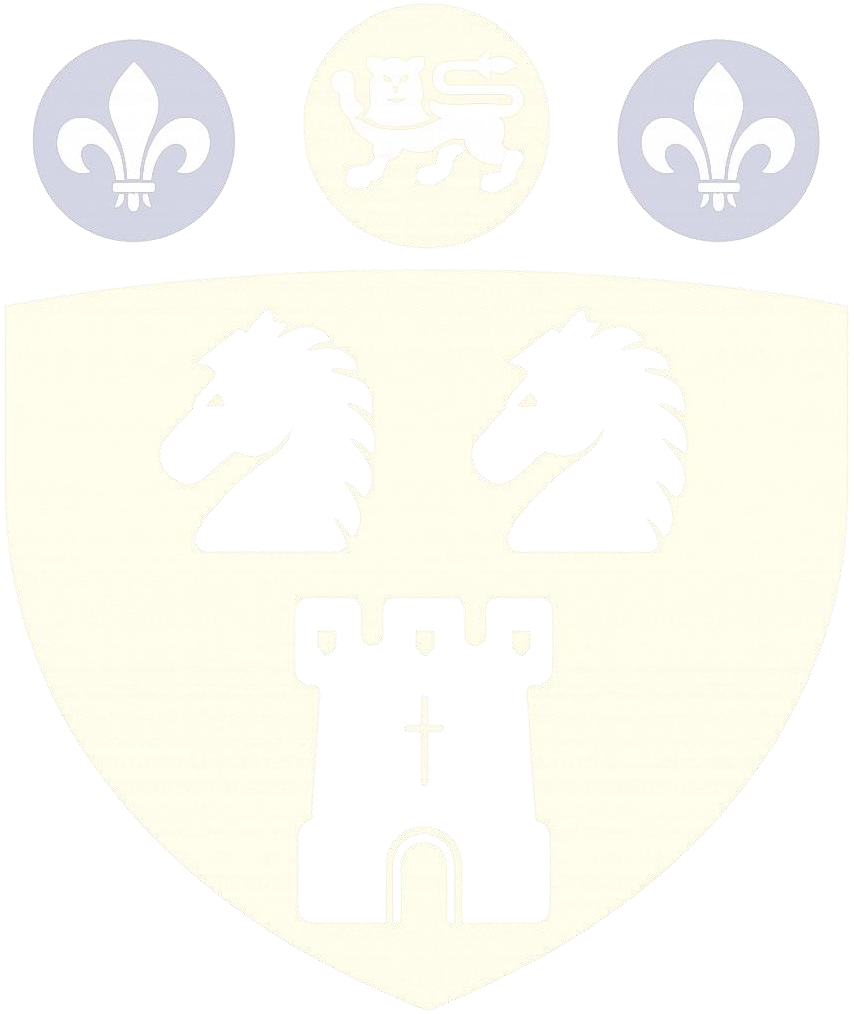


Navigating Boom, Bust, and Beyond:

RGS Economics Society's 2024/25 Review

The Economics Society has hosted an impressive array of guest speakers this year, ranging from recent school leavers to seasoned professionals with years of experience in economics, finance and business! Each speaker brought unique perspectives and expertise, enriching our understanding of the ever-evolving economic climate.

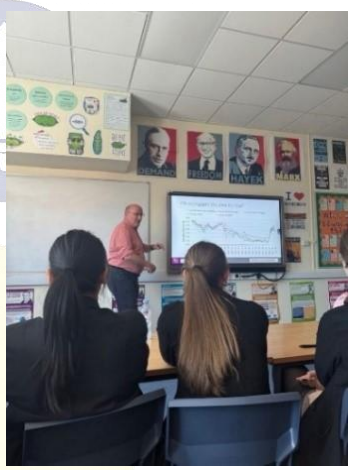
(Image credit: RGS student photographer)

2024-25 has been a particularly tumultuous economic period, with global economies navigating the aftermath of the pandemic, inflationary pressures and geopolitical tensions. In addition, Trump's emergence onto the global stage has marked a transformative shift in global power dynamics, with the extension of protectionist barriers signalling a move towards economic nationalism and heightened trade tensions. We are incredibly grateful for the diverse range of insights that have shaped our discussions during this period, equipping us with the knowledge required to tackle the challenges ahead!

Highlights include a thought-provoking talk by **Richard Hutton**, the Chief Financial Officer of Greggs, who delved into the effects of recent macroeconomic trends, such as surging inflation, on business performance. We observed how, despite falling real wages, Greggs managed to achieve rising sales due to its competitiveness as a budget-friendly brand. Drawing on A-level economics concepts, such as income elasticity of demand, Richard explained how Greggs maintained profit margins despite the economic downturn brought on by Covid-19.

(Image credit: RGS student photographer)

The Economics Society was thrilled to host **Geoff Riley** twice this year! As the co-founder of Tutor2u, and the former Head of Economics and Politics here at RGS, Geoff brought a wealth of expertise and a personal connection to our school. During his first visit, Geoff delivered a captivating talk on the UK economy in the lead-up to the general election, discussing key challenges such as rapid inflation, the rising public debt to GDP ratio, and evolving labour market dynamics. This was a particularly insightful talk, providing both an economic and political outlook on the UK's macroeconomic trajectory.

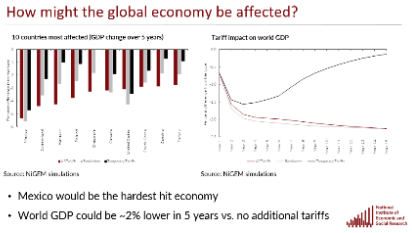


(Image credit: RGS student photographer)

Geoff returned for an exam-technique masterclass ahead of A-level mocks. Sharing exclusive insider tips on what examiners look for in top-tier answers, he left Year 13 students feeling equipped and confident to tackle their exams! Reflecting on his visits, Geoff commented; 'with a packed classroom of eager, engaged and curious economists, my two visits this year have been great fun. The questions show genuine insight and a willingness to challenge conventional wisdom and there is always that palpable sense of north-east humour added into the mix.'

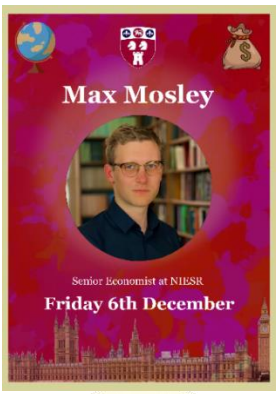
During an era of profound global economic transformation, Trump's

election to the US presidency signalled a considerable shift in the international economic trajectory. **Ahmet Kaya**, principal economist at NIESR, delivered a compelling analysis of the global repercussions of



Trump's tariff policies. Using the NIESR forecasting model, he projected that global GDP could shrink by 2% in the next 5 years, highlighting the far-reaching consequences of protectionist policies.

We were delighted to welcome **Alice Wilson** (ON 07-18) back to school in November for an insightful talk about her exciting career journey after leaving the RGS. Drawing from her extensive experience in financial spring weeks, and her current role at BNP Paribas, Alice provided a firsthand insight into the application process and shared invaluable tips on navigating the competitive world of finance.



(Image credit: RGS Economics Society)

Furthermore, Max **Mosely**, a senior economist at NIESR, delivered a compelling presentation on the UK economic outlook and productivity trends. He offered valuable insights into the factors behind the UK's relative productivity stagnation, highlighting the role of labour market rigidity. This issue has been further emphasised by the government's current pledge to enhance workers' rights by limiting flexible labour contracts and raising the minimum wage, a move that could inadvertently discourage capital investment.

We had the pleasure of welcoming **John Humpish** (ON 73-81) back to school for an engaging session on future career pathways for keen economists! Drawing from his background in both corporate and start-up environments, John shared invaluable 'life lessons in the corporate jungle' along with practical advice on launching a successful business. He also explored the government's initiatives to drive economic growth and wealth creation in the UK, offering a thought-provoking perspective on the evolving business landscape.

We were extremely fortunate to gain firsthand insights into university applications for economics-related degrees from recent ONs, **Kush Mahawar** (PPE at Oxford) and **Kushi Rao** (Economics at Cambridge). They shared valuable advice on the UCAS process and strategies for applying to top universities, offering practical guidance that was especially helpful for Year 13 students navigating their own applications.

Overall, the Economics Society has had a fantastic year, hosting top-tier speakers and gaining invaluable insights into the world of economics. A huge thank you to all our speakers, for your time and expertise – you have equipped us with the knowledge and tools to navigate future challenges, and we look forward to applying what we have learned in the years ahead!

Annika Sarawgi

Exploring the Financial Capital: The RGS Annual Economics Tour to London

In February, the Year 13 economists embarked on the annual RGS Economics Tour to London. The trip was made possible by Mr Loxley's extensive connections in the City and we are incredibly grateful for the opportunity to visit major companies such as HSBC, Deutsche Bank and Blackrock, and engage with a diverse network of Old Novos!

(Image credit: RGS student photographer)

The trip began with a visit to Canary Wharf, the major financial district characterised by modern skyscrapers and a bustling business environment. Canary Wharf serves as a hub for global banks, financial institutions, and professional services, it is often termed 'London's Wall Street', it certainly felt like we were in New York! Upon arrival at Canary Wharf, we went straight to HSBC, where we were welcomed by Liz Martins, the UK Economist at HSBC, who gave us a compelling presentation on the 2025 UK Economic Outlook. Liz delved into several key macroeconomic themes, including inflation, interest rates, oil prices, and the ongoing Trump trade war! I particularly appreciated her analysis of the UK labour market and current government policies, including the rise in employers' National Insurance Contributions, the national minimum wage and enhanced workers' rights. According to HSBC forecasts, 54% of firms expect to reduce their number of employees and 38% may lower wages. Liz offered a valuable insight, suggesting that strengthened workers' rights will promote economic growth in the long-run by boosting consumer sentiment and purchasing power.

(Image credit: RGS student photographer)

(Image credit: RGS student photographer)

In contrast to HSBC's towering glass skyscraper, we headed to Westminster to visit the National Institute of Economic and Social Research (NIESR). Situated in a small office near the Houses of Parliament, NIESR is Britain's oldest independent economic research institute. Hailey Low, an economist at NIESR, delivered a thought-provoking talk on the UK's economic forecast and investment landscape. Hailey provided an insightful comparison between the UK and US economic models, highlighting why UK productivity has stagnated relative to the US since the 2008 Global Financial Crisis. A key difference lies in the degree of labour market flexibility, which is much higher in the US. Additionally, they had contrasting fiscal approaches to the financial crisis; with the UK government implementing fiscal consolidation measures, whereas the US pursued a more expansionary approach, also determined productivity growth rates.

The highlight of the tour was Thursday night, where we visited the Houses of Parliament, and attended a networking event at the House of Lords with former RGS students now working in the City! It was truly incredible to visit the House of Commons - the heart of where economic policies are shaped and implemented. I enjoyed an insightful conversation with Peter Welsby (ON 99-06), Head of Europe FICC Trading at Manulife Investment Management. We discussed market trends and how the current economic climate is shaping investment

opportunities in Europe. Additionally, I particularly enjoyed speaking to Nicholas Fawcett (ON 93-00), Director at the BlackRock Investment Institute. We explored BlackRock's recent decision to scale back on its support for Environmental, Social and Governance (ESG) standards, considering whether this reflects a broader trend among major investment firms to retreat from ESG strategies – possibly in response to accusations of 'woke capitalism' from right-wing politicians. It was also a fantastic opportunity to connect with some recent ONs, who are currently studying at various universities including LSE and Oxford. It was really inspiring to hear about their experiences and career journeys – they are great examples of where we could be in a few years! A huge thank you to Lord Timothy Kirkhope (ON 53-62) for giving us an exclusive tour of Parliament and sharing so many fascinating insights with us!

Our second day began with a visit to Columbia Threadneedle Investments, where we heard from Steven Bell (ON 64-71), the Global Chief Economist. Steven delved into global influences on the UK economy, with a special focus on the Trump trade war. Drawing on A-level economic concepts such as the Ricardian theory of comparative advantage, Steven delivered a compelling analysis on the global repercussions of a potential trade war and explained the growing global shift towards economic nationalism and protectionist barriers. He also explored domestic economic challenges, including heightened wage growth in the UK, which is posing a dilemma for the Bank of England as it looks to gradually lower interest rates.

Adjusting to the 'London pace', we enjoyed a brisk tour of the City on the way to our next destination, Deutsche Bank, where we were welcomed by Mark Wall, the Chief European Economist, and Sanjay Raja, the UK Economist. Mark discussed how globalisation has led to increasing inter-dependence and over-reliance between global economies, a reality made glaringly clear by the Covid-19 pandemic, which exposed the vulnerability of global supply chains. He also explored the connection between economics and politics while discussing the US-China trade war, contrasting Trump's 'America First' policies with China's authoritarian regime. Furthermore, Sanjay delivered an engaging presentation on UK economic growth, covering key challenges such as stagflation, the rising debt to GDP ratio, and net migration.

Our final stop of the trip was BlackRock, where we enjoyed a fascinating talk from Nicholas Fawcett on UK monetary policy and inflation. Nicholas offered valuable insights into UK economic history, exploring key stages such as the Phillips curve, the rise of monetarism in the 1970s, and the Great Moderation, a long period of stable growth from the 1990s till 2008. He also delved into topical economic affairs, such as the Russia-Ukraine conflict, and examined how second-round effects could exacerbate its impact on inflation in the UK.

Overall, the London Economics Tour was an incredible experience and we are hugely grateful to all the speakers for delivering such captivating presentations on the current economic climate! 2024-25 has been an especially eventful period in the world of economics, and it has been great to hear a diverse range of insights that will help us navigate the challenges ahead.

Annika Sarawgi

Make America Grow Again? Trumponomics Unpacked

Introduction

When Donald Trump launched his 'America First' economic policies, he promised to revive US industry and protect American jobs. However, will Trumponomics really strengthen the US economy – or disrupt the global trade system? Trumponomics refers to the collection of economic policies adopted by President Trump to, in his words, end the "devastating inflation crisis" and usher in a "beautiful golden age of business" (Sherman, 2025). Some key elements of this strategy include liberally-applied tax rate cuts, the imposition of high-rate tariffs on some of America's key trading partners including China, Mexico and Canada, as well as deregulation of industries with help from the head of the Department of Government Efficiency (DOGE), Elon Musk. These policies, at face value, appear to be designed to appeal squarely towards American consumers and firms, as well as promoting American economic growth (including the associated benefits that growth would offer). However, the measures have also drawn criticism from economists and the press, citing concerns around inflationary pressures and a widened budget deficit. NIESR, Britain's oldest independent economic research institute, called the policy package "unambiguously inflationary" (Mortimer-Lee, 2024). These policies have reshaped global trade dynamics, creating both opportunities and challenges. Which countries stand to benefit – and which may struggle – under Trumponomics? Examining its winners and losers provides crucial insight into whether protectionism is a sustainable, or indeed growth-enhancing, economic strategy.

Global economy: winners and losers

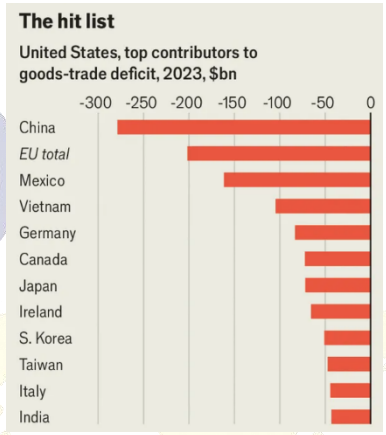


Figure 1
(Source: BEA, The Economist)

In the context of hostile trade policies such as those put forth by President Trump, a winner could be considered any economy that ends up better off relatively to other economies that it regularly engages with. From President Trump's perspective, any country that records a big trade surplus with the United States must be cheating America (The Economist, 2024).

As of 2023, China holds the greatest contribution to the USA's trade deficit in goods (The Economist, 2024), of around $275bn as shown in Figure 1. As a result, the President is primarily looking to impose trade restrictions on China first. This seems even more fitting when his previous war of words with China over technology is considered. That feud resulted in the blacklisting of multiple Chinese firms – including telecommunications giant Huawei – from working with key mainstream American firms including Google and Qualcomm. As of February 2025, President Trump has imposed additional tariffs on China of 10% which came into effect on 4th March 2025 at the time of writing (not to mention the blanket 25% tariff on ALL aluminium and steel imports). While this may seem less severe than tariffs imposed on imports from other countries, many Chinese imports already had a special China tariff prior to President Trump's second term. The consequential dent to the Chinese economy as a result of American firms switching to domestic providers (but still buying materials at an increased price than before) is estimated to be 0.01% of long-run Chinese GDP (York, 2025), around $17.79bn based on 2023 GDP figures (World Bank Open Data, 2023).

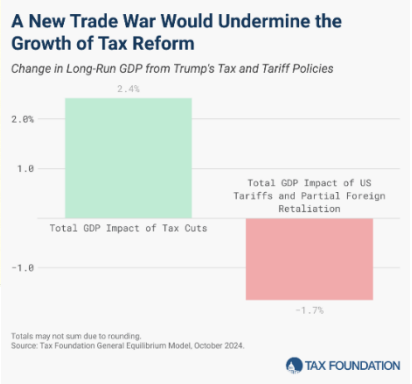


Figure 2
(Source: Tax Foundation)

Surprisingly, economic theory suggests that the US may become a victim of its own trade policy. The imposed tariffs will increase the costs of imports to American consumers and cost of raw materials to American firms, who must pay the extra cost upon receiving shipment of the

imports from China. The all-encompassing nature of the tariffs mean these cost increases will affect almost all US firms, causing a left shift of the US's short run aggregate supply curve and causes an increase in the general price level, due to cost-push inflation. This will contribute to the existing inflation rate in the US, recorded at 3% in February 2025 (Politi, Clarfelt and Jones, 2025). This situation may prove Lerner's Symmetry theorem – an ad valorem tariff on imports has the effect of an equal restriction on US exports – because tariffs on imports reduce foreign economies' ability to earn domestic currency, reducing their ability to buy exports from the tariff-imposing country. This reduces the total value of exports to whichever country the tariff is imposed on. Measures such as the 25% blanket tariff on steel and aluminium will unilaterally reduce exports of American goods and services by raising costs of production to US firms, so the exports become less internationally competitive. The Tax Foundation General Equilibrium Model estimates that the tariffs and some retaliatory countermeasures employed by affected countries will cause a 1.7% decline in American GDP, as shown in Figure 2 (York *et al.*, 2024). However, the model also notes that there is potential for the economic policies to have a positive effect on US economic growth. Firstly, measures such as making the individual tax components of the TCJA permanent (initially signed into law on 1st January 2018 (Floyd, 2025)), which included the lowering of income tax rates. The rate for the top income band was reduced from 39.6% to 37% while the rate for the lowest taxable income band remained at 10%. This would work to increase disposable income for (higher-earning) American consumers, so domestic consumption should rise. The extent of this is debatable, and would be based on the marginal propensity to consume (MPC) of these higher-earning households. Increased domestic consumption would cause a rise in aggregate demand whilst also causing demand-pull inflation. This works in conjunction with the cost-push inflation mentioned earlier as a result of the protectionist tariffs. Given that US inflation rose to 3% in January, these measures won't help the Federal Reserve in trying to bring down interest rates. Secondly, President Trump has also proposed reducing the corporation tax rate from 21% (as per TCJA) to 15% but this would likely be limited to firms who don't outsource production from the US. This would massively increase profit levels (potentially to supernormal levels) for large US firms, and this would ideally be spent on increased R&D. These provisions would support the Tax Foundation's calculated rise in US GDP of roughly 2.4% as a result of tax cuts.

It's unlikely that any country will emerge at the end of 2028 having only benefitted from Trumpnomics 2.0. Whilst China will lose some portion of its net trade, other Asian countries such as Vietnam, Malaysia and India stand to benefit as American MNCs who are currently reliant on Chinese production scramble to avoid tariffs affecting their bottom lines by relocating production. Case in point: Apple supplier Foxconn setting up large manufacturing plants in India. The FT reports that '15 per cent of Apple's iPhones are currently made in India, this is expected to increase to 25 per cent by 2027' (Acton and Reed, 2025). Additionally, it could be said with some certainty that there are certain groups of the American population in particular who stand to gain from the controversial package of policies being pushed by the President. Large corporate types and high-income households will benefit from lower corporation tax (effects being passed on via increased quarterly bonuses/dividends) and income tax rates respectively. Similarly, it can be confidently said that American consumers will suffer because of the policies, particularly higher costs resulting from both demand-pull and cost-push inflation as described previously. Canada and Mexico are both large exporters to the US and will be heavily affected by the tariffs. It remains to be seen how much the protectionist measures might affect the inflow of illegal substances (namely fentanyl). According to NIESR, since the retaliatory measures from these countries will likely include agriculture, it seems that Brazil will benefit from the tariffs to take the place of agriculture production to large parts of the Americas. Now that the President's gaze is turning to Europe, tariffs on vehicle imports are likely to be placed. This will not bode well for Germany, who have considerable export trade because of the huge automotive sector there.

While these global shifts have had far-reaching consequences, certain economies – such as the UK – have remained relatively unscathed as a result of these policies. How has Trumponomics affected Britain's trade and financial stability?

Effects on the UK economy

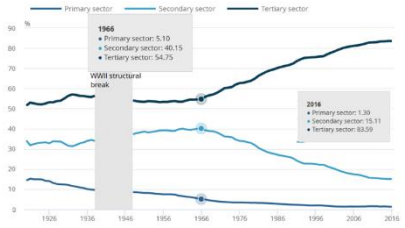


Figure 3
(Source: ONS)

As of February 2025, the UK seems to be sheltered from any tariffs imposed by the second Trump administration, given that there are no UK-specific tariffs yet. Additionally, any effect of the blanket 25% tariff which is limited to steel and aluminium imports is mitigated due to the decline of the UK manufacturing sector in recent decades. In the UK, secondary (manufacturing) sector employment declined from 40% of total employment in 1966 to 15% in 2016 as shown in Figure 3 (Chiripanhura and Wolf, 2019). The ONS estimates the UK had a trade surplus with the US of ~£71bn, contrary to the US Bureau of Economic Analysis' calculation of a $14.5bn (£11.6bn) trade surplus with the UK. Both figures cannot be correct, and it's likely this is due to discrepancies in methods of calculating the data. The US president will be less likely to impose tariffs on UK exports if he bases his decision on the American data (and this is likely what economists in-and-around Westminster will be hoping for). On the contrary to combative protectionism, it seems the UK and US may reach a trade deal "very quickly", according to President Trump, which the British PM Sir Keir Starmer said could lead to an eventuality where "tariffs wouldn't be necessary" (Whannel, 2025).

Conclusion

In conclusion, Trumponomics 2.0 is likely to have sustained effects on the global trade landscape. A handful of economies will emerge at the end of 2028 better than when President Trump began his second term, but others like Canada, Mexico and China are unlikely to be so lucky. The issues they will face, from fractured relations with America, to a damaged balance of trade, and tight monetary policy to counteract the rampant inflation that will result from the tariffs, will persist long after Trump's second term ends. Till now, the UK has remained unscathed and avoided specific major tariffs. Being on the brink of a favourable trade deal with America is a valuable place to be. If the British government can hold their nerve in talks (unlike when Ukraine's President Zelenskyy met with President Trump on the 28th of February) with American diplomats and continue to diversify trade partners whilst doubling down on the strong focus on trade in services, the British economy may fare somewhat better than most. This, of course, is all dependent on future US policies being consistent to some extent. For America, tariffs will boost inflation, and the monetary tightening required to rein it in won't be attractive to consumers. That promised golden age may not arrive so quickly after all.

Suyash Dhull

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2024 Election

The 2024 British general election was highly politicised by economic policy, both the long-term effects of past government actions and short-term concerns of constituents. Economic topics were the main topics of political debate, with inflation, cost of living, public expenditure, and economic recovery in the wake of Brexit being a point of political disagreement between large parties. Cost of living crisis was one of the significant economic issues of the 2024 election. Throughout the pre-election phase, the UK saw soaring inflation rates that were caused by the global supply chain crisis as well as the post-COVID-19 pandemic. The energy costs also went up, making the economic constraints more on the consumers. On this point, the Conservative Party, which was in power since 2010, was weakest. Most consumers related the uncontrolled costs with the economic administration of the Conservative Party. The Conservative government had previously enacted austerity policies that were observed to cut back public services and annihilate the safety net. In 2024, the policies were under heavy criticism, particularly since it was discovered that they increased inequality and capacity in the public sector. Meanwhile, the Labour Party, led by Keir Starmer, aimed to ride the growing discontent by setting out more extreme methods of dealing with the cost of living crisis. The economic policies of Labour were aimed at raising public expenditure in the health and education sectors and providing subsidies to working households. Labour committed to keeping fuel prices stable, investing in clean technology, and increasing wages for government workers, all as a way to build a fairer economy. They were meant to be steps that would be well-liked by large segments of voters who had been struggling with rising prices. The effects of Brexit on the British economy were the other overarching theme of the election. Since the Brexit referendum of 2016, the United Kingdom's exit from the European Union had caused humongous disruption to trade, particularly with European neighbours. As of 2024, the nation was still suffering from economic backlash due to Brexit. Trade barriers, labour shortages, and low levels of foreign investment were a source of concern. Labour had begun to position itself as more likely to renegotiate parts of the Brexit agreement to address these issues, while Conservatives still maintained that Brexit was a necessary step for national sovereignty. The government's management of inflation also emerged as a key issue. When the Bank of England increased interest rates to curb inflation, nearly all but a few voters were negatively impacted by more expensive mortgages and rising living costs. The Conservatives, who had promoted fiscal conservatism and low taxes, found themselves increasingly unable to justify their economic policy as there was widespread anger in response. The Labour Party, on the other hand, called for a less stringent monetary policy and social expenditure to boost growth and ease the burden on the neediest segments of society. Perception by voters of the government's ability to manage the economy was the deciding factor in the 2024 election. Economic policy was not just an issue of short-term fiscal choice but also an expression of wider debates about the kind of guidance the UK should have in a post-Brexit, post-pandemic world. Ultimately, whether these policies succeeded or failed to respond to the needs of the electorate decided the result, as electors chose change after decades of conservative economic stewardship. In general, the economic policy of the big parties dominated the 2024 UK general election. The drivers on the agenda were the cost of living crisis, Brexit legacy, and reaction to inflation, and the issues surfaced in defining the direction of the election. Economic inequality and the state's role in delivering public services were the deciding factors in determining which party would present the most plausible vision for the UK's future economy.

James Hickie

Generative AI: the Rise of DeepSeek

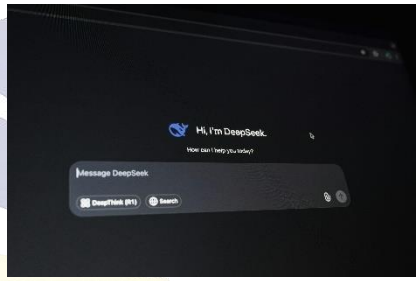
AI has undergone unprecedented advancements in recent years, yet DeepSeek AI has recently taken economists by storm.

How DeepSeek became successful

The phenomenon of the new AI model DeepSeek R1, has proved that China can be competitive with AI and even potentially compete with powerhouse American companies, such as OpenAI or Meta. So, how did the founder Lian Wenfeng pull this off despite being trained on a far few number of chips? Lian Wenfeng is a true believer in generative AI, he believes that human fallibility should be replaced with machines and therefore DeepSeek was created. He became engrossed in this concept, as in 2021 he started buying NVIDIA chips in bulk. This was perfect timing, as when DeepSeek was launched in 2023, the US imposed strict restrictions on selling these chips to China; Wenfeng's 'animal spirit' mindset heavily set him apart from competition. However, the true core of the model's success was that Wenfeng stayed far away from traditional state-backed financing. Wenfeng self-funding this project gave him the luxury of modelling DeepSeek in almost the form of a pure passion AI research lab, as the weight of generating revenue was never heavily prevalent. China has had a very low entrepreneurial mindset because of the debt-pressure environment that government funding measures has produced; DeepSeek was free of these financial constraints, hence making innovation and open-sourcing free from commercialisation.

Economic implications of DeepSeek's success

DeepSeek's breakthrough has had significant economic ramifications for the AI industry and global markets. The company's ability to develop a high-performing AI model at a fraction of the cost of Western counterparts has prompted a re-evaluation of AI economics and competitive dynamics. DeepSeek achieved the feat by using distillation to construct their flagship reasoning model, R1. Distillation is where a large model's intelligence is utilized to train a smaller, more focused model that has been designed for specific purposes. OpenAI, creator of the first mass-market generative AI model ChatGPT, alleges that DeepSeek used its models to create R1, while DeepSeek denies such allegations. Market reactions upon R1's reveal were swift, with tech giants such as Nvidia experiencing substantial losses. The GPU-producing firm saw its stock drop by over 17%, losing nearly $600 billion in market capitalization, while the Hang Seng Tech index that, tracks the 30 largest tech groups listed in Hong Kong, rose by more than 20% between January and February. This reflects growing investor concerns about the sustainability of U.S. technological dominance and potential overvaluation of AI-focused companies. DeepSeek's success suggests that the AI market may be more competitive than previously thought, potentially leading to lower profit margins and revised investment strategies. Additionally, it could cause the democratisation of AI production and implementation. As a result, it's likely that smaller firms and academic institutions will begin to use distillation-style techniques to 'create' their own AI models to improve productivity in key business areas. However in the global view, the unprecedented success of DeepSeek's efforts highlights a shift in the AI landscape, and suggests the moats around the old guard are not as deep as they thought.



(Source: Bertelli, Marcus. AI Interface on Dark Screen Display. 2025.)

Anoushka Chakravarthy & Suyash Dhull

Artificial Intelligence: A Blessing or a Curse?

What socio-economic challenges will humanity face in the next decades?

Artificial Intelligence, coined in the 1950s as a nebulous term, has rapidly progressed from studying neural networks, referred to as 'Deep Learning', to machine learning, and is endlessly evolving. The perpetual innovation of AI, developing from narrow and general AI to super AI, with a cognitive ingenuity that exceeds humans', is implicative of the imminent changes that will occur to the global economy and society. This topical discussion is notable following the ascent of multimodal AI models, significantly ChatGPT, instigating an inundation of new AI platforms. Artificial intelligence is infiltrating production and will affect global growth as infrastructure develops. Furthermore, it will affect the labour market, presenting challenges as a substitute, yet also opportunities by raising efficiency. Key social issues regarding AI present themselves in the form of equality and privacy concerns. Comparing the attributes and potential harms of AI is debatable, as both are unquantifiable on even an arbitrary scale. The inevitable challenges that will ensue are unpredictable since AI is relatively novel, and quashing issues that arise will be an arduous endeavour.

The development of AI will inevitably foster productivity improvements that will generate economic growth; uniquely however, AI offers more environmentally sustainable growth. By harnessing the machine learning, firms can optimise resource allocation during project planning, as quantities of resources can be accurately calculated according to predicted demand and supply patterns, minimising waste. AI automation will raise the allocative efficiency of firms by reducing the design phase production by 10-20%, and engineering time by up to 30%. Utilising AI to automate service provision will enhance efficiency, evident by the 14% rise in call centre productivity and doubling of software engineers' productivity following the introduction of AI, thereby lowering average costs. Furthermore, the negative externalities generated from production, predominantly CO_2 emissions, will considerably fall as AI allows service provision without as many individuals present; the reduced commute will lower pollution derived from transport. Predictive AI can precisely calculate a firm's energy consumption index, and analyse their carbon footprint; therefore, companies can remain in accordance with sustainability targets. But, the sustainable attribute of AI can be disputed, as it is notorious for its high energy consumption: each AI search expends 10 times more energy than utilising current search directories, and by next year it is predicted that data centres will be using double the amount of electricity. Now, following the rise of Deep Seek, this may change; the technology requires considerably lower energy consumption and is predicted to have a 92% lower carbon footprint over its competitors, namely ChatGPT. The risk assessments conducted by AI can generate probabilities of foreseeable financial and technological risks; this information supplements entrepreneur confidence, which encourages rational investment, a key component of GDP. Although it is perverse to quantify the contribution AI has to economic growth since it is ever evolving, the consensus is that contributions to the global economy will be considerable, including a 26% boost to global GDP, of cumulative value $15.7 trillion by 2030. In the subsequent year, AI infrastructure will be valued at near $309.4bn, demonstrating that it is a lucrative market. Almost half of the economic gains will be derived from product enhancement having harnessed AI, and the productivity gains are also considerable. Despite the estimates not being representative of AI's dynamism, its merits are recognisable, indicated by the $12.3 billion in revenue in April 2023 accumulated by start-up firms that harnessed AI, exhibiting the imminent success it brings; Oculai, which aided construction firms using AI, cultivated €2.5 million in 2023 alone. As AI augments the success of companies, economic growth will be generated, and GDP will expand rapidly over the next few decades.

As AI progresses and innovation occurs, the impact on the labour market will rise correspondingly. Generative AI has the propensity to affect almost 40% of jobs, by replacing or complementing the labour force; in the short-run, AI will provide a substitute for tedious roles in production. Later, a higher proportion of the effects derived by AI automation will be borne by higher skilled labour, hence affecting 60% of labour force in developed countries, exceeding the global average; half of those affected in the labour force will benefit from higher productivity, however other individuals are at risk of unemployment. AI may encourage firms to become less labour-intensive, and automation will reduce demand for labour, thereby lowering wages and causing structural unemployment; this creates a strain on the treasury as lower taxation revenues, previously derived from incomes, must be allocated to a higher demand of welfare payments. The potential income reduction may be offset by two key mechanisms: individuals will be required to monitor AI operations, stimulating demand for labour; also, rising productivity will raise profit margins for firms which they may reinvest into salaries. Due to the unpredictability of AI and unquantifiable magnitude of its impact, the change in income level and employment is indeterminable if the downwards pressure on demand for labour does not equate to the upwards pressure. Workers replaced by AI will suffer a fall in their real disposable income, from their initial salary to sizeably lower transfer payments; this denotes a fall in their living standards, as salary is a component of the human development index that determines the utility of individuals, which as homo economici, we seek to maximise, according to neo-classical economic orthodoxy. To alleviate the risk of structural employment in the future, governments must ensure there is sufficient investment into re-skilling and upskilling, so that AI complements jobs, rather than replaces, thereby delivering labour-capital symbiosis.

Although the ceaseless innovation of Artificial Intelligence will undoubtedly generate global economic growth, a more equitable society may not be delivered, and development differentials could rise in the foreseeable future. North America and China are estimated to bear 70% of the global economic impact of AI; despite AI posing the same benefits for all countries, some profit from the advanced-economy advantage. Economic powerhouses can more easily exploit AI technology and invest in its application, increasing growth disparities. Developing Asia and Africa will gain $1.2 trillion, only 5.6% of the rise in global GDP, demonstrating the crucial equity issues. This prediction is cogent as generative AI has a higher propensity to complement tertiary sector jobs that dominate in developed countries; hence, they bear a greater proportion of the success derived from higher productivity-gains. Within countries, income inequality will be exacerbated, because as AI develops, it will enhance higher-skilled roles; these higher-skilled workers and recipients of a higher salary will be disproportionately favoured by the productivity gains of firms harnessing AI, thereby increasing income differentials and relative poverty over subsequent decades. This is exacerbated by the rise in structural unemployment, as AI will replace numerous jobs; as transfer payments are lower than the national living wage, and the highest wages will have risen, the income disparity will be augmented considerably. Conversely, there is minimal incentive to replace low-paid jobs, given they have a meagre associated cost to a business owner, and there is a preference for specialised humane service provision, limiting job loss. Despite a rise in income inequality, in the long-run, wealth inequality may diminish due to the presence of behavioural inertia; senior workers in the labour force are unlikely to embrace AI, whereas younger individuals entering the labour market will have greater technological proficiencies, hence can exploit the productivity gains and supplement their wealth in the long-run. Predominantly, AI is regarded as an opportunity, and provides equitable conditions to individuals with disabilities because partial automation will gradually allow many, who previously were unable to, work in a greater range of roles. This surmises the capability of AI to both diminish equality yet deliver it, when harnessed appropriately and justly.

(Image credit: The Risk Coalition)

As AI becomes increasingly extensive, the ethical issues that will arise are inexorable since the privacy of confidential information may be compromised. Data security may become a luxury once taken for granted, as generative AI has a risk of data persistence and reproducing, which cultivates the conditions for data leaking. This inflates the risk of exposing sensitive information, which can be exploited; regulation is integral to quell this. Indisputably, AI programming suffers from algorithmic biases, evident by false arrests made against those of a racial minority, who are less accurately represented by facial recognition technology. Generative AI has also been accused of making assumptions that perpetuate gratuitous prejudicial stereotypes and may use pejorative language if unrestrained. Content creation with false information and propaganda will become more effortless to produce, and violent or discriminatory content will continue to ameliorate its realism; the adversity of discerning reality from invalid information may abate trust in society. Despite these ostensible flaws, AI's shortcomings can be resolved by sensible use. Information asymmetries can be overcome as AI can also be harnessed for identifying false information and protecting propriety information through regulative mechanisms. Those with moral dubiety that rely on generative AI and plagiarise can also be identified through AI, demonstrating its duality as both a responsible and irresponsible resource. It is predictable that as generative AI becomes more complex and develops knowledge potentially superior to humans, patenting issues may arise, if idea formation is executed with AI, then claimed as personal inventions; faith in individuals may be compromised by moral deviances, reiterating the thesis that over time, strong conviction may diminish in society.

As Artificial Intelligence develops, suitable regulation will be introduced, permitting the attributes of AI to be fortified and exceed its prevalent, yet preventable, defects. For growth, AI will undoubtedly have expansionary effects, since productivity rises are inevitable; however, forecasts of GDP growth are variable, since generative AI innovation is unpredictable. The labour market will encounter several challenges, culminating in achieving a balance of AI as a replacement and a utensil for workers; in the short run, there may be a temporary fall in demand for labour, however as AI progresses, supportive roles may rise. Debatably, the greatest socio-economic challenge will be overcoming the rise in inequality and growth differentials, as there are few redeeming equitable qualities of AI. Any ethical detriments that manifest from dubious use of AI can be corrected for with effective regulation, and privacy will be maintained as AI is revised. AI is an invaluable auxiliary agent that, if used responsibly, can destroy many confines; as time progresses, research will fortify the strengths of AI, and mitigate its disadvantages.

Nisna Malviya

Automation, blockchain technology and mining: Crypto's captain – Bitcoin

In the modern world, it would be senseless to take an eye off the growth of cryptocurrency. Its talismanic leader is Bitcoin. First released in 2009 by Satoshi Nakamoto – an alias used for Bitcoin's creator(s) – Bitcoin has continued to grow in value, and healthily in late 2024, when its price reached $100,000 for the first time.

Bitcoin is the world's first decentralised currency - one that operates without a bank or larger group, instead with smaller factions. This supports right-wing ideologies and has been supported by Donald Trump's new Republican government, yet the Chinese communist party keep it under strict regulation. So where does Bitcoin's future sit?

How Bitcoin works

Bitcoin utilises blockchain technology: using a distributed ledger to track purchases securely linked by cryptographic hashes. These purchases are stored in blocks which track the current block hash and previous block hash. This characteristic makes the system more robust – if hackers were trying to steal money, they would need to change all copies of that shared ledger and ensure the next ledger contains the new corresponding hash. At this point, users can trust cryptocurrency to an extent that they are more likely to be pickpocketed in the town centres of their hometowns, as the amount of mining power required is more than the rest of the network combined, as said in Andreas Antonopoulos' *Mastering Bitcoin: Unlocking Digital Crypto-Currencies*.

Bitcoin mining is when these blocks are added to a blockchain, and this also adds new bitcoins into circulation. Each block's data is stored using a cryptographic hash. This is a 64-digit binary hash or its equivalent 16-digit hexadecimal hash, which allows for nearly a googol's (exact number is just over 1×10^{90}) possible combinations. This method of hashing is done using SHA-256 (a hashing function) to help ensure the trustability of blocks in ledgers. Not all cryptographic hashes will be suitable as Bitcoin requires a certain number of zeroes at the start of the hash, depending on how many miners there are, so miners take energy and time to find a valid cryptographic hash. This is to ensure that a new Bitcoin block is only created every 10 minutes, keeping the number of Bitcoins in circulation in check. Furthermore, the number of bitcoins added per block creation halves roughly every four years and this ensures there will never be more than 21 million bitcoins in circulation.

(Image credit: TechCrunch)

Ultimately, cryptocurrency has no set-and-stone value; the same way the first physical currencies in the world didn't have a specific value – they were just used as a measure of trade. Bitcoin is notorious for its drastic fluctuations caused by its value being determined by several factors: supply, market capitalisation, the press, integration in systems and key events in the world. These fluctuations can be leveraged by a CFD account, known for high-risk short-term gains – two things that epitomise Bitcoin's ongoing status. Additionally, automated trading being used in cryptocurrency markets makes trading more efficient and robust for traders. Especially in a market as volatile as cryptocurrency, automated bots trading instantly ensures any slim chances for trades are taken, which could otherwise be missed in the graft of manual trading.

Bitcoin in the market

At the time of writing, Bitcoin's market share is measured at

57.25%, a staggering amount. As aforementioned Bitcoin miners take on average 10 minutes for what is known as a block reward, however this significantly decreases for equivalent miners of other cryptocurrencies. For example, Ethereum uses a different consensus mechanism, proof-of-stake, differing from Bitcoin's proof-of-work approach. This method is much quicker taking 12 seconds. This increased rate increases current circulation of Ethereum and its supply at a greater rate than Bitcoin. This increase in supply is met by a reduction in demand, due to increased competition from alternative cryptocurrencies like Solana, effectively reducing value of Ethereum.

Trump's influence

(Image credit: Pioneers Post)

At the time of Donald Trump's victory in the 5th November election, Bitcoin had reached a record high in its history. His campaign assured investors support in the currency, considering a national stockpile, issuing a wake-up call for the world, that now is the time to invest. Additionally, Trump's appointment of Silicon Valley entrepreneur David Sacks as his AI and crypto tsar has showed his motives for driving crypto's rise. After this dramatic growth, investors envisioned staggering new prospects for cryptocurrency, upward of $150,000 by mid 2025. Trump is responsible for the U.S. Securities and Exchange Commission (SEC) withdrawing their rule that banks couldn't work with digital asset firms – a change implemented by the previous Democratic government.

The underlying issues with Bitcoin

With more bitcoin mining comes increased energy consumption, which negatively impacts our environment. A Statista article by Raynor de Best said that just 'one single Bitcoin transaction in 2025 could equal several hundreds of thousands of VISA card transactions.' This statistic is done by estimating electricity costs, which will continue to increase with the threat of global warming. Similarly, as Bitcoin becomes harder to mine over time, this will further increase the energy consumption.

Secondly, losing access to the Bitcoin makes it impossible to use it and this is more than likely by forgetting passwords or incorrect transactions. Since Bitcoin is immutable (it can't be changed), losing Bitcoin is permanent. A large-scale example of this is James Howells who lost 8000 bitcoins worth $750 million due to throwing away an old hard drive; without recovering this tiny drive, a man loses his chance at becoming a millionaire.

Bitcoin's future

What is the future for bitcoin? Whilst Bitcoin's future is ambiguous and highly speculative, how its developers handle the scalability and security issues may determine whether bitcoin rises in value or descends into its downfall. With most Bitcoins in circulation yet to be mined, countless investors will continue to pursue Bitcoin, as the majority would still see it as an investment, and therefore its value would rise, increasing their investments. However, we can only wait and see to find out what will happen to Bitcoin in the future.

Archit Upadhye & Andy Yang

Made in China: Beijing's Overcapacity Problem and its Implications for Global Markets

China is perceived as a 21st century economic powerhouse. In 2024, it boasted a GDP of $18,273 billion, which constituted 19% of global GDP. Thus it is no surprise that it is widely accepted that China is an economic success story. A largely agrarian economy until Mao's Great Leap Forward in the late 1950s, it truly is a David vs. Goliath moment in world economic history: China industrialised with greater haste and efficiency than its Western counterparts ever did. Despite this, our sense of admiration should be short-lived. China's success is merely an illusion, and its rapid growth is wreaking havoc both for Beijing, global trade and, therefore, you.

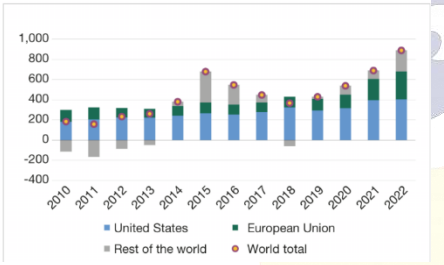
(Image credit: Wikipedia)

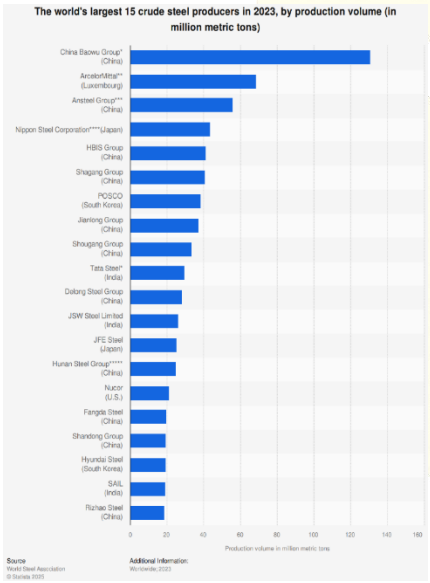
At present, China adheres to an archaic principle of authoritarian capitalism. Contradictory to the belief in 'market fundamentalism' adopted during the Thatcher-Reagan era, it prioritises the security and integrity of the state over all else and utilises economic policy as an agent to achieve this. With government intervention in markets at apogee, Beijing controls the economy via top-down industrial planning in the form of regular Five Year Plans (FYPs). During Mao's 'Great Leap Forward' of the 1950s, much of the targets set by the Party focused on transforming China from a largely agrarian economy to one with a sound industrial manufacturing base. Today, this is a different story. Beijing's FYPs focus on setting excessive and unrealistic supply-side targets with no consideration for the conditions of demand at present. Fundamentally, this boils down to maintaining the equally unrealistic expectations set by the central government. For example, the CCP aims to sustain a 5% annual growth in GDP despite stagnant domestic demand. The obvious consequence of this is a prolific overcapacity problem that has resulted in surplus production and rampant deflation, both in China and on the international market. It is the causes, impacts and potential solutions to this problem which will be examined in this article.

What it results to is an ideological struggle between East and West. Both China and the West, namely the USA, wish to dominate new high-tech 'sunrise' industries, such as the rise of artificial intelligence and solar panels. For example, in 2010, Beijing announced that 'sunrise' industries should account for 15% of GDP by 2020. This yielded a rapid response from local governments: 31 out of the 34 Chinese provinces had designated the solar technology industry as a regional priority. Consequently, mass overproduction of solar panels ensued and the price of solar panels on the Chinese market plummeted. China achieves such industrial goals based on an incentive-driven approach between local governments. Drawing on the principle of 'common prosperity' , as first coined by Mao in 1953 and revived by Xi at a Party meeting in 2021, local party chiefs see rapid and substantial results as key to promotion within the Party, with no regard for any form of macroeconomic consequences. In order to finance such targets, Beijing has paradoxically tightened its fiscal policy, reducing government expenditure whilst simultaneously easing regulation surrounding borrowing. As a result, provincial governments are forced to borrow funds from the financial sector and become tied to 'investment vehicles' (i.e. local banks). In the process, provincial governments become heavily laden with debt. In the third quarter of 2023 alone, bank loans for manufacturing enterprises increased from $60 billion to $700 billion. It is imperative to also recognise that China's domestic demand and therefore consumption does not increase by the same proportion, and thus a situation develops where the increase in supply of a particular good far outweighs the demand. With stagnant domestic demand and therefore no cash flow to fund provincial governments' substantial debt, manufacturers are incentivised to continue producing goods to sustain a revenue. Principally, this leads to the assumption that firms act rationally in order to sustain profit margins, yet, in this case, a profit margin is no longer feasible given the sparse domestic demand. For many local governments, their assets cannot keep up with the extent of their

liabilities and they will ultimately default on their debts. A study conducted by the *Wall Street Journal* found that $800 billion in local government debt was at risk of default in July 2024. Alternatively, if they survive through continued production to finance their liabilities, local government ultimately amplify the surplus problem and exert even more deflationary pressures. Consequently,

Figure 2
China's merchandise trade surplus by major trading partners
in billion US dollars



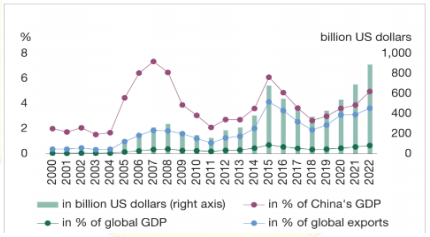


lower prices depreciate revenue even further and the demand for finance from the local 'investment vehicles' continues to rise, causing provincial governments to amass further debt. With this in mind, we begin to see the rise of 'zombie companies' – firms that generate just enough revenue to pay any outstanding liabilities yet cannot turnover a profit – a clear demonstration of irrational behaviour. Ultimately, these firms and their respective local governments become trapped in a seemingly irreversible debt and overcapacity 'black hole'. There have been attempts by the central government to remedy this issue by slashing corporate taxes but this only reduces local government revenue and contributes to a further depreciation in domestic demand through reduced public expenditure. The effects of the aforementioned overcapacity 'black hole' are not just felt within the domestic economy, but in the global economy as a whole.

Consequences

Prima facie, the term 'investment vehicle' sounds like an economic fillip. State-backed loans providing an injection of cash into the circular flow and a subsequent increase in aggregate demand. However, it is important to recognise that it is not simple bread and butter economics – the role of *ceteris paribus* becomes negligible when considering real-world dynamics. Yes, it is true that aggregate

Figure 1
China's merchandise trade balance over time



demand will increase, but it is not because of an increase in consumption, as domestic demand has remained relatively stagnant for decades; neither a result of an increase in investment, given the debilitating nature of the debt 'black-hole'. China seeks to continue fuelling its growth whilst simultaneously mitigating its overcapacity problem by maintaining heavy trade surpluses with foreign markets. This is a major threat to Western economies with China now boasting a 20% share in global manufacturing exports as of 2020. Moreover, 150 out of 181 counties have a merchandise trade deficit with China, 43 of which this deficit constitutes over 5% of their GDP.

The obvious consequence of this is that China will inevitably govern price-setting for a whole range of goods on the global market. Referring back to the example of solar panels used at the beginning of this article, the sheer volume of the surplus caused China to engage in the process of 'dumping' excess panels onto the European market. This was a particularly severe issue in the early 2010s, with such dumping totalling £18 billion in 2011, and constituted a major threat to European green energy firms. Chinese-manufactured solar panels were introduced onto the European market *en masse* at below market value, even with EU green-energy subsidies. Increasingly relevant today, a trade war ensued, with the EU and USA imposing anti-dumping tariffs on China of up to 47% to save the competitiveness of western firms.

Granted, trade imbalances are a necessary component of global markets – importing competitive products at below market value can be an attractive option for both firms and consumers, in theory boosting welfare. Despite this, it is when that trade deficit grows to over 3% of GDP and the prospect of monopolistic power on the global market is looming that problems begin to surface. A significant threat in those markets subject to Chinese 'dumping' is the consequence of structural

unemployment. This has become particularly relevant to the British steel industry.

As demonstrated by the figure on the left, eleven out of the fifteen largest crude steel producers were Chinese as of 2023. In 2024, Chinese steel production totalled just over 1 billion tons. Amidst a severe real estate crisis combined with stringent debt controls, domestic steel production declined, yet steel exports paradoxically (or perhaps not) peaked at 110 million tons, a 20% increase from 2023. This is a direct threat to British steel industries in 2025. From 2022-2024, the share of UK steel that was imported increased from 55% to 68%. This is in combination with Trump's decision to impose a 25% tariff on all US steel imports that became effective on 12th March 2025. The ultimate consequence of this is the lingering threat of structural unemployment in the UK steel industry. This is particularly a concern in the steel heartland that is South Wales, where the TATA Steelworks in Port Talbot has faced numerous closures, threatening the prospect of mass unemployment which will only provide a pretext for increased government spending (e.g. on transfer payments) widening the current UK fiscal deficit even further.

Exacerbating the effect of China's surplus problem is the nature of the Yuan. Being 'pegged' to a basket of foreign currencies, it is perpetually lower in value than the currencies of its major trading partners. As a result, the exchange rate remains fixed at a low level and the Yuan does not respond to changes in conditions of demand or supply. Consequently, Chinese imports will be persistently priced at below market value in the West. With Xi refusing to artificially appreciate the exchange rate for fears of a deflationary trap, Chinese goods are poised to continue flooding our markets.

Possible solutions

The president of the European Commission, Ursula von der Leyen, recently stated that trade imbalances with China have become 'unsustainable'. This is clearly demonstrated by the figure on the left, and therefore it is necessary for the Western, market-based economies to cooperate and develop a solution to this pressing issue. Ultimately, an alliance of such free-market economies that share a common goal in preventing Chinese economic hegemony would be a realistic measure.

Modelled on a conventional security alliance such as NATO, an economic security coalition would work to reduce its members' dependence on Chinese manufacturing by encouraging the expansion of productive capacity within member states. Fundamentally, they would need to deploy measures to restrict Chinese access to their markets, thereby providing an incentive to booster manufacturing in the member states. This could be achieved via the introduction of import quotas or tariffs levied on Chinese imports only. This is increasingly relevant today with the rise of 'Trumponomics'. Whilst a major justification for Trump's tariffs has been to restrict Chinese imports into US markets, with a 10% duty levied on such goods as of 4th February 2025, the principle of 'America first' and the imposition of across-the-board tariffs on goods imported from free-market economies such as Canada and the EU negates any impact on China – it will merely 'deflect' Chinese goods into alternative markets, most notably in the Global South. Any prospective 'economic defence coalition' would need to engage in collective effort to isolate China and prevent its economic hegemony, something incompatible with Trump's 'America first' consensus.

(Source: Kaiyv, Zhang. High-rise Buildings in Beijing. 2018.)

Moreover, any effort made by an economic coalition to isolate the Chinese markets would become negligible if free market economies do not make an effort to win over the Global South. With the hugely successful Belt and Road Initiative (BRI), China is a major stakeholder in developing economies throughout Africa and Asia. Tied to Beijing through masses of debt with excessively high interest rates, the Global South could provide a vital 'dumping ground' for Chinese exports in light of Western sanctions. Thus, it is imperative that leaders of democratic capitalism seek to establish a foothold in these developing economies to prevent such outcomes. Once again, this is particularly relevant when considering Trump's imposition of tariffs on Chinese imports, as this will merely strengthen trading partnerships between Beijing and the Global South

as the former seeks to establish itself in new consumer markets.

Conclusion

In summary, it is clear that China's overcapacity and its malignant surplus problem poses a significant threat to free market economies. The prospect of global Chinese economic hegemony is becoming increasingly tangible, and with it the demise of Western firms. Collective action must be taken by market-based economies to discourage the sale of surplus goods on British, European and American markets. Without it, Beijing will continue to facilitate the irreversible debt and overcapacity 'black hole', exerting yet more deflationary pressure on Chinese goods and rendering Western manufacturers obsolete. There is even incentive within China to reduce the extent of the surplus, with provinces reducing welfare spending substantially in order to meet manufacturing targets, resulting in the under-provision of public services – a clear negative externality. Despite all this, we have yet to see the proposition of an effective but logical solution, and in a world as politically unstable as today, who knows when that time will come?

Callum Reid

Bolivia: An Economy on the Brink of Collapse?

Let's turn our attention to Latin America. Lines of cars queueing for fuel stretching for kilometres long, the prices of basic food stuffs doubling in prices within a month, black markets trading the US dollar at premium levels, citizens chanting 'Everything is expensive!' down the streets, the economy on the verge of collapse… Why?

Fuel. The word that has the been the cause of countless conflicts and disagreements on our planet has become the kryptonite of the Bolivian economy. What was once the central pillar to the Bolivian 'economic miracle' in the 2000s has turned into one of the leading causes of the economic meltdown. What happened between the 2000s to the present day?

It's the mid-2000s, global prices of natural gases are steadily rising, and the Bolivian government has just nationalised its natural gas industry, so that now the government holds an additional 32% of the revenues generated from the natural gas industry, on top of its previous 50%. Commodity exports are booming, and the government enjoys a huge surplus in its budget. At the peak of the 'economic miracle', the hydrocarbon industry generated 43% of the governments revenue, allowing public spending to rise by 245% over the period between 2005 to 2014, allowing Bolivia to become one of the fastest growing economies in South America, metamorphosising living standards within the economy, as extreme poverty fell from 38% to 15% over the nine year period.

Then in 2014, gas production began to take a turn. The nationalisation of the commodities market had meant that foreign investment into the raw materials of the Bolivian economy fell, and this meant that there was less investment into the exploration of new natural gas fields, while the existing ones were rapidly running out.

As might be expected, the exports of natural gases declined due to the falling production, however this was worsened by the rising domestic demand for fuel due to extraordinarily low, subsidised prices of commodities, causing a shortage of fuel. For instance, the price of gasoline in Bolivia is 3.74 Bolivianos per litre (approximately $0.54 USD), making Bolivia's fuel prices less than half the world average (around $1.14 USD per litre). Furthermore, the two main importers of Bolivian natural gases, Brazil and Argentina, have become less reliant on Bolivia's commodity exports ever since they started their own production of natural gases. Discovered in the 2000s, the Vaca Muerta Shale Formation in Argentina began production in 2011, and is the world's second-largest shale gas deposit. Argentina's demand of Bolivian gas has significantly decreased since then, with Argentina completely discontinuing natural gas imports from Bolivia in September 2024.

And to further worsen the current account balance, a combination including government subsidised prices of fuel and the fall in the domestic production, has resulted in Bolivia importing more fuel than it exports. The seemingly gainful policy of government subsidised fuel prices has led to substantial unintended consequences. Not only is it a massive strain on the government budget (in 2022, fuel subsidies accounted for more than half of Bolivia's fiscal deficit), but for the producers of fuel, their lower profit margins from lower prices are meant to be compensated by the government subsidies; however, the subsidies are often delayed or insufficient, disincentivising domestic production. Additionally, fuel smugglers have taken advantage of the differential of fuel prices between Bolivia and neighbouring countries – illegally selling cheap, government subsidised Bolivian fuel in Peru, Brazil, and Argentina (it is estimated that around 30% of the subsidised fuel is smuggled abroad) – contributing to the fuel shortage, forcing the government to import fuel to meet the domestic

demand, further worsening the current account deficit.

So how is the large currency deficit a significant contributor to the economic crisis? One of its main effects is its toll on foreign currency reserves – with the value of imports exceeding exports, Bolivia's foreign reserves have dropped from $15 billion in 2014 to less than $2 billion in 2024, which makes the economy highly vulnerable as it struggles to pay for much needed imports and pay off international loans with US dollars. In addition, the dwindling foreign currency reserves means that the stability of the Boliviano is hanging by a thread, because if the exchange rate of the Boliviano starts to depreciate, then the central bank of Bolivia (Banco Central de Bolivia) is unable to purchase Bolivianos on the foreign exchange market to maintain the value of the Boliviano using foreign currency as their reserves are depleted. And as the saying goes, with an unstable currency, comes many problems…

With the central bank helpless in front of a depreciating currency and consumers and firms heavily reliant on imported goods (such as food, fuel, and industrial products), import costs have increased, leading to cost-push inflation. It is also harder to purchase foreign goods with a limited foreign currency reserve, which further increases the costs of importing foreign goods, worsening inflationary pressures, greatly increasing costs of living within the economy.

(Image credit: Wikimedia Commons)

So, will the decade-long nightmare of fuel shortages, skyrocketing prices of necessities, and depleting foreign currency reserves ever end?

One of the key long-term reasons for the crisis was the lack of diversification within the economy, with the country being dangerously reliant on their production of natural gases. To try and combat this, Bolivia is launching industrial projects like the Mutun steel plant, which could reduce reliance on natural gas exports and boost domestic production. However, overall, in the economy, the outlook is uncertain, as it depends on how well the government manages reforms, attracts investment, and stabilizes key industries like lithium and steel. The next few years will be crucial in deciding whether Bolivia pushes through or ends up in a severe economy collapse.

Hannah Zheng

Lebanon's Currency Crisis

Lebanon: once a rapidly growing economy. Now, a country suffering from the merciless aftermath of one of the worst financial crises since the mid-19th Century.

(Image credit: Blavatnik School of Government, University of Oxford)

In 2019 Lebanon rapidly descended into its Currency Crisis, a function of several factors that were encompassed by religious conflict and unsuitable economic policies implemented by ineffective political leaders. When the Lira was becoming increasingly unsustainable in the 1980s, Lebanon was compelled to adopt the US Dollar as a fiat currency (with a value independent to commodities, such as gold), and has since been deemed as a partially dollarized economy. As the USD rose to prominence, informally known as the 'Lollar', its intention of being a stable medium of exchange was unfulfilled, and it depreciated to 10% of its initial value. The accelerated use of cryptocurrency as an alternative to the USD, signifies the economy's improving dynamism which, as a decentralised currency, does not obey to corrupt government interventions in Lebanon, and may be vital for the country's gradual revival.

Causes of the Crisis

The Crisis evolved from severe mismanagement of the Lebanese economy and was the culmination of numerous binding policy indecisions. The miscommunication and imperfect information between the public and government concluded in policies that did not align with the needs of the population. The imposition of rash fiscal policy typified the austerity practised in Lebanon, which initiated outrage; regressive taxation measures, most astoundingly the 20% internet phone call tax (including WhatsApp calls – for many a necessity) and the 4% rise in VAT, instigated protest. Anarchy ensued as these polices fortified prevalent distributional concerns, considering 0.1% of the richest population accounted for 10% of Lebanon's total national income, a value equivalent to the aggregate wealth of the lowest 50%. Despite the tax hikes imposed, Lebanon was still in a state of anguish from its overwhelming public debt, valued at the 3rd highest globally. The monetary policy decisions made can concertedly be concluded as unsuitable: a 6-percentage point rise in the interest rate to 10% in 2016 encouraged saving and curtailed consumption, entrenching Lebanon in its recession in 2018.

Lebanon's national debt accumulation was valued at 150% of GDP and was worsened by a large-scale Ponzi scheme fostered by the government. To service the high debt created from several rounds of borrowing, the government borrowed new money seeking to repay existing creditors. This vicious cycle enabled the echo chamber that evolved, and the unprecedented rise in national debt.

The clandestine corruption within the Lebanese government worsened the prospect of seeking external aid: illegal capital controls limited Lebanon's ability to accept Foreign Direct Investment, which could have been vital to preventing the escalation of the Crisis. Countries became increasingly unwilling to even offer FDI, limiting possible alleviation: in 2018, after a series of careless spending choices prior to the election, Lebanon lost almost 80% of FDI from 2011 to 2022.

Political instability and religious conflict have been a lasting precondition for the Crisis: following the 1990 Civil War, tensions between Sunni and Shi'ite religious groups remain, although

less overt, and political volatility has augmented these troubles, indicated by the absence of a president in 2016. These preconditions, when exposed to the August 2020 Beirut Explosions, exacerbated the severity of the Crisis greatly.

The interaction of these factors and the overall lack of stringent preventative and alleviating measures caused the Lebanese Currency Crisis.

Effects of the crisis

The widely-opposed policies inspirited the discontent public to protest, precipitated by the proposal of the fiscal reforms. Diminished confidence instigated a series of bank runs, compelling banks to close rapidly due to limited liquidity; the majority of the population lost access to large proportions of their savings, besides the financial elite, only worsening the aforementioned harsh wealth disparities. The retraction of FDI aggravated this, as the depressed supply of dollars into the Lebanese economy, restricting liquidity further, hastening bank closures and loss of savings.

The reduction in FDI and diminished confidence caused a significant devaluation of the Lira: despite the pegging of the Lira at 1,500 per USD in October 2019, its informal market value fell by 98.5%, and in 2023 was 141,000. This depreciated any retained savings, diminishing the wealth and purchasing power of the population, thereby depressing living standards. Currently, as Lebanon is still suffering, the Lira is unofficially valued at 89,000 per USD.

Following 2016, Lebanon descended into a crippling recession that caused the 38% reduction in GDP that was experienced. Public sector debt grew in 2021 to 357.7% of GDP, at its peak value, typifying the unsuitability of the fiscal policy and budgets made by the government. The cost of servicing debt became unprecedented and a third of all government spending was allocated to National Debt; eventually, without much choice, Lebanon defaulted on its debt, officially declaring it would be unable to repay the debt they owned to creditors. This statement may have future implications and discourage the offering of loans from other countries in the longer-term.

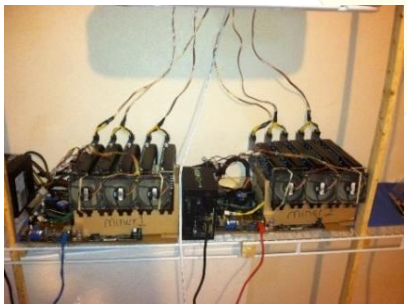
Another macroeconomic impact was the vicious inflation that submerged Lebanon and eroded the purchasing power of the majority of the population, thereby diminishing their utility. In 2021, at the climax of the Crisis, inflation apexed at 290%, and although it fell the next year to 171.2%, Lebanon was inundated with poverty; 78% of the population, according to the standard UN definition, was below the poverty line, demonstrating the magnitude of the Crisis' effects.

Stubbornly high unemployment levels incubated this issue: by 2022, 30% of the labour force had declared they were out of jobs, due to a deficit in the derived demand for their labour. This extended to a third of under 35s, generally the most active demographic in the labour force, being unemployed. These individuals were compelled to navigate for work in the global labour market, hence deeming human capital as Lebanon's only reliable source of export revenue. Many global employers, aware of the volatile Lira, began to distribute their Lebanese employees' incomes through bitcoin; this initiated the prevalent use of cryptocurrency in Lebanon as an alternative medium of exchange.

Using cryptocurrency

Admittedly, it is ironic that bitcoin, notorious for its volatile value, has become a relatively more reliable alternative to the dollar-pegged Lira; it concerningly demonstrates the sheer loss of trust in the Lebanese banking system as a result of limited liquidity. The shortcomings of the banking system coupled with the complexities involved in opening foreign bank accounts due to legal restrictions encouraged the investment of surplus income and any remaining savings into bitcoin.

The USD Tether rose to prominence as the most popular bitcoin in Lebanon and cultivated a reputation of being a safe and accessible medium of exchange, controlled at a value for $1USD; this 'stablecoin' executed the initial purpose of the pegged Lollar but with greater success, as it maintained its value. Beirut was compelled to control the use and value of cryptocurrency, as dependence increased and it was crucial to alleviating some stress from the economy; the permission to trade cash currency with cryptocurrency invigorated this, and it is assumed that there are ATMs that allow this conversion in an automated and efficient procedure. Since the Currency Crisis, Lebanon has experienced a colossal 1,781% rise in portfolios dedicated to cryptocurrency, which testifies to the rise of the USD Tether.



Home set-up of cryptocurrency mining (Image credit: Xodus Tech)

Lebanon's success at mining bitcoins is a function of two endowments. Firstly, it has been proposed as one of the cheapest places to mine bitcoins because of low electricity tariffs, costing 783 times less than Italy. Also, although mining for bitcoins is often at the expense of the environment, this is less so in Lebanon, which is encourages the drive for cryptocurrency: the main mining site is in the Chouf Mountains, the domain of extensive hydroelectric power stations, which awards the energy-consuming algorithm a more sustainable title.

Lebanon in the future

Lebanon's Crisis is approaching its denouement: but it is still constrained by a crippling recession, demonstrated by the -6.6% real GDP decline in December 2024, and has cumulatively lost 38% of GDP value since the Crisis began.

It would be injudicious to assume that Lebanon will recover without heavy intervention, and myopic to conclude that recuperation will occur in the short run. Structural issues curtail Lebanon's efforts to alleviate any damage incurred; the limited financial capital of firms curbs the funding of immediate and essential services. Furthermore, the combination of low taxation revenue, following anaemic consumption and low incomes, and high sovereign debt, has eroded the propensity for any successful government intervention. Following the corrupt precedent established by the government, few countries are willing to donate aid or grant FDI to Lebanon; after rigorous negotiation, the International Monetary Fund proposed to loan $3bn, collated to support Lebanon's development endeavours. Optimistic economists will consider the IMF loan as a boon for supply-side policies having long-term benefits, most crucially job creation; however, this is entirely dependent on the efficiency of allocating any foreign investment received.

Relaunch 2025, a programme to enable Lebanon's Odessey out of its Crisis, stated that a minimum of $8bn is needed for there to be a substantial impact on alleviating economic hardship; if dynamically distributed by the government, this could deliver a 3% GDP surplus by 2030. The programme outlined various mechanisms that could be harnessed in extension to the use of cryptocurrency to raise living standards in Lebanon. Concerning currency and money flow, rather than partial dollarisation where the black-market value of the Lollar can depreciate, full dollarisation could be adopted, and if combined with the rapid resolution of the banking system, there would be greater credit distribution, thereby incentivising firm investment that is positive for growth. Also, Lebanon must increase its provision of goods and services that it has historically had a comparative advantage in, such as knowledge intensive industries, including business services, and

exploit its endowment of natural gas. Another objective is to apply economic safety nets for the most

vulnerable demographics on the lowest incomes, which is in alignment with the National Social Security Fund seeking to 'rescue and recapitalise' Lebanon. There has been discussion of implementing debt-forgiveness schemes to promote taking credit out again when liquidity is restored. Debt reforms will also extend to foreign lenders, to reduce Lebanon's national debt. Another stimulus for Lebanon's economy is the proposed privatisation of industries such as electricity and telecommunications; with the presence of competition, these sectors will be driven to innovate and become more dynamically efficient, expanding the productive potential of the economy in the long run. In the more immediate time frame, the state would receive revenue for the sale of government-provided services, which can be hypothecated towards crucial issues such as poverty alleviation.

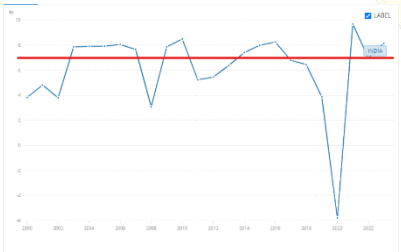
Undoubtedly, meticulous care must be engaged when designing these policies; however, taking risks may be vital for assuaging Lebanon of its economic troubles.

Nisna Malviya

An Analysis of India's recent GST reform

India's Goods and Services Tax (GST) system, similar to the UK's VAT, has seen recent reforms to simplify taxation and promote growth. These include rate restructuring, tax exemptions for essentials, and improved digitisation. Mathematical models, particularly Computable General Equilibrium (CGE), Dynamic Stochastic General Equilibrium (DSGE) and Input-Output (Leontief) models, have been crucial in shaping these changes.

With GDP growth rates often above 7% annually, India has an undoubtably fast-growing economy driven by technology, services, and manufacturing sectors. This makes it difficult for policy makers to plan and predict, highlighting the need for such models as it lets leaders test ideas by simulating policy changes.



Slab Number	Rate	Category
Slab 1	0%	Tax-free essentials commodities
Slab 2	5%	Items of Mass consumption
Slab 3	12%	Standard Rate
Slab 4	18%	Standard Rate
Slab 5	28%	Tax on demerit goods

Table of India's GST Slabs

This analysis examines recent successful GST changes in India. One successful example is the reduction of the GST rate on hotel rooms from 18 to 12% (moving from slab 4 to 3) for rooms costing up to 7,500 rupees (approx. 65£) per night in November 2022. A study by the National Council of Applied Economic Research suggests CGE models were likely used to simulate the economic impact of this rate reduction. By first calibrating the model using a Social Accounting Matrix, CGE models simulate GDP, inflation, sectoral shifts after this rate change from 18 to 12%. More basic Leontief models, provides simpler analysis and outlines the initial structure for price and quantity relationships between different sectors in an economy.

Letting x_i = total output of industry i, d_i = final demand of industry i, and a_{ij} = be the amount of industry i needed to produce one unit of industry j. (A matrix **A** can be created which contains all of these a_{ij} coefficients.

$$x_i = a_{i1}x_1 + a_{i2}x_2 + \cdots + a_{in}x_n + d_i$$

Which can be changed into matrix form:

$X = AX + D$

Rearranging gives:

$X = (I-A)^{-1}D$

This is the Leontief inverse, and it shows how changes in final demand affect total output. Remembering that X is total output, A is how much each sector relies on others, and that D is final demand, solving the model using historical data showed how this GST change not only affected hotels but also food and transport sectors. This model is not dynamic, assumes no flexibility in production methods and is unable to model long-term changes so is used as a preliminary step or alongside more complex CGE models.

By simulating the whole economy, the model correctly predicted the increase in tourism, and interactions with other related sectors like food and transport. India's Economic Survey 2023-2024 states that tourism revenue increased by 15% in 2023, showing that the loss in government revenue form lowering the GST paid off. This supported economic recovery after the pandemic, particularly in states reliant on tourism e.g. Rajasthan & Kerala.

The GST rate on electric vehicles was reduced from 12% to 5% in 2019. CGE models helped estimate

increased EV sales, tax revenue effects, and gave detailed sectoral analysis. Effects on related sectors e.g. battery manufacturing, charging infrastructure, were modelled along with estimated reduced carbon emissions (less common in standard CGE). This change along with other policies like FAME II subsidies were extremally successful with data showing EV units sold rising from 30,000 in the fiscal year of 2019 to over 1,200,000 by 2023 and obtaining a market share of 6.3%. (Annual India EV Report Card: FY2023)

Note that even complex CGE models have limitations as they can occasionally omit unexpected real-world costs, e.g. the cost of hotels processing this change and only indicates a static change in the level of GDP not GDP growth. CGE models are still only counterfactuals and not a forecast.

The RBI uses DSGE models analyse GST's inflationary impacts, focusing on macroeconomic variables like inflation and growth. In the context of GST, DSGE models model tax changes as fiscal policy shocks affecting prices and output.

Letting P_b = Price of hotel before tax, P_a = Price of hotel after tax paid by consumers, and T_{gst} = GST rate.

$P_a = P_b * (1 + T_{gst})$

Using the GST change from 12 to 18%:

Calculating price decrease: (Change/Original)

we get [(P*1.18) - (P*1.12)/ P * 1.18] * 100 = 5.08% consumer price decrease.

Using CPI weightings governments can model changes in CPI using:

Change in CPI = CPI Weight * % Change in Price

In India's fast-growing economy, both models are especially useful as CGE models are more directly suited for GST rate changes whilst DSGE models offer valuable insights into inflation ensuring monetary policy aligns with fiscal changes. The RBI has successfully used these models to assess India's unique economic landscape, delivering growth and stable inflation in an economy prone to overheating.

In summary, mathematical models are vital for India's recent GST reforms, providing quantitative insights into rate changes, inflation, and growth. Future developments may include hybrid models, integrating CGE and DSGE approaches for more robust analysis.

Tanish Kadarapura

The Crisis of Obesity in the UK

Obesity is one of, if not the largest, health crisis that the UK faces. Almost two-thirds of the population is classified as overweight, with over a quarter of the population identifying as obese. Additionally, the burden on the NHS due to obesity and related illnesses is immense and rapidly growing. Obesity is the source of a range of medical problems, making you 5 times more likely to develop type 2 diabetes, and 3 times more likely to develop colon cancer- as well as increasing the risk of coronary heart disease. All of these factors, and the impact of obesity on mental health, have generated a colossal drain of NHS resources: estimated at £6.1 billion in 2019. The wider costs of obesity in the UK are estimated, by Public Health England, at £27 billion annually, and predicted to increase to £49.9 billion annually by 2050.

(Image credit: The University of Edinburgh)

Various attempts to solve the pandemic of obesity have been made, yet all of them have failed to address the accelerating crisis. On April 6th 2018, the UK sugar tax came into effect- also known as the Soft Drinks Industry Levy Despite the total amount of sugar being sold in soft drinks decreasing by 35.4% between 2015 and 2019, the ineffectiveness of the SDIL at tackling obesity is obvious. Before the introduction of the SDIL, obesity rates in 2015 were 27%. In 2022, after the SDIL had been in circulation for 3 years, the obesity rate had increased to 28%- signalling the concerning inefficiency of the Sugar Tax. During the 2016 Budget- when the SDIL was first announced, George Osborne stated that the money generated from the levy would be reinvested, to 'double the amount of funding dedicated to sport in every primary school' which would be 'compulsory for the pupils'. Despite these pledges, the revenue, although initially being invested into schemes that would reduce obesity, has now been gradually subsumed into the general tax. This, once again, proves how the SDIL has failed to address the obesity crisis.

Despite the increasingly widespread nature of the crisis, and the complex yet overarchingly positive relationship between economic growth and obesity- some nations have managed to avoid the clutches of the accelerating pandemic. Japan, which currently has the 4th largest GDP globally, is ranked 161st in % of adult males who are obese – with only 7.63%. It is firmly the lowest ranked high-income country – and has managed to strike a balance between prioritising economic growth, and maintaining the health of its population. Japan recognised the grave issue of obesity 70 years ago- and combated it with the introduction of the 1954 School Act: this outlined stringent measures to address health guidelines within schools. In the UK, the prevalence of obesity in children aged 2-15 is 15%, which is over 3 times the prevalence in Japanese children. Japan understood that obesity affects all ages, and implemented measures to resist the catastrophic consequences of an obese population. It was mandated that all schools must have a 'School Lunch Dietitian'- who as well as ensuring the nutritional value of school lunches- 'must give guidance surrounding the food they have at school lunch and the role it plays in ensuring and improving health'. This would be easy to implement in schools in the UK- by effectively utilising and reinvesting the estimated £520 million generated by the Soft Drinks Industry Levy, and minimising the prevalence of obesity in children.

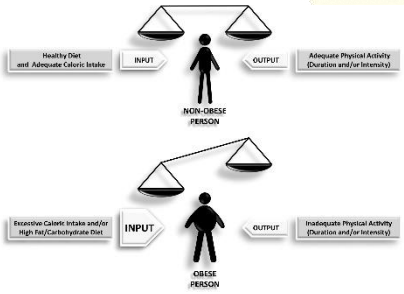
Avantika Aradhyula

The Economic Impact of Obesity and the Effectiveness of Prevention Programmes

Introduction

Obesity is a chronic condition due to extreme fat accumulation, and in adults can be defined as the individual having a BMI (Body Mass Index) valued at 30 or over (World Health Organization, 2024).

It is evident that there has been a rapid increase in the percentage of the global population living with obesity, which can be attributed to factors such as the increase in consumption of calorically dense foods and a lack of physical exercise. In 2022 it was recorded that an eighth of the global population were obese which was double the quantity recorded in 1990, showing this rapid rise of obesity in the world (World Health Organization, 2024).



(Image credit: Uranga, R and Keller, JN, 2019)

This high quantity of obesity within the world has severe negative impacts on many international economies, such as increased pressure on healthcare systems, a less productive work force, and along with this the World Obesity Federation predicts that by 2035 the impacts of overweight and obesity will be greater than $4 trillion (World Obesity Federation, 2023).

Economic impacts of obesity

One of the greatest direct costs of obesity, is the healthcare expenses in order to treat patients suffering from it, such as the cost of drugs, hospital facilities and the varying treatment therapies, further increased from other disease/conditions that can arise due to obesity, such as diabetes and cardiovascular disease. This expense can vary dramatically between countries, as a result of differences in lifestyle among populations and government intervention through the use of policies. For example, in places such as Great Britian, obesity costs the NHS £6.5 billion a year (Department of Health and Social care, 2024) and in countries such as China (with 21 times the population of great Britain) have an estimated direct cost for healthcare, due to overweight and obesity, of $8.4 – 23.9 billion (Chen et al., 2021). In the United States of America the annual cost of healthcare for an Individual (aged between 20-65 in 2016) was $2505 dollars greater (100% greater) for those who were obese compared to those of a healthy weight, along with the total medical cost as a result of obesity that same year being $260.6 billion. (Cawley, 2021).

(Image credit: Picpedia)

Along with these direct health care costs to economies, there are also hidden productivity costs as a result of factors such as presenteeism (when employees are present at work but are not functioning optimally due to illness/conditions leading to lower productivity), absenteeism (the habitual absence of an employee form their job due to factors such as illness leading to lower productivity) and premature mortality (death bellow the age of 75). In 2023 the Tony Blair Institute for Global Change stated that in 2021 the cost of lower productivity to nation as a whole amounted to £16 billion (value adjusted to 2023 prices) (Institute.global, 2023).

Economic prevention programmes

There are several ways that this immense cost to economies, caused by obesity, has aimed to be reduced and reversed effectively. The value brought by an obesity prevention programme can be assessed by its cost-effectiveness and the benefits it generates to both the economy and public health.

(Source: Kivaka, Lina. Shallow Focus Photography of Gram Scale. 2016.)

In 2018 the UK government implemented a fiscal policy know2n as the Soft Drinks Industry Levy, a sugar tax placed on soft drinks (with 5 grams of sugar per 100ml), with the intent of forcing firms, that produce drinks with large quantities of added sugars, to reduce the sugar content of their drinks, to reduce the portion sizes of their drinks and for importers to import healthier drinks, in turn pushing consumers towards making choices more beneficial towards their health (HM Revenue & Customs, 2016). Since the implementation of this policy an estimated value of 45,000 tonnes of sugar has been removed from soft drinks (Department of Health and Social care, 2023).

Another example of fiscal policy being used (again in the form of a sugar tax) can be seen in Mexico, where it was implemented in January 2014 to help reduce the country's dramatically high obesity rates, at the time being 35% for children and teenagers along with 70% for adults. (Salgado Hernández, Ng and Colchero, 2023). This 10% tax on sugar sweetened beverages, had immediate effects as after the first year, there was a decrease in consumption of these taxed drinks by 4.3% in rural areas and 6.3% in urban areas. (Salgado Hernández, Ng and Colchero, 2023).

In 2010, the non-profit organization Wholesome Wave launched the 'Fruit and Vegetable Prescription Program' (FVRx), allowing medical providers to prescribe fresh produce (fruits and vegetables) to patients who have been admitted, in partnership with cooperating farmers' markets supplying this fresh produce **(Extension.org, 2019).** Results of this programme measured in 2014 (in New York City) saw that 42% of participants had a reduction in BMI and that 58% believed they developed a higher understanding of nutrition (Extension.org, 2019).

An example of market regulation, regarding food labelling, used is the 'UK Calorie Labelling Law' (2022), that forces large business, such as cafes and restaurants with more than 250 employees, to produce and display the caloric information of non-prepacked foods and drinks, with additional information of daily recommend intakes to go along side them (GOV.UK, 2022). The caloric information produced by these business are required to be displayed on any physical or online menus along with any delivery or third party apps (GOV.UK, 2022).

The effectiveness of economic prevention programmes

As mentioned in the previous section, the value brought by an obesity prevention programme can be assessed by its cost-effectiveness and the benefits it generates to both the economy and public health. The use of tax-based obesity prevention programmes, such as the sugar taxes mentioned in the examples of the previous section, can be regarded as one of the more effective methods of obesity prevention, as they force a reduction in both the production and consumption of sugary drinks, along with accumulating taxation revenue that can be used to in public health schemes.

Obesity prevention such the 'Fruit and Vegetable Prescription Program' and the 'UK Calorie Labelling Law' can be considered as less effective towards obesity

prevention, due the higher reliance they have on populations appropriately responding to the aims of the programmes. For example the 'Fruit and Vegetable Prescription Program' relies on patients redeeming their prescribed fresh produce and incorporating them within their diet in order to reduce their obesity and achieve a healthy weight. However statics such a 42% reduction in patients of this programme in 2014 (in New York City) having a lower BMI (Extension.org, 2019), do express that they are have a degree of effectiveness, although not assuring these affects occur at a national level. The 'UK Calorie Labelling Law' requires large businesses such as restaurants, takeaways and cafés to provide detailed caloric information in several forms, which can lead to higher costs for these businesses in order obtain the necessary information and to display it all several forms. This obesity prevention programme, although potentially leading to large costs, does not guarantee results as it is dependent on customers using the information they have been provided to better their own induvial choice, in order to tailor a healthier lifestyle.

Imira Kossinhala Vithanage

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Private against Public Healthcare Globally

Healthcare systems in the world vary significantly from one another, and these differences have large impacts on the economies of these countries as a whole. The topic of public against private sector healthcare is up for debate and is one of the leading economic discussions as both models impact costs, productivity, quality of care, unemployment and more. This essay will highlight the major differences economically and outline advantages and disadvantages contrasting models around the world, analysing efficiency, affordability and sustainability.

The UK primarily uses public healthcare through the NHS, funded by taxation. Economically, the NHS benefits from economies of scale as it reduces per capita expenditure while enforcing universal access. All basic labour training is almost identical as most is provided directly by the NHS therefore, this reduces costs of training labour as it is more accessible and all the same skills are required. Geographical mobility is also high as workers can work from any of the 1,257 hospitals nationwide. Government regulation leads to fixed drug prices ensuring affordability and standardises medical procedures reducing inefficiencies. Additionally, national healthcare prevents bankruptcy as the state ownership allows sufficient funds to be allocated and this ensures long term productivity, it also eliminates financial barriers for consumers. On the other hand, disadvantages are that this system leads to high government spending and squeezes the state budget, creating opportunity cost as funds could be allocated elsewhere. The lack of financial barriers leads to excess demand and shortages in factors of production as often people take advantages of free healthcare even if they are in good health. This excess demand leads to long waiting times for non-emergency treatments and also hospital capacity is often full. A universal firm also leads to a lack of innovation and budgetary constraints leads to a lack of capital investment leaving hospitals with outdated medical technology and poor infrastructure affecting the long term quality of the care.

(Image credit: Wikipedia)

healthcare model, afforded via the assistance of private insurance partly in which a premium is paid every month and the insurance providers will pay part of the bill when a service from a doctor is required. This model fosters competition which is non-existent in the UK which leads to innovation and a general higher quality of healthcare and treatment and this is why the US maintains its pre-eminence in medical technology, with nearly 39% of biomedical patents originating from US firms.

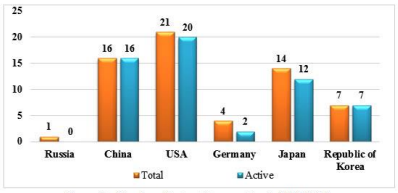


Figure 2 – Number of patents by countries in 2001-2014.

Additionally the US developed 36% of all New Molecular Entities with the next largest being the UK at just 10.4%. Also, opposed to the UK system, the government generates taxation revenue from corporate tax and value added tax rather than spending the revenue they create on healthcare, reducing the current account deficit. The private healthcare institutions often have better equipment than many UK hospitals as they are directly funded by the owner of the firm rather than the government, this leads to the USA spending the most on healthcare globally at roughly 16.8% of its GDP in 2021. While this system increases access to a high-quality of healthcare and reduces waiting times, it creates massive affordability issues. Almost 30 million American citizens remain uninsured and

medical bills are the leading cause of bankruptcy with 66.5% of all personal bankruptcies being tied to medical costs. The system has major equity issues, being highly effective for those who can afford it however, low income households are left with limited access. Additionally, regulation enforcement and administrative costs in the US are much higher than that of the UK's due to private ownership of firms meaning the US government must spend more on administration. This highlights inefficiencies in billing and insurance processes.

(Image credit: Shutterstock)

Germany combines these two systems and uses a mixed healthcare system, combining the two, in which citizens are required to have health insurance operating under a universal multi-payer system, either through statutory health insurance (SHI), which is utilised by 87% of the population, or private health insurance (PHI) which the remaining 13% use. The SHI system is funded through wage contributions, typically amounting to 14.3% of gross income, split between employers and employees. The main advantage to this system is that it allows for universal access while maintaining financial stability of its citizens through employer contributions. German healthcare spending as a percentage of GDP is 12.8%, its lower than the USA's but higher than the UK's, reflecting the Germans' balance between efficiency and quality. Germany has more hospital beds per capita (8.0 per 1000 people) than the UK (2.5 per 1000 people) and the USA (2.8 per 1000 people), reducing waiting times and strain on capacity. PHI is funded by individual premiums based on level of risk, therefore factors such as pre-existing medical conditions and age will affect prices, challenging equality. The inclusion of private insurance however, allows for competition and innovation with private hospitals often having shorter waiting times. However, this still challenges equity issues and PHI users are often high-income individuals and they often receive faster treatment times and more specialised healthcare than those in SHI, leading to a two tiered system.

In conclusion, each healthcare model presents distinct advantages and disadvantages. The UK's public system ensures universal access and cost efficiency but suffers from high government spending, long waiting times, and potential stagnation in innovation. The USA's private system fosters technological advancements and competition, yet it is the most expensive globally and creates significant financial barriers for many citizens. Germany's mixed system offers a balance of universal coverage with private sector benefits, leading to high-quality care and efficiency, though inequalities persist between SHI and PHI users. Ultimately, the best system depends on national priorities, whether a country prioritizes accessibility and equity, technological advancement, or economic sustainability.

Harman Gill

Battle for the Semiconductor Industry

Industry insight

NVIDIA corporation founded in 1993, describes themselves as the 'the world leader in accelerated computing'. They are known for their expertise in designing Graphics Processing Unit (GPUs) – a type of microprocessor.

(Image credit: Wikimedia Commons)

A microprocessor is a core component of everyday technology, responsible for carrying out instructions, processing data by completing calculations and controlling other hardware components. They are made up of billions of microscopic transistors which are switched on and off to process information.

NVIDIA originally used GPUs for gaming, 3D rendering and content creation, due to its high-quality graphics and performance. It is also used in Data Centres which use data analytics to ensure high levels of performance. Most recently, it has been used for AI and machine learning. As the demand for AI rises it also increases the need for more advanced chips. This is because AI involves processing vast amounts of data and performing complex computations. GPUs are specifically designed to efficiently complete these advanced tasks.

Chips that can process data sets for AI models are currently the most advanced in the industry, thus making them one of the most valuable commodities to date. However, there are many challenges that comes with the supply. One being power. AI is completing billions of complex calculations at a time, requiring megawatts of energy. By the end of the decade, US data centres are predicted to need 50 GW of power a year[1] which is equivalent to nearly all the power that the UK uses today, this will only increase exponentially as AI evolves. So, data centres in the US have been delayed due to the lack of power as it will require too much energy form the grid.

Another problem is monopoly power in the supply of AI chips. NVIDIA is by far the most dominant with 88% of the market share for GPUs[2]. It supplies top tech companies such as google, OpenAI and Meta. Recently, leading companies have started to develop their own AI chips in hopes of reducing these costs, however none so far can compete with NVIDIA. Even if one manages to match NVIDIA, there is still the problem of manufacturing the chip.

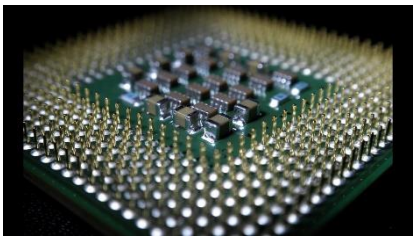
Advancements in technology can only be carried out with companies such as Taiwan Semiconductor Manufacturing company (TSMC). The world's top chip fabrication company and NVIDIA's primary partner. Even though NVIDIA designs microprocessors, they do not have the facilities to produce them. TSMC manufactures semiconductor chips such as processors, GPUs and memory units. These plants are essential for the semiconductor industry as they produce the core of components for up-and-coming technology. Originally located in Taiwan, TSMC factories are now being built Arizona as a part of the US effort to rebuild its chip manufacturing industry. Originally Biden passed the CHIPS and Science Act 2022 act pledging ~$280 billion dollars[3] in taxpayer funded subsides with the idea to persuade semiconductor companies including TSMC to move their manufacturing facilities to America. However, Trump argues that the 'chip deal is so bad', so instead he has decided to use the taxpayer's money by putting tariffs on chips that are imported forcing chip companies to relocate back to the US.

Long ago, dating back to 1949 the global semiconductor industry was based in south-west America.

However, in the 90s the US parted from this industry and the foundry model was adopted - American companies would sell their manufacturing businesses overseas and would focus on designing them. This model thrived in Asia where labour was much cheaper. However, recently America has come to understand the importance of having its own chip manufacturing facilities as they are vital for new technologies for economic growth.

The movement of TSMC to Arizona has caused tensions between Taiwan and the US especially since Trump claims that Taiwan stole the American chip business. There also seems to be further escalating tensions between the US and mainland China who also see the importance of the AI chip industry in shaping the future, therefore China has started to build chips of its own - despite America banning exporting advanced semiconductor equipment to mainland China. The Chinese have continued to invest huge amounts to try and build their own AI chips with almost 5000 new companies every year most of whom fail however it still provides further R+D and innovation thus helping China to catch up. China also do not face the problem of lacking energy and grid infrastructure which is a huge problem for the US.

As both countries race to become the global superpower of the future, we will see who prevails, China guided by Chairman Xi or America under the influence of Trump-side policies.



(Image credit: MyGaming)

Trump's tariffs and their effects

The president, Donald Trump, plans to introduce tariffs on all foreign goods in the United States. These are taxes on imported products, and he plans to set a universal tariff of 10-25%, however, for Chinese goods, he adds an additional 60% - 100%. These tariffs would reduce US spending power by $46 - $78 billion annually[4], according to the National Retail Federation (NRF). This is all encompassed by his Make America Great Again (MAGA) campaign, where a crucial aim is to boost the sale of domestic products in the US. In-fact, the fifth promise on his agenda is to

"*stop outsourcing, and turn the United States into a manufacturing superpower*" [5].

The tariffs would boost the federal revenue, but since the costs to the consumers increase, it would reduce the overall GDP for the US.

(Image credit: PxFuel)

Another effect of the Trump's tariffs is that they would lead to cost-push inflation[6], as they cause the production costs to rise. Thus, all the firms in the US economy that import resources would pass these costs onto their customers, thereby incurring a domino effect on all the other businesses (such as retailers, or manufacturers using those products). These firms will also face higher costs and will be forced to increase the price of their goods or services onto consumers, causing an increase in the general price level, and overall cost-push inflation in the US economy. Furthermore, it would disrupt the supply chain, as businesses look for domestic alternatives, however these alternatives may not be able to meet demand requirements, or they may charge higher prices, and exacerbating costs would increase.

In the case of Chinese goods, these taxes would increase their cost for the American customer, and since the US imported $562.9 billion[7] of goods and services from China and Taiwan, tariffs would greatly impact the cost of these goods. Currently, Taiwanese semiconductors make up 65%[8] of the global supply, and 90%[9] of those used by US tech firms.

Trump wishes for the tariffs to coerce superconductor builders, such as TSMC, to create manufacturing plants in the US, to sidestep the additional tax and meet promise No.5. However, another route they could take is to increase the prices of their chips for consumers, the big firms such as NVIDIA. NVIDIA rely heavily on TSMC for their GPU's, such as the H100 and A100, which are central to AI and data computing. Therefore, the tariffs would reduce their profits greatly, as the cost of their most important resource severely increases, so in return, they may increase the price of their GPU's, causing a ripple effect down the line. Furthermore, these tariffs could disrupt the supply chain, as downstream companies would pass the costs forwards, which would incentivize a shift to other suppliers, such as Samsung. This may cause delays for NVIDIA, and increase their expenses for R&D, as they lag behind TSMC in manufacturing cutting-edge chips.

AI companies, such as OpenAI (which is based in the US) use NVIDIA's GPUs for training their large language models, as they can employ parallel processing and can scale up easily to meet the supercomputing requirements of the companies. Hence, an increase in the prices of GPUs would firstly decrease the profits of these AI companies, so they may push it forward to the users, making it less accessible to the public. This would completely negate the core aim of OpenAI, which is to make generative intelligence accessible to everyone, as they would have to increase the price of their premium plan, and reduce the usability of their free option. This might also limit their ability to scale their infrastructure, due to less profit for capital investment, which would hinder the development of new and improved models and features.

The other option that TSMC has is to follow along with Trump's plan and build factories in the US. This would shift the production from Taiwanese factories to American factories, thus the workers would have to be from America themselves. The federal minimum wage in the US is $7.25 per hour (as of July 2024), whereas in Taiwan, it is $5.58. This means that moving to the US, and employing American labour would increase labour costs for the companies. However, TSMC is already building a plant in Arizona, which will begin operation in 2025. The Arizonan minimum wage is $14.70[10], hence the costs of building here will cause the price of superconductors to experience a large increase. The predicted effect of this is that the price increase will still be passed forwards, and the price of TSMC semiconductors will rise, to account for higher labour costs.

To mitigate these effects, the US government may decide to subsidise domestic AI companies, to try and offset the impact of the tariffs. This would increase the government's spending and may even negate the revenue gain from the tariffs. Additionally, the CHIPS act may reduce the reliance on Taiwanese semiconductors, as it tries to build up the US manufacturing capability, however, Taiwanese companies can import directly from China, as there are less trade barriers, and China are the top global producer of silicon, the main component of semiconductors, with 9 million metric tons produced in 2023[11]. Comparatively, the US produces only 348, 000 metric tons of silicon[12], thus it may cause supply issues for TSMC in the long term. China also produces 60% of the world's germanium[13], another key element in semiconductors. Thus, factories in America will have increased transport costs and less of the resources required to manufacture semiconductors.

The effects of Trump's (generally) pro-market policies on NVIDIA

(Image credit: Wikipedia)

Trump's economic policies are generally inflationary, as he has suddenly become concerned about the US stock market and is now considered to be pro-market (in favour of the free market and capitalism), intending to accelerate the economic growth of America and benefit all American companies (particularly those operating in Silicon valley). Major tech giants' stock should be further salted through the introduction of the new Federal Trade Commission (FTC) Chair Andrew Ferguson, due to his predecessor (Lina Khan) having rather strict views on mergers and other trade practises, preventing a $40 billion dollar merge that was intended to move beyond GPUs to CPUs[14]. Contradictorily, Trump's actions and opinions are not so clear as his import tariffs could potentially cause the fall of NVIDIA, with their production relying heavily on cheap components and manufacturing prices in Taiwan.

Since Donald Trump's inauguration (on the 20th of January), Trump has stated he wishes to extend the 'Tax Cuts and Jobs Act'; in particular cutting the corporate tax rate from 21% to 15%. The effect of this is to stimulate business investment and growth, which according to the Bank of America (BofA) would increase the S&P 500 EPS by just over 5%[15], and due to NVIDIA's high beta and being in the technology sector of the fund (the highest valued sector) would probably increase NVIDIA by much more than 5%. Furthermore, Trump intends to deregulate businesses during his second term, which would increase productivity across most sectors (including technological and financial) due to the accelerated approval of permits and requests – such as licensing the extraction of more, finite materials. However, the EconoTimes suggest that the "Federal Reserve may raise policy rates to counterbalance [Trump's] easy fiscal stance"[16]. The impact of this would hinder business investment, but it is currently unclear as to the extent to which the Federal Reserve would raise policy rates or whether they would do it in the first place. Despite some other sectors having mixed outcomes from deregulation, the leading industry in the S&P 500 is technology which is stated to experience unprecedented business growth and expansion. It is safe to say that NVIDIA will only benefit from Trump's corporation tax cuts and deregulation, and the persistent rise of NVIDIA's market share and stock prices will only continue.

(Source: UMA Media. Person Holding Smartphone Displaying NVIDIA Logo. 2025.)

The first thing that the new FTC Chair Andrew Ferguson would like to do is reversing many of the policies implemented under the current FTC Chair Lina Khan. Notably, he states that he wants to "stop Lina Khan's war on mergers. Most mergers benefit Americans and promote the movement of capital that fuels innovation" and also states that he wants to "end the FTC's attempt to become an AI regulator." Fortunately for NVIDIA, despite Andrew Ferguson stating that he has "Big Tech in his crosshairs", he is more concerned with Big Tech companies involved with free speech and bias in consumer-facing companies[17]; which means targeting companies such as Meta, Amazon and Alphabet. Furthermore, Ferguson would also like to undo some of the AI initiatives and regulations that Lina Khan and her FTC have proposed – undoubtedly benefitting NVIDIA with their new AI-powered GPU initiative. Lina Khan's $40 billion dollar blocked merger between NVIDIA and Arm Holdings (which would have been the largest in the semiconductor industry to date) may now be able to go ahead - elevating NVIDIA's stock and wealth to new heights - however it is unclear whether NVIDIA still want to pursue this path or potentially merge with another company. Whatever the case, NVIDIA will be able to capitalise on the deregulation of mergers and acquisitions (M&A), and with the focus shifted onto

other Big Tech companies, gain even more traction in the market and increase its share. The future of NVIDIA's stock are looking strong, but the volatility of the stock market is unparalleled: dips in stock prices caused by influential figures selling, an impulsive Trump law or some unsavoury media attention are all too common.

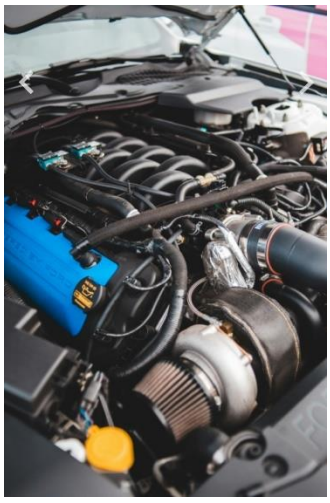
The majority of the president Donald Trump's actions have been in favour of NVIDIA, whether influencing them directly through policies or indirectly as the result of one of his cabinet members, however Trump has decided to muddy the water and make the future of NVIDIA and their stock prices quite uncertain with his controversial import tariffs. He has stated that he wishes to impose a universal tariff of 10-25% on all goods coming into the country and a 60-100% tariff on goods coming from China, this will severely destroy the profit margins of most Big Tech companies, as almost all of them rely on their cheap manufacturing plants in China (due to cheap labour and supply-chain advantages). Fortunately for NVIDIA, the majority of their production and manufacturing is done in Taiwan, so they have managed to escape the harsher import tax but still are affected by the lesser, universal tax. The effect of the import tariffs on NVIDIA and other tech companies has resulted them in rushing their production to stockpile their GPUs and goods[18]. This has momentarily boosted NVDA prices, however, we will have to wait and see if their strategy pays off, otherwise there could be a significant backlash and drop in stock prices. Although NVIDIA are facing significant import tariffs, they are less affected than other Big Tech companies such as Alphabet, Microsoft, Amazon and Meta – this could again lead to an increased market share (despite already having 88% of the market).

For NVIDIA, Trump's policies could lead them to overthrowing the Big Tech giants, and coupled with their innovative and revolutionary technology, the future of NVDA is looking bright, where long-term investors can reap the rewards of a persistent and pioneering firm and day-traders, well, they always just try and outsmart the market anyway.

Aadi Manjith, Johan Haniffa & Kaixin Kou

The Fall of Northvolt

Europe developed a dependence on the prospect of Northvolt becoming the foremost battery manufacturer for the electric vehicle industry; from 2015, when Peter Carlsson first founded the company in Sweden, Northvolt was the recipient of over $5bn in subsidies. However, this seemingly limitless funding did not prevent the announcement of its bankruptcy in November 2024, declaring $5.84bn in debt. This failure was an embarrassment for the European automotive industry, and for its investors, of whom many granted absurdly liberal loans; the collapse confirmed Chinese supremacy in the EV battery-production industry, entirely repudiating its initial aim. Even before Northvolt produced its first cell, it had signed multi-billion euro deals with BMW and Volkswagen. With the benefit of hindsight, we may question the generous rhetoric of investors and speculate that this instilled the complacent disposition that was Northvolt's hamartia.



(Source: Mclean, Erik. Battery and distributor of modern car. 2020.)

Northvolt initially sought to achieve a 16GWh capacity for its cells, then raised its target to 24GWh shortly after it assembled its first battery in December 2021; this baseless ambition was encouraged by generous investment. Prior to this, the European Central Bank asserted its support for Northvolt through a €350 million loan. Volkswagen continued its abundant investment, and in May 2020 granted €450 million to the firm, which they doubled to gain a 20% share in Northvolt; BMW followed suit with a €2bn deal a month after, however cancelled this in 2024 when Northvolt failed to satisfy its target of raising $1.2bn in the first half of the year. The retraction of this instigated a strategic review, in which 1,500 employees, almost 25% of their global workforce, were made redundant to raise efficiency. Northvolt was also the recipient of the largest 'green loan' in Europe of $5bn, despite rising concern for the company's inefficiency. Dagens Industri, in a classified report, had identified that in the first 9 months of 2023, Northvolt had lost $1bn, prognosticating greater losses in the future, that may have been preventable if the account had been released. Eventually, Carlsson filed for Chapter 11 bankruptcy, stating that the assets of Northvolt needed to be reorganised, and this declaration was also a mechanism for liquidation.

The causes of Northvolt's downfall are undefined, however nebulous conclusions can be drawn from it. The presence of competition from China may have encouraged the rash subsidies granted and compelled Northvolt to scale up unsustainably fast. In a desperate endeavour to experience and benefit from economies of scale, Northvolt recklessly spent on expanding capital and labour. Northvolt wanted to minimise its cost of production to become more price competitive over foreign substitutes and gain a competitive advantage, thus was investing unprecedented amounts from investors. The company was employing up to 150 people a month, and the growth in their labour force may not have been supported by sufficient roles; this rapid escalation may have accelerated Northvolt's downfall and suffering from miscommunication diseconomies of scale. These inefficiencies undermined the subsidies and investments granted.

The main concern that has evolved from Northvolt's collapse is how will this affect subsidies in the future? We cannot predict this: but we must hope that governments do not become parsimonious when funding subsidies that support the net-zero rhetoric. There must be more cautious choices made, however, becoming too risk averse may hinder environmental sustainability targets in the future.

Nisna Malviya

The Green Economy

Urgency for action

Global temperatures have already risen by 1.5°C since pre-industrial times, with projections indicating a startling increase of 3.5°C to over 8°C by 2100. Such extreme warming would trigger unprecedented floods, droughts, storms, and rising sea levels. Even the current 1.5°C rise has already caused sea levels to rise by 7.5 inches and led to an annual loss of 1.3 trillion tonnes of ice. Any further increase could have catastrophic consequences.[1]

As of 2025, nearly half of the world's population lives in water-stressed regions, and by 2040, one in four children could face severe water scarcity.[2] This crisis is exacerbated by the declining availability of freshwater due to pollution and rapid population growth. Meanwhile, plastic pollution has surged to alarming levels, with over 171 trillion plastic pieces are currently floating in the ocean – the equivalent to a garbage truck's worth of plastic dumped every minute. Without intervention, plastic would surpass the number of fish in the ocean by 2050 - fundamentally altering marine ecosystems.[3]

Yet simultaneously, millions still live in poverty. Globally, one in nine individuals lack adequate food, and nearly half of child deaths are linked to hunger.[4] Not to mention, economic inequality remains stark - the richest 1% control almost twice as much

(Image credit: Diginomica)

wealth as the rest of the world combined.[5] This disparity fuels unsustainable consumption patterns, where the wealthy elites exploit natural resources while disregarding the environmental consequences. Conversely, economic shocks, such as the 2008 financial crisis that displaced 3.7 million workers,[6] tend to force the poorest populations to overexploit their surrounding environments for survival - leading to over-farming, illegal logging, and unsafe mining practices. This creates a vicious cycle where poverty drives environmental degradation which disproportionately burdens marginalised communities.

Given these challenges, the question is: Should the focus be on the economy thriving, or fixing its underlying issues?

Views from experts

The conflict between economic growth and environmental preservation has sparked extensive debate. Experts from institutions, like LSE and Oxford, argue that economic growth and planetary health are not inherently incompatible, but their coexistence requires a shift towards sustainable practices. Kate Raworth's concept of *Doughnut Economics* offers a compelling framework that balances meeting humanity's essential needs within the planet's ecological limits. The "sweet spot," as described by Raworth, lies between the social foundation – ensuring basic human well-being – and the ecological ceiling – the maximum environmental impact the Earth can handle.[7] However, this equilibrium is dynamic not static - meaning it requires constant adjustment to shifting social, economic, and environmental factors.

Raworth's model has reshaped my perspective: economic growth need not to be a zero-sum game with environmental preservation. When harnessed responsibly, growth can drive environmental regeneration, promote social equity, and enhance well-being. Moreover, metrics like the Genuine Progress Indicator (GPI), which accounts for factors like income inequality, resource depletion, and pollution should be more widely encouraged. Unlike GDP, which has several limitations, the GPI offers a more holistic measure of whether growth aligns with long-term ecological and social health.

Scholars, such as Professor Cameron Hepburn, emphasise that growth can be part of the solution, highlighting the potential for "clean growth" to increase economic output while reducing emissions.[8] Countries like Denmark and Sweden exemplify this balance by achieving economic prosperity while reducing carbon emissions through proactive investments in renewable energy and green technologies. Norway's $4 billion subsidy program, which resulted in 94% of new car sales in 2022 to be electric,[9] underscores how targeted incentives can accelerate sustainable transitions.

(Image credit: Energy & Environment Post)

However, the situation is more complex for developing and emerging economies. While Scandinavian countries have the financial and technological resources to invest in green infrastructure, many developing nations face significant barriers such as limited access to capital and a high dependency on fossil fuels for energy. For instance, many countries in Africa, Asia and Latin America still rely heavily on coal, oil, and natural gas. Additionally, a large proportion of their population live in poverty, making it difficult to prioritise sustainability over immediate economic survival. Nonetheless, sustainable growth is not an unattainable goal for developing economies. Costa Rica, for example, implemented a Payment for Environmental Services (PES) that successfully increased forest cover to more than half of the country's land. This earned them the UN's Champions of the Earth Award in 2019, and they have served as a model for other countries.

Global cooperation

National interests often impede international cooperation, as developing economies prioritise short-term economic growth to alleviate poverty and reduce unemployment – sometimes at the expense of long-term environmental sustainability. This trade-off reveals a fundamental dilemma in global climate policy. Historically, industrialised nations in the Global North achieved rapid economic growth through decades of unregulated pollution, contributing disproportionately to the climate crisis. Yet, developing economies, still grappling with poverty and inequality, are now expected to adopt cleaner, more expensive technologies that could potentially slow their growth. This "climate justice" argument indicates the inequity of imposing uniform environmental standards on nations at different stages of development.

For sustainable global progress, wealthier nations must shoulder greater responsibility by providing financial and technological assistance to developing countries. However, resistance from major fossil fuel firms - wielding significant political and economic influence - often stalls progress as their market power allows them to shape policy outcomes. Their influence is evident in the continued subsidies for coal, oil, and natural gas in countries like Russia and Iran,[10] despite clear scientific evidence underlining the pressing need to cut greenhouse gas emissions.

Nevertheless, global cooperation remains indispensable in combating climate change, as no single nation can combat this crisis alone. International agreements, such as the Paris Agreement, display the collective effort needed to limit global temperature increases to well below 2°C, aiming for 1.5°C.[11] Annual Conferences of the Parties provide platforms for countries to set emissions targets, negotiate strategies, and hold each other accountable. Yet, scepticism remains about the feasibility of these goals - especially given the shifting political landscape in the United States. The resurgence of anti-environmental rhetoric under leaders, like Donald Trump, has had profound implications for global climate efforts. Trump's

withdrawal from the Paris Agreement in 2017 and his administration's rollback of environmental regulations and promotion of fossil fuel industries disrupted global momentum toward sustainable energy transition. Given the United States' status as a major global emitter and economic powerhouse, any shift in its climate policies significantly impacts the collective ability of nations to meet decarbonisation goals.

(Image credit: Wikimedia Commons)

The Human Side of the Green Economy

The transition to a green economy presents not only environmental issues but also profound human challenges, particularly for vulnerable communities. As industries pivot away from fossil fuels, workers in high-emission sectors face the threat of unemployment. For instance, the EU's decarbonisation efforts could displace 154,000 coal industry workers by 2030,[12] disproportionately affecting countries like Greece, Germany, and Poland.

To mitigate this, the principle of a "just transition" must be central to policymaking. This principle seeks to balance environmental goals with economic fairness by ensuring that the benefits of green growth are shared equitably - especially with vulnerable communities and workers.[13] Strategies such as the implementation of retraining and reskilling programs are vital in helping workers transition from fossil-fuel based jobs to emerging green industries such as renewable energy, sustainable agriculture, and energy efficiency. For example, Germany's Just Transition Fund invests in retraining programs for workers in coal industries, helping them transition to roles in wind and solar energy sectors.[14]

The RES-SKILL, funded by an Erasmus+ grant, focuses on helping coal workers make this shift as part of an EU-funded initiative in 2020. By offering vocational education and training courses, aligned with the growing demand for labour in the renewable energy sector, the project assists workers in acquiring the necessary skills for these industries. With renewable energy sector projected to create 304,000 new jobs per year by 2030,[15] there is a significant opportunity for displaced workers to transition into these roles with minimal retraining, especially given their transferrable skills. Furthermore, the RES-SKILL project addresses the need for comprehensive support systems, offering career reorientation services and practical training to ease the transition. The project ensures that workers are not left behind in the face of economic shifts, aligning the transition to green energy with broader goals of social equity and economic stability. The project exemplifies how, through targeted retraining programs, collaboration between education institutions, industries, and regional development agencies, a just transition can be achieved. These efforts allow workers in fossil fuel industries to gain access to new and sustainable employment opportunities, whilst minimising the negative impacts of the transition on their livelihoods.

Conclusion

The transition to a green economy is not just an option – it is an urgent necessity that demands bold and transformative action across all sectors. This shift goes beyond adopting innovative technologies; it requires a fundamental reimagining of how economies are structured and a commitment to addressing deep-rooted inequalities. While challenges such as resistance from fossil fuel industries, potential job displacement, and geopolitical complexities remain formidable, the long-term benefits of a low-carbon future far outweigh these temporary hurdles. With strategic policies, sustained internal cooperation, and a relentless focus

on social equity, we have the power to drive innovation, create sustainable livelihoods, and safeguard our planet. The path ahead is undeniably difficult, but hesitation is no longer an option. We must act decisively now – or risk leaving future generations to grapple with the devasting consequences of our inaction.

Janice Kuang

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Swiftenomics: Economic Impact of Taylor Swift's 'The Eras Tour'

The COVID – 19 pandemic greatly lowered consumer confidence and induced a surge in the savings ratio within global economies, demonstrated by the high 32% savings rate in the pandemic compared to the US pre-pandemic average of 6% . This shows people engaging in precautionary saving due to reduced confidence and fears of a potential recession. You may be wondering, what has Swiftenomics got to do with this? Swiftenomics is generally accepted as the application of economic theories to business strategies, cultural influence and market dynamics created by Taylor Swift. Her *Eras Tour* has inspired fans worldwide to engage in consumption in the entertainment sector post-COVID. From small country artist to a cultural musical icon, Swift has become an economic powerhouse with a net worth well north of $1 billion and had a maximum audience of 96,000 at Melbourne. In this article I will outline how she has used economic theory in her favour to achieve the highest grossing tour of around $2bn in sales record worldwide and the multiplier effect this has induced.

Swift's concerts, namely The Eras Tour, has highly contributed and engaged with an economic model called 'fun-flation'. Fun-flation is the trend that consumers are willing and able to spend money on fun experiences, like concerts, despite rising prices. This is illustrated by hotels gouging consumers and charging high profit-maximising rates while maintaining over 90% occupancy during the period of her tour dates.

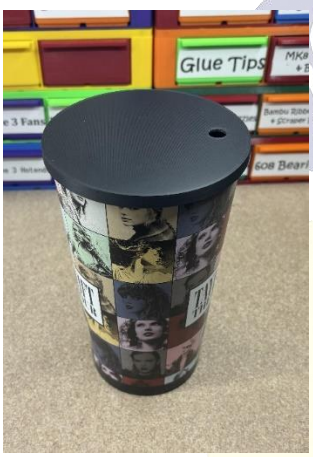
(Image credit: Young Adults NL)

This can all be tied down to a wider concept of behavioural economics. During *The Era's Tour* , Taylor Swift fans, known as 'swifties', have exhibited signs of irrational behaviour, when individuals often make decisions without the aim of maximising utility. In accordance to this concept, Swifties have demonstrated remarkable levels of consumer loyalty that reflects the strong inelastic demand of concert tickets, a result of exclusive merchandising and personal album releases that create a strong economic relationship between Swift and her consumer/listener. In the concert ticket presale, Ticketmaster was met with an overwhelming level of demand resulting in significant market inefficiencies, website crashes and unprocessed transactions. Despite this, fans continued to display their irrational behaviour as paid premium prices in secondary markets like StubHub, where prices were up to $5,000 per seat due to high market demand, in alignment with their inelastic demand.

Speculative behaviour was exemplified by the resale of exclusive merchandise.. Consumers acted as arbitrageurs and resold merchandise for inflated prices and exploited the price difference between primary and secondary markets, for instance $40 T-shirts could be resold for as much as $200, showcasing the ability of fans to capitalise on the scarcity of products. This hyper-dedicated fanbase highlights Taylor Swift's ability to create a powerful brand ecosystem, in which both the scarcity of goods and the emotional connection to the artist can drive significant economic activity and consumption beyond the rational market behaviour.

Taylor Swift's engagement with the gig economy, particularly through her *Eras Tour*, has led to insightful knowledge on labour market flexibility and job creation within the modern entertainment

sector. The tour required temporary, contract-based works aligning with the gig economy, which is defined by a labour market characterised by the prevalence of short-term contracts or freelance work as opposed to permanent jobs. The gig economy thrives in this environment, as demand for labour is episodic and requires a fluid workforce.



(Image credit: The Eras Tour)

While Swift's tour created significant employment opportunities, it also highlighted some of the risks associated with non-traditional work arrangements. Gig workers often lack long-term job security such as healthcare or retirement savings, which may have been experienced by the 50-200 crew members on the *Eras Tour* (fluctuating depending on tour location/attendance etc). While the short-term opportunities offered by tours can be lucrative, they are not sustainable for all workers. The temporary nature of the work can lead to periods of frictional unemployment, and the lack of job permanence may contribute to income instability for gig-economy workers. Swift has been able to harness this problem successfully as provided a collective value of $197m in bonuses to workers over the 2 year tour, additionally ensured tour members stayed in employment with her team for as long as possible to ensure stability wasn't disrupted.

Swift's tour generated substantial economic activity far beyond the direct revenue of the project itself, explained by the multiplier effect that had been induced. Multiplier effects are when an initial increase in aggregate demand leads to a more than proportional rise in GDP/national income. Singapore is a prime example of entertainment multiplier effects. Singapore's move to secure Taylor Swift concert dates in 2024 was 'creative' expansionary fiscal policy. Traditional expansionary fiscal policies commonly involve changes in taxation and government expenditure. Despite slight demand – pull inflation, the hospitality and airline sectors of Singapore benefited from a much-needed post-COVID-19 boost. Furthermore, people started to visit the states that Swift had performed in more to further develop their interest in different economies; Singapore was a recipient of this domino effect. Therefore, I believe this incident has taught countries a universal lesson in context of the power of Swift and the entertainment economy.

Swift's concerts caused further positive spillover effects; seen as an addition to the initial purchase of tickets, hospitality businesses – such as hotels, restaurants, and retail stores - saw an uptake in activity due to both the influx of gig-economy workers and fans attending the show. However, there is still slight risk of over-investment in hospitality if the economic boost is short-lived , but we are yet to witness significant evidence of this occurring. Over-investment could become harmful if the surge in interest in a city is only sustained in the short-run, this could lead to idle scarce resources and a loss of productivity growth in a region in the long term. The surge in hotel and restaurant revenue greatly contributed to the expansion of local GDP due to boosts in consumption increasing aggregate demand. For instance, Taylor Swift's two *Eras Tour* dates in Denver alone added $140 million to Colorado's GDP, which is approximately 0.3% of the states total monthly GDP in 2023. In further context, the six tour dates in Los Angeles had a combined economic impact of $329 million which includes the creation of 3,330 jobs across different sectors. From this notable economic boost, $20 million was generated in sales and local sales taxes (taxes collected on goods and services sold during the concerts). This is a key example of the 'spillover

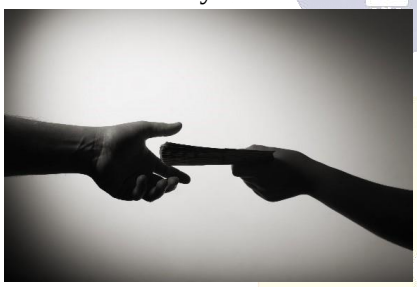
effects', that the tour created and how concert production stimulated short-term economic growth in the host cities they performed in.

In conclusion, it is undeniable that Taylor Swift commands success. Her ability to maintain her authenticity in order to connect with consumers of her music is an art that other professionals are yet to master to her magnitude. Swift's impact on GDP and tourism in local economies were so substantial that her tour dates in Paris brought five times more luxury American travellers than the projected amount for the Paris Olympics. The entertainment industry should learn about consumer behaviour and irrationality, which is an extremely important economic concept to consider. Furthermore, thanks to Swift and her ground-breaking *Eras Tour* , we can learn the true extent of brand loyalty and inelasticity from the statistics and economic effects that occurred.

Anoushka Chakravarthy

The Threat of Shadow Markets and Illicit Trade

Each year trillions of pounds worth of goods, services and income go unregistered and unreported on by millions, slipping through cracks in government records. Yet, its more complex than it may initially appear, for such hidden transactions are not just done for nefarious reasons by criminals and gangs, but also as desperate ways to stay afloat. This makes up the shadow economy.



(Image credit: Shutterstock)

The shadow economy encompasses illicit, unregulated economic activities with widespread disruptive abilities to both fiscal stability and market dynamics. It can be split into two categories: shadow and black markets. Shadow markets refer to transactions dealing with legal products or services in an unreported or unregulated and therefore illegal manner, while black markets refer to the trading of prohibited goods and services outside of government oversight. Combined, these markets form the underground economy away from scrutinising regulators or growing tax frameworks, where they contribute significant monetary leakages out of the economies of every country worldwide.

It is believed that if the global shadow economy were the economy of a country, it would be the third largest in the world, behind the USA and China. While in the UK, the Office for National Statistics (ONS), believed that in 2020, the British shadow economy encompassed around 10% of its GDP.[1] Due to recent and prolonged economic downturn, such a number is only believed to increase, providing a growing and immediate challenge to any government or legitimate business.

Components of shadow markets

When it comes to the shadow economy, it is difficult to predict the exact size or breakdown of the activates encompassed within it. However, through research and largely anonymous surveys as well as analysis into statistical trends, economists can make realistic estimations. For shadow markets, according to HM revenue and customs (HMRC)[2]:

- 40% of shadow market transactions are made of buying goods to sell on.
- 49% of all goods that are bought to sell in the UK are done in the shadow market, meaning almost half of such goods are sold in illicit manners.
- ‘Casual work’ makes 21% of the shadow market.
- Out of all ‘casual work’ done in the UK 35% is not declared.
- Rental income is also a significant component, contributing 2% of shadow markets, and 5% of all rentals done in the UK is in these shadow markets.

Furthermore, HMRC found: 50% of shadow market activities generated less than £250; 12% had no total income; and only 21% of activities generated over £1,000.[2]

The Temptation to Participate

Such a market is becoming increasingly tempting for many individuals, resulting in its marked and worrying growth. Debilitating economic pressures and increasing fiscal burdens are major motives which consistently draw people into this cheaper alternative. In fact, research from the National Centre for Social Research in 2022 found approximately one in ten UK adults admitted to have engaged with it, up from 5% in 2015-2016.[3] This rise is unsurprising, given increasing tax levels have meant that in 2023 the average household was paying £5,486 in taxes compared to £3,504 a decade

earlier - an increase of 57%.[4] This is likely to rise after the new Labour government's autumn budget, and coupled with stagnant wages, this continues to provide a strong incentive to both consumers and firms alike to resort to unregulated means in order to save cash.

(Image credit: Pinterest)

Unpredicted economic disasters have resulted in years of instability such as the pandemic which increased unemployment and decreased what (legal) producers could offer. Also, the Russia-Ukraine war hiked up the price of various commodities such as oil. Consumer's marginal propensity to spend is at a low with no more disposable income than just a few years prior; only further exacerbating the desire to engage in such informal transactions.

Large numbers of individuals who engage with these, do so unknowingly or in confusion of how the tax system works. This is especially the case, with many small business owners who either believe they need to be earning more than they currently do before paying tax or simply find the process too complex, difficult or time consuming. Additionally due to the expansive growth of the online world and decentralised payment methods (such as Bitcoin), individuals can access these markets easier and more anonymously than before, adding to the attraction. However, the reasons for doing such activities can expand beyond financial situations and into the political. For example, HMRC produced a report[5] which detailed how political situations such as the 'Iraq War' have served as "powerful catalysts" pushing people into the shadow markets. This is not just a form of protest but also serves to stop the government from using their money to fund said conflicts.

Additionally, Black markets, due to their lack of strict laws and regulations, they are a relatively easy way for consumers get the services or goods which would otherwise be inaccessible. This creates high demand and large amounts of revenue which incentivises morally questionable entrepreneurs and workers to join in on the growing levels of profit.

In terms of what forms these markets, the exact breakdown of how prevalent certain activities within them are can be difficult to untangle, however many estimates have been made for the UK including:

- 'Drugs and illegal substances' made up £5.4 billion annually (up by 4.4bn from 2014 as reported by the NCA).[6]
- 'Counterfeit goods and piracy' contributed £13.6 billion annually; as predicted by the Intellectual Property Office (IPO).[7]
- 'Prostitution and sex work' amounted to £5-6 billion annually; as predicted by the ONS.[8]
- Illicit tobacco trade costs £2 billion in lost tax revenue a year; source: HMRC.[9]
- Cybercrime, including stealing data and IP, is estimated to cost businesses billions a year[10], although how much of this is part of the black market is unknown.

These are just some of the largest examples, however the British black markets also consist of arms trade, human trafficking and smuggling and more.

Consequences

These markets and their consistent growth, come not just with worrying moral implications but also with large fiscal consequences. The growing profits from undeclared transactions, services and products only expand the tax-gap, meaning large levels of unpaid revenue does not reach the government. Due to the large amount of GDP these shadow activities take up, it is estimated that up to £3.2-12.5[11] billion is lost to the treasury annually. The large disparity in the estimates comes down to the secretive nature of such transactions, however either

way the loss is significant and shrinking it could allow for needed funding into many key sectors. This makes the harm from these activities blatantly clear, and with a growing and aging population as well as increased economic uncertainty the damage from money lost is only likely to get larger.

Additionally, the ability for black markets to supply illegal products to consumers who are potentially ignorant or dismissive of the health-related effects poses a significant issue, especially when it comes to young people. It is already easy to see the effects of black markets in everyday life in this regard, a crime survey for England and Wales in 2024 said that the prevalence of illegal drugs was estimated at around 8.8% of people aged 16 – 59 in the last year.[12] Furthermore, there has been a sharp rise in the use of vapes, to the extent that it is being labelled as an 'epidemic' especially among younger people. The effects of products such as drugs or vapes is significant, it sets individuals up for noticeable health issues later in life, subsequently putting pressure on strained public services, while also sending money towards criminal groups.

(Image credit: Picpedia)

Ethical complications because of the shadow economy can be as significant as the economic issues. Due to the fact shadow market activities offers cheaper prices because of unregulated production (including possible forced labour and selling of products free of tax etc) than legitimate ones, it creates a clear, unfair advantage in favour of illegal businesses and transactions. Therefore, displacing legitimate businesses from the market (also adding further economic issues).

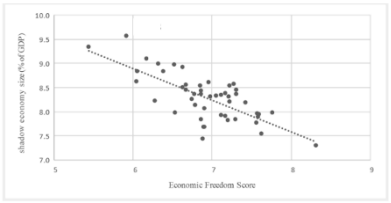
However, despite all these negative consequences, some argue black markets can provide benefits. This is said to happen, as they encourage spending from consumers therefore meaning more money circulates the economy and redistributes income. For example, the combined addition to UK GDP from drugs and prostitution is roughly £10 billion[13] it adds more to the UK circular flow of money than the music industry. Such money is being spent and transferred untaxed and unregulated in a potentially exploitative way, so can still be argued to do more harm than good.

Prevention

The UK is relatively fortunate with the size of its shadow economy; at 10% of GDP, it is dwarfed by countries such as Russia with 38.4% of its GDP, or Panama with 51.8%.[14] In fact, the country with the current lowest is Switzerland with 7.5%[14], not too far off the UK's.

Due to the large scale, damaging effects, the government especially HMRC is acutely aware of the impact of the shadow economy. A government report in October 2024[15] stated that it is determined to help the public understand their tax obligations. In the past, the government has introduced the "making tax digital" initiative[15], which aimed to reduce chances for tax evasion by allowing it to be done online. HMRC also uses data analytics and when this is paired with law enforcement it can help stop crime while being an effective deterrence.

Getting significant changes to the size of the UK shadow economy would be difficult, especially in the present day due to ongoing global and domestic situations. However, it is not only possible through changes to fiscal policies, tax mechanisms and more but imperative to prevent further growth.



Source: Average shadow economy size versus average EFNA score, 1997–2008, constructed by the author, using data from Dean Stansel, José Torra, and Fred McMahon, *Economic Freedom of North America 2016* (Vancouver, BC: Fraser Institute, 2016), and shadow economy estimates from Travis Wiseman, "US Shadow Economies: A State-level Study," *Constitutional Political Economy* 24, no. 4 (2013): 310-35.

A US study found that a 1% decrease in tax and social welfare burdens results in a 0.3% decrease in shadow economy activity on average. [16]Also, in 2013 the Institute of Economic Affairs attributed one of the most significant causes of growth in these economies to be increased taxation/regulation.[18] This is due to how it makes consumers and firms further consider how and where they spend their income when under financial pressure. Similarly, the IMF links a one point increase in the regulation index, to up to a 10% increase in the size of the shadow economy, with the regulation index being a scale from 1 to 5, with 1 representing free market capitalism and 5 being a communist style state controlled economy[17].These trends in growth are consistent with the patterns seen in recent times with increases in cost of living, but is also something that has been apparent for quite some time. During the 1960s and 1970s in America, the government and state governments increased social security levies, unemployment taxes, etc resulting in the cost of labour increasing and millions of jobs being cut.[16] This was followed by a noticeable increase in the size of the US informal economy. Therefore, demonstrating the need improve the freedom of the market.

Although, it is argued by some, that an economy that prioritises social welfare will reduce the incentive for shadow market activity by providing basic needs for those most likely to be desperate. They argue that an increase in taxation can fund more police and special service enforcement to control shadow economy activities. However, high spending can only come from high taxation/regulation (or high borrowing, but that comes with other economic problems), potentially countering the benefits that come from said spending, as shown previously. Furthermore, nations with high government spending are usually met with higher shadow economies than their free market counterparts. Even in more democratic countries that rely on high spending, such as those in Scandinavia, the size of the shadow economy lies around 15%.[14] This is higher than more capitalistic countries, such as Canada, Australia, UK, or the USA, averaging around 9-12%.[14] Although the difference is only a few percentage points, this comprises millions and millions of products and services. So, while spending on welfare and public services can successfully shrink the shadow economy, it is less efficient than methods which aim to promote the free market.

Furthermore, it is often argued that legalising certain products (e.g. illicit drugs) would reduce the size of criminal gangs, their impact and minimise the amount of money disappearing into the hidden economy. However, such an argument is flawed and would need amendments to be a successful strategy against these groups. In 2016, California legalised recreational cannabis, yet rather than the formal markets replacing the illicit ones, authorities reported that they had found that criminal gangs stayed active, and in many cases increased. The same finding has been seen in other countries and US states. Therefore, if such policies were implemented in the UK similar results would likely be seen. Such unexpected growth happens, in part, as with these policies come a decrease in stigma surrounding these substances as well as more advertising, in other words, there is an increase in demand. These consumers then have two options: either they can buy drugs legally, although due to regulation and possible tax costs this is the more expensive choice; or they can go via illegal methods with unregulated, untaxed, and therefore the cheaper option. The results in other countries that have done this demonstrate plenty of individuals are more than content to follow through with the latter. If they do not, due to the additivity of many of these substances, it is likely at some stage they will. Another reason the increase in the size of the drug market occurred is because production of these drugs

can happen 'out in the open' and thus not needing to be hidden way. Therefore, an increase in production can be achieved. This allows for more supply to the illicit markets, and in response can lead to prices being further decreased, fuelling incentivisation. As such, this demonstrates that such legalisation can foster growth among criminals, many of which employ highly immoral tactics to secure profit, such as the exploitation of children in cases like 'County Lines'.

However, this is not to say that this legalisation is incapable of working, just that if it is a strategy to be used it must be paired with low taxation and little regulation to avoid unwanted consequences. The removal of alcohol prohibition in the USA lead to the extensive decrease in the black markets that were created when alcohol was prohibited from 1920-1933. Due to governmental oversight this ensured consistent, stable pricing paired with a large crackdown in black market activities through weaponizing law enforcement. However, while legalisation can at times bring about lower black-market consumption, it raises important ethical questions over whether legalising these products, despite knowing it will potentially attract more consumers, is the right option. For public health and wellbeing reasons, it may be deemed necessary to restrict legal access.

Furthermore, an effective and proven way to reduce the demand inside of the informal economy is easier and/or less confusing tax methods. While the UK government has already attempted such methods, other countries such as Estonia have gone much further and have achieved significant success. For example, the digitalisation of tax, made roughly 99%[19] of taxation is online, and the creation of electronic identification (E-ID), which is used during online transactions, reducing the ability for tax evasion and regularity bypass due to the digital trail it leads back to the consumer.

Despite the threat the shadow economy forms to countries like the UK, it is important to note that they should not always be viewed as a global threat. Take North Korea (The DPRK), the shadow economy is a necessity for the people, especially after the 1990s famines which wiped out the already small government rationing system. Officially today, North Korean citizens are supposed to use either state-controlled markets, or a partially revived but unreliable public distribution system (PDS). However, such markets lack competitive prices or available products due to severe regulation. This led to the creation of markets known as Jangmadang (장마당), where illegally imported goods (such as batteries, dress shoes, DVD players etc) from countries like China, are sold to get over the obstacles created by the state. This was the case with the USSR, East Germany and in certain periods China. While shadow markets and illicit trade may be threatening in the UK, this is not the global norm, it can be a survival option and a way to rebel against the regime in others.

Overall, the shadow economy has demonstrated significant and ongoing challenges to the health of the economy, small businesses, and consumers. Unpaid taxes and unregulated products stack up to causes losses of billions to the country a year and therefore have proved themselves to be worthy of immediate attention. But through targeted action, aimed at enriching the economic situation, and by extension the people, the UK, like other countries around the world, can turn the tide on this growing issue. Someday this could lead to the reduction of desperate or confused individuals seeking an alternative or the criminal enterprises looking for a system to exploit.

Oliver Weatherhead

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How have monetary policy decisions in the past affected macroeconomic outcomes such as GDP and inflation?

Essay Competition Entry

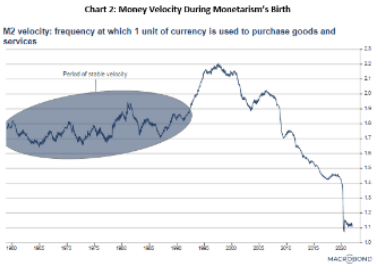
Monetary policy is defined by the set of tools used by a nation's central bank to control the overall money supply and promote economic growth and employ strategies such as revising interest rates and changing bank reserve requirements. Monetary policy comes in two forms, expansionary and contractionary. Both have the same primary goals of controlling inflation, stabilizing currency and promoting employment. For example, the target inflation in the UK is 2% and is currently 2.5%, monetary policy will be used to achieve this. This article will include monetary policy and its relationship with both nominal GDP and inflation, and integrate key historical monetary crises/policies that have shaped economic life.

Monetary policy and inflation have an interesting relationship. Expansionary monetary policy could be in the form of higher interest rates, this leads to a higher reward for saving in the economy reducing peoples marginal propensity to consume. Thus reducing consumption and leading to a fall in aggregate demand and the general price level. This can be proved in The Fisher's equation depicting the relationship that exists between money supply and price level. This lower inflation can lead to structural unemployment in the country, seen in US inflation falling from 15 - 2.5% (1979-1983) causing a rise in unemployment from 5-11%. This effect was particularly exacerbated in the 2008 financial crisis that even saw inflation become negative due to high recessionary pressure at the time.

One of the most interesting episodes in British economics was the monetarism and financial deregulation in the 1980s facilitated by The Monetarist Experiment. As stated by (Needham, 2014, p.253), it was a failure which shrank the economy by more than 5 per cent and the manufacturing base by 15 per cent, yet at the time, it was presented as a key component in halting the decline of the British economy. The policies were expected to defeat inflation that reached a hyper rate of 26.2% in 1975 without leading to unemployment, this monetarist theory was adopted by Thatcher that year. The cornerstone of monetarist theory was a conceptual equation introduced to us by Friedman. It was simply stated as MV (velocity of circulation x money supply)=PY (price level x real national income). This is due to the quantity theory of money stating if the velocity of circulation is stable then the money supply increases by x% then nominal spending should increase by x%, therefore in the long run inflation will be x%. The slight success of this experiment can be seen by inflation being 18% in 1980 (Webster, 2025, p1) and falling to 6.08% in 1985. Lower general price level may have been reached but inflation was still in excess of growth of 3.2% and there was a rising unemployment rate of 11.8% by 1984.

So why does and did inflation fall in excess of money growth? The velocity of circulation fell, leading to the increase in MV being less than the increase in M. This is due to some key reasons, one being that north sea oil lead to expectation the exchange rate would appreciate. This lead to a rise in foreign demand for currency but caused harm for exports and high unemployment (11.4%) as workers did not have the ability to demand wage rises. The higher interest rate also lead to a rise in business innovation and reformulation due to the higher costs of borrowing, also the higher rewards in saving eventually caused less current spending and a reduction in the velocity of circulation. The effects

of The Monetarist experiment can be seen in the figure below (Probst,2022,p1.)



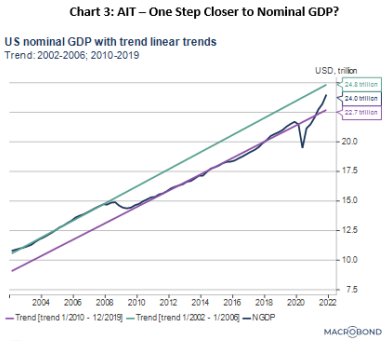
(Source: Macrobond)

In the 1980s, financial deregulation was also dominated by monetary policy as building societies were allowed to act like banks – could be funded by more than just the money deposited with them. The London Stock Exchange became a private limited company on October 27, 1986, which lead to retail banks taking lower risk loans and merchant to be taking high risk loans causing banking to become riskier. The entry of foreign banks made monetary policy very difficult and banks started to compete with Building Societies in the mortgage market. This elimination of overregulation on finance was known as the Big Bang and, as stated by (Kenton, 2023, p.1), supported the doctrines of free market contribution and meritocracy.

Market monetarism is a macroeconomic theory that proposes central banks use nominal GDP targeting to stabilize nominal incomes, this type of monetary policy targeting is novel and not very practised as most central banks go down the inflation route. Nominal GDP is simply the measure of all the goods and services in a country over a set period of time, and is usually measured over a year or a quarter. The market monetarist school builds on Friedman's monetarism, as introduced before, but doesn't use monetary aggregates as an indicator of monetary policy stance and instead is set on incentivising innovation and development in financial markets. The stock, foreign exchange, commodity and bond markets are all important in market monetarism. If nominal GDP expectations were below the central banks aim, it may begin to implement more loose monetary policy. In this environment, stock markets are expected to see stock prices rise and currency depreciation. As nominal GDP expectations rise, long term rates should as well, however short – term rates may fall due to the liquidity effect.

Applications of nominal GDP targeting regime can be seen in during COVID-19 the US federal reserve moved to average inflation targeting which let demand boost differently compared to other past economic crises. For example, During the aftermath of the 2008 financial crisis some economists of market monetarism argued that the central bank should have focused more on stabilizing nominal GDP to avoid the deep recession and prolonged stagnation that followed the crisis. The method used by the Federal Reserve led to complete recovery in nominal GDP, unlike after the FC where pre-2008 demand never materialised , shown by the below chart

(Probst,2022,p1.)



Further uses of monetary policy can be seen in its effect on other macroeconomic outcomes apart from nominal GDP and inflation. For example, strength of currency and its effect on international competitiveness. The main component of monetary policy that determines strength of currency is the exchange rate. If the Bank of England (central bank) chooses to appreciate the currency, this leads to relatively cheaper imports and relatively dearer exports (contractionary monetary policy). This leads to the import substitution effect due to increased demand for imports, therefore this can worsen the current account position. Not only will value of exports be less than imports, there is a reduction in international competitiveness for firms that export goods and services, especially if UK currency as appreciated against the US

currency. This is due to the UK and US having a very high flow of foreign trade, seen in that 43% of UK exports go to US and 51% of UK imports come from the US. This shows that monetary policy in one country can change global markets in many forms and have ripple/multiplier effects beyond generic macroeconomic aims.

Monetary policy itself faces a high amount of challenges and limitations. An example is the lag effect, which can be broken down into three stages – recognition lag, implementation lag and impact lag. The impact lag is the most substantial source of delay , as once a policy is implemented takes time for it to ripple through the economy.

Recognition lag refers to the time it takes for economic indicators/signals to uncover that intervention is needed. For example, inflation is measured using methods like CPI (consumer prices index) or PPI (producer prices index), but by the time this data Reveals an inflation spike, several months might have already passed. This delay can result in policymakers being behind the curve and initiating policies only after inflationary measures have gone hyper.

Implementation lag is the delay between deciding and actually putting a policy into action. Central banks hold regular meetings to assess economic conditions and decide on policy changes. However, these decisions can take time due to the complexity of the process, consultations, and debates. Political factors can also lengthen the lag, as central banks may avoid major changes during unstable times to prevent backlash, further slowing down necessary decisions. A real world example of this is seen in The Great Inflation of the 1970s. This was when the US experienced high inflation caused by oil price shocks and fiscal overspending, central banks were slow to act due to fears of stimulating unemployment. By the time Paul Volcker took charge, inflation expectations had become detrimental. Despite his policies being beneficial, the (implementation) lag meant the control came at the cost of a recession, with unemployment even reaching 11% by the 1980s (Sanghro,2023,p1)

Overall, to answer a question on what is monetary policy? It is not easy, it is a complicating measure that governments to this date don't fully know how to efficiently navigate it in a way that benefits all economic agents. Monetary crises like the 2008 Financial Crisis, The Monetarist Experiment and even the current Lebanon Currency Crisis, give governments and economists/financial advisors opportunity to renew economic models. This is because at the end of the day, economics and monetary policy is a concept built up on theories and key assumptions like 'ceteris paribus' , it is filled with anomalies like consumer irrationality which is what makes policy making it a highly volatile task. Additionally, we can use core economic models to determine its effect on macroeconomic objectives like nominal GDP and inflation, but as discussed above, governments/consumers can act unconventionally leading to exceptional effects and measures which may debunk the foundations of economic school.

Anoushka Chakravarthy

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Authors:

Aradhyula, Avantika

Chakravarthy, Anoushka

Dhull, Suyash

Gill, Harman

Haniffa, Johan

Hickie, James

Kadarapura, Tanish

Kou, Kaixin

Kuang, Janice

Malviya, Nisna

Manjith, Aadi

Reid, Callum

Sarawgi, Annika

Upadhye, Archit

Vithanage, Imira Kossinhala

Weatherhead, Oliver

Yang, Andy

Zheng, Hannah

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