DISMAL SCIENTIST

THE MARSHALL SOCIETY MAGAZINE 2022/23

Hello & Welcome

Dear Reader,

The Dismal Scientist is the flagship publication of the Marshall Society, the economics society of the University of Cambridge. The magazine has had a long-running history of contributions from current students, contemporary Cambridge scholars, and prominent economists such as David Card, John Kay, Gregory Mankiw, and Alvin Roth.

We would like to extend our deepest gratitude to everyone who made this year's publication possible. First and foremost, we thank the various article contributors who have volunteered penetrating and original insights on topics ranging from sanctions policy to climate reporting. We also would like to express our thanks to the 1000+ participants in the annual Marshall Essay Competition. In this issue, we include six outstanding finalist essays from the 2022 and 2023 rounds.

We hope you enjoy reading this edition of the Dismal Scientist and that, in the spirit of our society's namesake, it ignites dialogue about the challenges facing the world today.

Anna Jin and Jonathan Loke
Magazine Editors 2022/23

Message from the President

It is with great pride that I am able to introduce this year's Dismal Scientist. I have seen firsthand the work that has gone into making this possible. That means a particularly special thanks to the exceptional work done by Anna and Jonathan on this year's edition and the 2022 essay competition.

I would also like to thank the 2023 essay competition organisers James Trotman and David Lawrence, the 2023 judges panel, the participants in the essay competitions, and the article authors for all their hard work that has contributed to the making of the magazine.

This magazine showcases the best of student work from sixth form onwards. It shows how economics is at its best and most accessible when we think about it from different angles, when traditional narratives are challenged and when we work to incorporate perspectives from different subject matters.

The publication of this magazine marks the start of our 2023/24 year and I cannot wait to welcome our new and returning members to our socials, speakers and corporate events.

Lucas Mordue
President, 2023/24

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OFT EXPECTATION FAILS: THE INEFFECTIVENESS OF SANCTIONS AGAINST RUSSIA

Demetrius A. Floudas[1]

Background

Upon the commencement of Russia's military intervention in Ukraine in February 2022, a collective response was swiftly initiated by the United States, the European Union, G7 nations, and their allies (Martin, 2023). This materialised in the form of an unparalleled assemblage of economic, financial, diplomatic, and supplementary sanctions, which have been undergoing successive modifications and additions throughout the ensuing months (Eisen et al, 2023).

Initially, Western analysts forecast dire repercussions for Russia, with some predicting a double-digit decline in gross domestic product (GDP). However, actual projections have been significantly revised downward (see Table 1)

with the International Monetary Fund (IMF) and the Russian Federal State Statistics Service (Rosstat) now agreeing on a mere 2.1% contraction for 2022. While this would still represent by far the deepest recession in the country since 2009 during the global crisis, it pales in comparison to the economic shock and awe many expected at the start of the conflict.

Argument

Indicators suggest that the effects on the Russian economy have thus far been less severe than anticipated and the structure has proven more robust than all initial forecasts predicted. Early in the conflict, many experts envisaged a 'lost decade', characterised by stagnation and decline (Armstrong, 2022). Pundits and world leaders believed that, in combination, the

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impact on the country would relegate it to a global pariah, ensure losses in the billions and perhaps even lead to a wholesale collapse of its financial system.

It is nevertheless doubtful whether this prediction remains consistent with the data; the actual outcome has deviated from expectations. In spite of becoming the world's most sanctioned nation ever (Schlåðe, 2022), it has hitherto managed to avoid a significant downturn. But the Kremlin hasn't just played a good game of economic defence. Its invasion of Ukraine destabilised the global oil market, raising prices, which provided it with a steady source of funds. (Lau, 2022)

In this article, we delve into the factors that have contributed to the resilience of the Russian economy in the initial 18 months of the Ukraine war and attempt to analyse the medium-term outlook.

Item	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
GDP, constant prices, % change	2.8	2.2	-2.7	5.6	-2.1	0.7
Total investment, % of GDP	21.9	22.7	23.5	23.2	22.7	23.2
Gross national savings, % of GDP	28.9	26.5	25.8	29.9	33	26.9
Unemployment rate, % of total labour force	4.8	4.6	5.8	4.8	3.9	3.6
Inflation, end of period, CPI, %	4.3	3	4.9	8.4	12.4	6.3
GG revenue, % of GDP	35.5	35.7	35.2	35.6	34.3	31.2
GG total expenditure, % of GDP	32.6	33.8	39.2	34.8	36.6	37.4
GG net lending/borrowing, % of GDP	2.9	1.9	-4	0.8	-2.2	-6.2
GG gross debt, % of GDP	13.6	13.7	19.2	16.5	19.6	24.9
Volume of imports of goods and services, % change	2.7	2.8	-11.8	16.7	-15	8.3
Volume of exports of goods and services, % change	5.1	-3.3	-4.4	0.6	-8.7	0.2
Current account balance, USD billion	115.7	65.7	35.4	122.3	227.4	75.1
Current account balance, % of GDP	7	3.9	2.4	6.7	10.3	3.6

Table 1: Russia: selected macroeconomic indicators, 2018-2023.

Context

Preparations

Moscow had begun preparing years ago to endure external financial pressure by shoring up its currency reserves and befriending China (Dabrowski, 2023). The government had also devised prudent fiscal and monetary plans to insulate the economy and mitigate the effects of expected Western responses.

Fiscal Policies and the Role of the Central Bank

One of the key factors that have contributed to Russia's stamina is the implementation of conservative fiscal policies by the central bank (CBR). The bank raised interest rates to 20% in the immediate aftermath of the invasion to curb inflation and support the rouble, before gradually lowering rates over the course of 2022 (Abramov, 2023) as price pressures eased and the currency stabilised (Floudas, 2014). Nonetheless, in mid-2023, the CBR was again obliged to raise interest rates to 12%, as a measure to decelerate rapid rouble depreciation.

Government Expenditure Control

Government spending restraint has been another key dimension towards maintaining fiscal discipline amidst the circumstances (Dubinin, 2022). Continued austerity measures would help keep debt levels under check but they also pose risk of sluggish growth as public investments are curtailed, drastically affecting areas like infrastructure development or social welfare. To avoid socio-economic stress points within the country, striking the right balance between controlling expenditures without hampering key investment areas would be critical for sustainable medium term outlook.

Oil Price Sensitivity

Russia's fiscal stability largely hinges upon international oil and gas prices due to its heavy reliance on hydrocarbon exports for revenue generation. The government has set a benchmark price of US$45/barrel for balancing its budget - *any* increase beyond this level will drive surpluses whereas a price drop shall lead to deficits. As these crude oil prices have steadily remained above the internal benchmark, it could anticipate continued fiscal surplus aiding against external shocks.

Rouble Exchange Rate

Another aspect that has surprised observers has been the performance of the rouble in the first 18 months of the conflict. Despite initial fears of a sharp depreciation, the rouble remained relatively stable (averaging -10% from its pre-war level against the dollar) thanks in part to the CBR interventions and conservative monetary policy (Bank of Russia, 2023). The firm response, as well as restrictions on citizens exchanging roubles for foreign currencies, a substantial foreign reserves cushion and the decline in imports prevented the currency from collapsing despite reduced foreign investment and trade (Eichengreen et al, 2023). In fact, so successful was the intervention that it stabilised the currency at unwarrantedly high prices (Clichici & Dragoi, 2023). The inescapable correction came 18 months later, with the rouble apparently reaching a equilibrium at ca. 12-15% lower than prior to the invasion; still a notable feat in view of the overall pressures.

Stock Market

The stock market has shown a surprising level of resistance in the wake of the conflict. The benchmark MOEX index saw fluctuations but has not experienced significantly long-lasting declines, a testament to the underlying strength of the economy and the confidence of investors. The stock market is dominated by energy sector companies tends to reflect the pricing of global commodities, particularly hydrocarbons.

Hence a similar outlook as mentioned earlier regarding crude oil applies here too – relatively stronger performance is expected if crude maintains an upward trajectory.

Some Economic Sectors

Whilst the war has led to disruptions in the energy sector, it has not resulted in a collapse of the industry. Russia has managed to maintain a steady flow of oil and gas exports, which helped cushion the blow of the downturn. Additionally, the agricultural sector has been showing promising signs of growth, with increased output in recent years (Zhang, 2023). This has partially offset the losses in other industries, such as manufacturing and construction, which have been hit harder by the crisis.

Inflation & Spending

While shoppers have faced higher inflation, currently around 6% annually (Table 1), consumer spending is steady. Programmes to cap price increases on essential goods and services have provided some relief. Unemployment has ticked up slightly but remains around historical lows below 4%. Wage growth has slowed but continues at a rate of over 5% per year in real terms. Retail sales were up over 5% in 2022, suggesting consumer confidence and spending power persists intact.

Political Economy

The country has been able to find alternative markets for its goods and services, particularly in Asia. It has also focused on developing domestic industries, reducing its reliance on imports and promoting self-sufficiency (Dobrowski & Avdasheva, 2023). These efforts have helped to mitigate the impact of sanctions and maintain a degree of stability.

De-dollarisation of the system

The government implemented a series of strategic measures to alleviate the ramification of its disconnection from the foreign-dominated financial sector. Prior to the commencement of the conflict, CBR had already set its sights on diminishing the nation's reliance on Western currencies, with a particular emphasis on reducing dependence on the US dollar. In addition to the increasing utilisation of the yuan for payments, the structure of the National Wealth Fund's currency component was revised at the end of 2022, doubling the share in the Chinese currency to 60 % (Shamsfakhr, 2023).

Discussion

As surveyed by Simola (2023), published literature on the subject suggests that the overall effects of sanctions have been diluted by various factors. Russia is a large entity with an autocratic political regime that is more equipped to cope with imposed measures, at least over the medium term, whilst some key measures entered into force after a transition period. Moreover, the Kremlin has been able to mitigate the effects by diverting some of its export trade to new markets as most emerging economies have not joined the sanctioning coalition.

The purpose of sanctions has been to deprive Moscow of its ability to fund the invasion; nevertheless, its ability to sustain the campaign will probably endure unchanged in the foreseeable future. Instead of reducing war spending, it is apt to redirect resources from the civilian sector toward the defence industry. The war in Ukraine constitutes a highest geopolitical priority for Russia and is perceived as an existential matter (Mearsheimer, 2023). Even if revenues were to decrease, military expenditure would continue to rise through forced reallocation of resources, driving living standards to decline. It is moreover arguable

that resentment with falling living standards would not *ipso facto* lead to a coup, uprising, or revolution, in view of the regime's strength and broad base of approval. "The idea that it's possible to defeat Russia economically is a dead-end, as it has all the basic resources inside the country – food, fuel, and ammunition" (Sukhov 2023).

The imposition of sanctions has engendered an increase in domestic backing for the state subjected to such punitive measures, including the president and his affiliated political party. Whilst the enduring ramifications remain uncertain, existing research suggests that, in the medium term, sanctions serve to fortify the position of the targeted government (Gold, 2023). Within this context, the utilisation of mercantile warfare aligns harmoniously with the Kremlin's overarching narrative, which portrays an antagonistic 'West' encroaching upon the cherished Russian *Weltanschauung*.

Export bans imposed by Western parties have concentrated on dual-use commodities, e.g. semiconductors, industrial machinery and automotive/aviation components, the rationale being that substituting these goods domestically would necessitate substantial modifications and years of concerted effort (Morgan et al, 2023). In contrast, although there was a massive decline in G7 exports in 2022, this was accompanied by a significant increase in EU/UK exports to ex-USSR countries such as Armenia, Kazakhstan, and Kyrgyzstan (Zolobova et al, 2023). These patterns align with the hypothesis this trade is rerouted towards Russia, and are far more pronounced for product groups subject to restrictions and for items equivalent to sanctioned ones (Chupilkin 2023). Intriguingly, the establishment of new supply routes required a relatively short period of approximately 2-4 months.

As regards Iran in particular, in addition to attack drones and other arms purveyed to the Red Army, it obtains weaponry in the free-for-all of Iraq – plus commercial equipment from other sources – and ships it across the Caspian Sea to Russian ports. There is even discussion between Moscow and Tehran of building a sanction-busting rail line around the Caspian that would allow access to products from India. (Karnitschnig, 2022). After decades of embargo, Iran possesses a stellar pedigree in subverting commerce controls.

Deductions

- The Russian government has kept expenditure on a tight leash, ensuring that budget deficits remain within manageable levels. The central bank has also played a pivotal role in stabilising the economy by maintaining a cautious approach to monetary policy (Gaur, 2023). These measures have enabled it to weather many of the effects of war, preventing the system from spiralling into a deep recession.

- If Moscow can maintain its current policy stance and continue to develop its domestic industries, it may yet be able to defy forecasts and achieve a reasonably stable and sustainable trajectory. Ultimately, the fate of her economy will be determined by a complex interplay of domestic and international factors (Syropoulos & Yotov, 2023). As the situation evolves, it will be crucial for policymakers and authorities alike to monitor these developments closely and adapt their strategies accordingly.

- Russia still faces weighty obstacles to sustainable growth in the years ahead (Rácz, 2023). Conservative fiscal policies, a reasonably stable rouble, and a resistant stock market have all helped stabilise markets and limit recession risks for now, but deeper structural issues may

be harder to tackle and might imply a prolonged period of subdued performance.

• The impact of sanctions is also felt on the imposing side (in particular Europe). It is worth highlighting that the inclination to amplify assertions regarding the imminent collapse of the sanctioned economy can be partly attributed to the awareness of domestic politicians that their own constituents bear the brunt of collateral damage. With surging energy costs, escalating food prices, and a decline in living standards, the European populace endures the repercussions of these measures. Nevertheless, resolute backing for Ukraine persists among G7 & NATO nations.

• The redirection of raw materials and energy sales towards Asia threatens to create an additional impasse, impacting Europe's productivity, influence, and competitiveness (Gavin, 2023). Liquefied Natural Gas is more expensive than pipeline gas (and more liable to happenstance). It is estimated that the effect of the war on European energy costs has gone well beyond the net loss of Russian physical oil and gas streams. Simultaneously, Europe's pursuit of green energy introduces additional challenges, including inevitable higher transition and origination costs and reliability concerns.

• Our lengthy personal experience of the dynamics within Russia leads us to broad agreement with the postulate that the sanctions may well be construed as a 'gift' (Galbraith, 2023 b): When exerted upon a vast, resource-abundant and proficiently skilled nation, "sanctions are isomorphic to a strict policy of trade protection, industrial policy, and capital controls" (ibid.) and they disrupt the influence of foreign economic factors, something the state had long wanted to do but was not in a position to act upon unilaterally.

• The imposition of sanctions has created shortages of foreign components, thereby compelling Moscow to substitute them with lower-grade alternatives. This hampers its capacity to produce, and sustain cutting-edge armaments in Ukraine (Bergmann et al., 2023). Nevertheless, the Kremlin retains a noteworthy level of adaptability in the face of Western actions, skilfully exploiting enormous pre-existing caches of Soviet-era equipment and cultivating relationships with willing nations that furnish it with prohibited dual-use items and technology through a clandestine supply chain network.

• The past months have brought to the forefront the challenges of subjecting a nation as richly endowed with natural resources and technical nous as Russia to an economic siege. Considering existing capabilities and limitations, Moscow will likely persevere on a methodical attrition campaign, putting pressure on NATO to urge Kyiv to the negotiating table.

THE OTHER ECONOMY: RETHINKING GDP

Emma Riener[2]

From our first econometrics lecture, we are told that missing variables are a large problem for economic models. Reproductive labour has long been the biggest missing variable in economics, despite being necessary for any productive labour to take place. The aim of this essay, based on my undergraduate dissertation, is to highlight the importance of reproductive labour for the economy and introduce gross household product as a way of quantifying its value. I shall start with a brief overview of what motivates such calculations and then introduce the calculation method I devised – a true opportunity cost approach, which is uniquely suited for analysing the relationship between the productive and reproductive spheres.

Let me start with some definitions: Gross Household product, or GHP, has emerged as an alternative to GDP, to correct for GDP's failure of counting the economic value of unpaid house and care work. Ironmonger defines it as "the economic value added by the unpaid work and own capital of households outside the boundary of the System of National Accounts" (1996, p. 37). Unpaid house and care workers are most often family members:

parents care for their children, and children or other family members for the elderly and the disabled. (Razavi, 2007, p. 6). There is a distinction between reproductive labour and leisure. A popular tool to distinguish this is Reid's third-person criterion: House/Care work can be provided for oneself, for example cooking a meal or cleaning, but activities such as sleeping, although a form of self-care, are not included, as this cannot be delegated to someone else (1934, p. 11).

Feminist Economists first incorporated care concerns into national accounts, as the private sphere is a particular focus of the subfield (Williams, 2010, p. 19). Marilyn Waring established national accounts as a central concern for feminist economics. In her book, *If Women Counted* (1989), she put forward a step-by-step critique of traditional national accounting. In particular, she analysed the United Nations System of National Accounts, the global standard for national accounting. Her core argument is that a system that values productive labour above all else leads to the oppression of those that provide reproductive labour, usually women, and misrepresents

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growth (1989). GHP emerged out of critiques by writers such as Waring, Benería (1992), and Ironmonger (1996) to correct for these failings in traditional national accounting. It can be viewed as a method of estimating the value of the reproductive economy within a country, like GDP for the productive economy.

The undervaluation of housework has drastic implications for those that provide it, both on a paid and unpaid basis: For paid domestic workers, reproductive labour being seen as something low-skill and natural adds to their exploitation by further pushing wages down. This adds to the existing disadvantages domestic workers face due to usually coming from traditionally disadvantaged backgrounds (Budlender, 2011, p. 1). Razavi refers to this issue as "global care chains": poor women migrate to richer countries, which depend on them for paid care work as natives do not want to/ cannot live on the wages paid for care work (2007, p. 2). For unpaid house and care workers, traditional accounting methods encourage unpaid care workers to increase their labour force participation. This leads to GDP growth but devalues the work they are providing in the home already. Should a person choose to leave the labour force to provide unpaid reproductive labour, the impact of this leads to a loss of GDP. (Braunstein, 2021, p. 353) Increased female labour force participation is often used as a tool to encourage economic growth, rather than a tool for equality by affording women financial independence (Williams, 2010, p. 19). My calculations emphasise this: policies targeting the labour force participation of women should also account for the welfare of house and care workers. Recognising the work that they are providing could help them achieve fairer treatment in their families, encourage a fairer split of duties, and help avoid overemployment.

There are multiple GHP calculation methods. As Budlender noted, all these methods multiply the hours worked in the home with some value per hour (2011, p. 4). Forgoing a detailed analysis of all calculation methods, I shall focus on the approach I devised: a true opportunity cost approach. It is in that I apply wages at an individual level – allowing me to provide micro level implications in addition to the GHP-GDP comparison. My data set, provided by the Austrian National Statistics Office (Statistik Austria, 2009a – 2009d), contained diaries of 8000+ individuals, grouped into 7 age groups. GHP then is the weighted sum of the daily forgone pay by each of the 14 age/gender group, multiplied by 365, i.e.

$$(1)\ GHP_{2018} = \sum_{i=1}^{14} (\overline{FPD_{AG}} * P_{AG})\ * 365$$

Where:

- GHP_{2018} is Austrian Gross Household Product for the year 2018
- $\overline{FPD_{AG}}$ is the mean forgone pay per day for each of the 14 gender/age groups in the sample
- P_{AG} is the population size of each of the 14 gender/age groups (2022a)

I computed forgone pay for individual i by calculating their housework on a given day, as given in their diary, and then multiplying it by their expected wage:

$$(2)\ FPD_i = THD_i * \widehat{w_i}$$

Where:

- FPD_i is the forgone pay per day for individual i in the sample
- THD_i is the hours of housework individual i does on a given day
- $\widehat{w_i}$ is the expected wage of individual i based on their age and gender, i.e., their opportunity cost per hour of housework (2018)

This then gives me 2018 GHP for Austria as:

$$GHP_{2018} = 164.286.992.772$$

I.e., nominal 2018 GHP can be calculated as approx. €164,287 Billion when using a true opportunity cost approach. We can compare this to nominal GDP, as the wages are paid at current prices. Austrian nominal GDP was €385,424 Billion in 2018 (Statistik Austria, 2022b), GHP was thus around 42,63% of nominal GDP.

It is important to acknowledge that I chose a simple method of computing the tax wedge between pre-tax wages and opportunity cost. Furthermore, as Jokubauskaitė and Schneebaum note, accounting for people outside the workforce is a weakness in opportunity cost calculation methods — these people would face wage discrimination upon re-entering the labour market, which leads to their opportunity cost being lower than that of their working peers (2021, p. 3). This could be solved by adding a penalty for labour-market entry. Overall, my methodology of assigning wages could have been made more sophisticated by adding information on education, taxes, labour market status etc. but for the core implications this simplistic approach is sufficient.

When calculating opportunity cost GHP, it seems the most desirable policy guidance is to minimise GHP (or its size relative to GDP): we ought to ensure that people lose out on the lowest amount of money possible. However, when we consider who loses how much we can conclude that wage differences link the private and the public sphere — women's disadvantage in the labour market is partly a result of the unfair split in housework. The relationship is two-directional: the gender pay gap makes it efficient for women to provide the most housework and for men to engage in paid work — it minimises money their family loses out on. This is evidenced in my estimation results: Figure 3 plots the average forgone pay for each

age, Figure 1 from Ch. 2.2.3.i graphs average housework for each age:
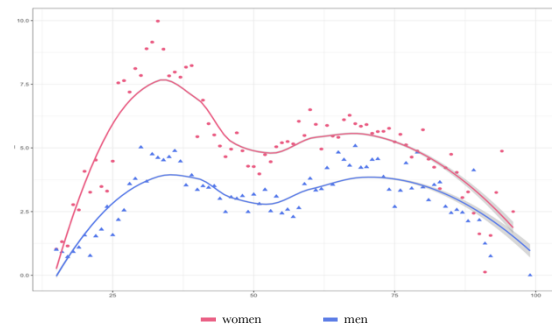

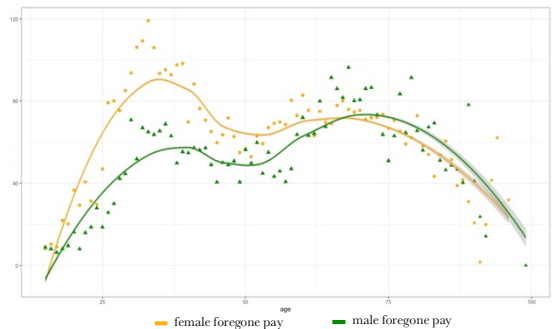*Figure 1: mean housework per day for each age, disaggregated by gender.*

Figure 1: mean forgone pay per day (€) for each age, disaggregated by gender.

In Figure 3, the 25-40 peak in men's forgone pay is not as pronounced as the women's peak. As the gender pay gap for younger people is not as large and women provide far more housework in this age group, female forgone pay far exceeds male forgone pay, although the relative difference is not as large as for housework. For older age groups, as the gender pay gap is larger and the difference in housework is not as great (see Figure 1), older men exceed women in mean forgone pay. This plays into household decision-making — for a family, to minimise pay loss, it makes more sense for the women to provide most of the housework. Female employment is often an intra-familiar decision, influenced by their partner's earnings and their children's needs (Lowe & McKelway, 2017).

The graph below, which plots each age group's share of GHP and total housework, shows how GHP projects this onto a national level. While both GHP and housework shares are higher for

women across all ages except for an outlier in the 65 − 69 group, only younger women, which do the most housework, have a significant excess in housework over GHP contributions. Women above 40 contribute almost as much to GHP as to housework, as they do more housework than men and earn more than women in the 25-40 range. The GHP contributions of men between 30 and 65, which earn the most, far exceed their housework share. The excess share also increases over time. However, they do not contribute more in total than women — the fact that there are much more women above 70 than men cancels out the higher mean forgone pay we saw in Figure 3. We can see that for older people, all four schedules converge, largely because women drastically reduce their housework.
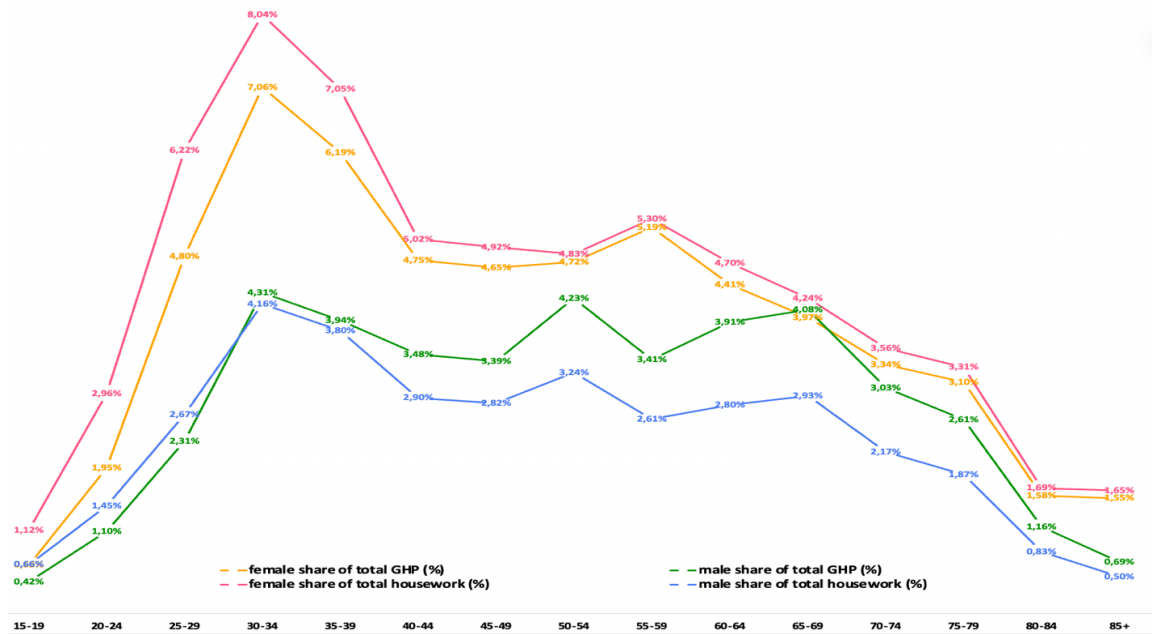

Figure 3: GHP contributions in percentages for each age group.

The policy implications of this are two-fold: first, any attempt to increase women's participation in the labour force should recognise that the economy would not function without housework, which is mostly done by young women. As Matteazzi and Scherer (2021) found, women's housework is an asset for their partners' wages — older men earn more because of the large amounts of housework provided by their partners earlier on. The excess housework by women between 25 and 40 is partly responsible for the excess GHP share of older men. This is an important consideration to make when discussing women's over-employment.

The second implication is that wages serve as bargaining power within the family, which further emphasises the connection between the economic and the private sphere. A long-term goal should be ensuring equal GHP contributions and housework from men and women, i.e., equal housework and equal wages. Theloudis (2018) found that the relationship between wages and housework is two-directional: in the US, the narrowing of the gender gap over the last three decades has had "[…] a direct monetary effect by increasing women's monetary reward for market work, as well as an indirect one through shifting bargaining power in the household." (2018, pp. 54-55) In a simulation of household decision

making, Theloudis found increased wages afford women more bargaining, which then shifts housework to her husband (2018, p. 55). Labour market policies and changes also influence intra-family dynamics and housework splits — when we recognise this, labour market policies targeting gender quality, especially the pay gap, can be a way of encouraging a fairer split in housework and granting women more power within the family, as Danquah et al. (2021) found.

In conclusion, there are three primary findings: first, housework is currently undervalued in economic theory — this has negative effects on paid and unpaid care and houseworkers. GHP can combat this, as calculating it draws attention to the central role housework plays in the economy. Second, using my approach, the Austrian 2018 GHP can be calculated as €164,287 Billion, which is around 42,63% of nominal GDP. This can be interpreted as the cost of unpaid work Austrians provide to maintain their economy. Third, my approach stands out for its national-level policy implications: women's disadvantage in the economy is directly related to the unfair division of housework.

All in all, this has once more highlighted the effort it takes to provide housework and that unpaid housework is an inherently economic action. Housework is necessary to maintain the economy — it is time we value it accordingly.

IS ECONOMIC GLOBALISATION THE ROAD TO SERFDOM?

James Trotman[3]

Economists are often at their most productive during times of crisis. Amid the depths of the Second World War, with Nazism and Fascism ravaging Europe and democratic, open markets in a severely weakened position, economist and political philosopher Friedrich Hayek published his most famous work, *The Road to Serfdom*. Offering a sharp critique of contemporary authoritarian states, he argues that central planning in economies necessarily leads to authoritarianism and tyranny by subverting the efficient 'spontaneous order' of free markets, and strongly criticizes the view that such economic control could subsequently facilitate our individual freedom.

Fast-forwarding to 2023, the pandemic has caused an unprecedented and truly global economic crisis, fuelled by the global movement of people and the trade and investment they underpin, and brought serious questions about the security and integrity of global supply chains. It has also laid bare the extent to which Western democracies are strategically dependent on Eastern autocracies, including China, for the import of crucial goods such as medical supplies and communications equipment. China's use of central planning to achieve its economic goals is notorious and continues even as it liberalises its economy in other areas. Another observed trend is the secular decline of democracy across the globe, with The Economist's Global Democracy Index reaching an all-time low in 2021 and stagnation in 2022. The question, therefore, is to what extent can Hayek's seminal argument shed light onto the link between the global effects of this economic coercion and its implications for political and individual freedom?

As an opinion piece, this article will argue that this chain of reasoning from Hayek is broadly correct and supported by available evidence. Although Hayek himself did not conceive central planning on a global scale, and instead argued that 'the intensification and integration of international capitalism are conducive to the

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rule of law and a peaceful world order,' I will argue that the underlying conditions for globalisation have deviated to the extent that China, in particular, is able to export authoritarianism through its economic planning and control, and that this is one of the dominant forces shaping the decline of democracy and free markets globally. Subsequently, I will account for how this erosion of economic freedom creates a self-reinforcing cycle via political and individual freedom, before finally offering suggestions for how globalisation can be reformed to mitigate these effects post-pandemic.

To address this, it is first important to determine the extent to which China is actually able to control the global economy through economic power, and to what extent this power is the result of China's own central power as opposed to neoliberal market forces and the global division of labour. The first point is fairly easy to prove, shown firstly by the rapid growth of China's trade surplus shown in Figure 1 to make up over 15% of total global trade. Furthermore, research from the Henry Jackson Society into the "strategic dependence" of several Western democracies on China finds that Western democracies are up to 36% dependent on China for sectors crucial to national security. Clearly, therefore, China exerts both influence and control on global trade and the global economy, particularly with respect to Western democracies.

To address the extent to which this is the result of China's economic planning is more difficult, but a number of factors suggest that this has played a significant role. In particular, the Made in China 2025 plan, the fundamental basis for the US-China trade war, has included $1.4 trillion of spending and strict targets for global market share in core industries by 2025. As a direct result of the Plan, China's global market share for memory chips has risen from 0% in 2015 to 5% within 3 years, a move which makes little economic sense from a free-market perspective given the significant sunk costs involved in establishing highly specialised chip manufacturing facilities, and the resulting economies of scale for manufacturing primarily based in the countries of Taiwan and South Korea. The fact that China filed 43.4% of global patents in 2019, the highest proportion globally and significantly out of sync with its private sector R&D spending when compared to other countries such as the US, is further testament to this fact. Therefore, this suggests that China does indeed exert central economic planning in industries crucial for both national security and future technological development, and on a global scale.
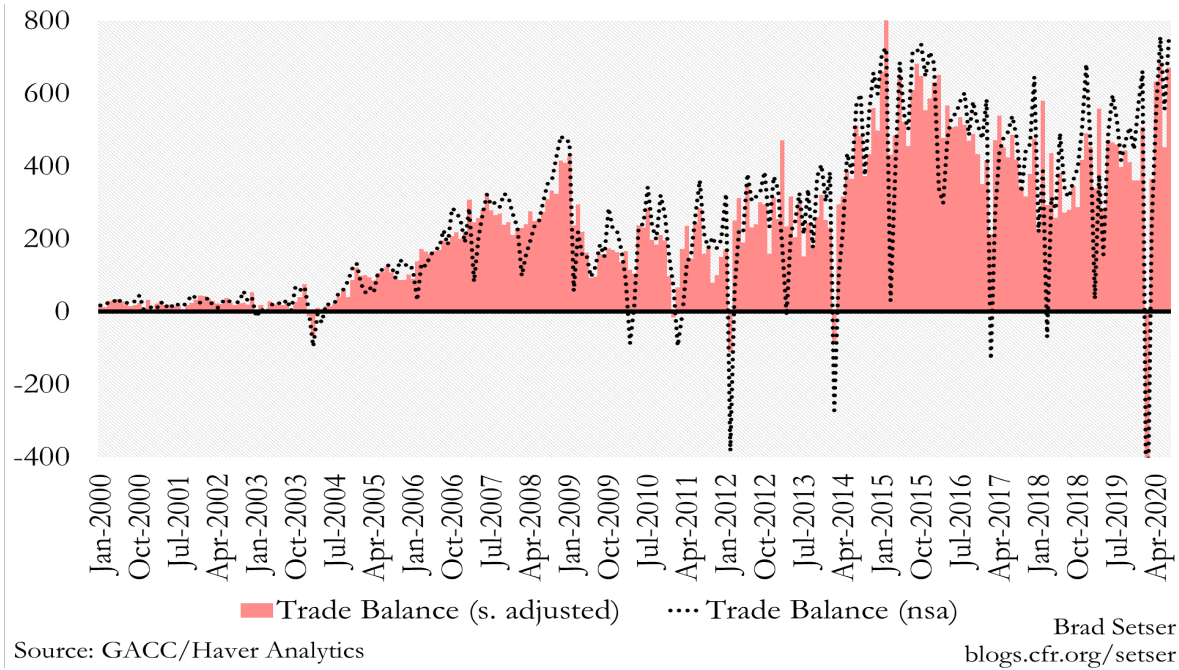
Figure 1: Monthly Annualised Value of China's Trade Surplus (USD Billions).

However, developing technology, particularly Generative AI, provides an important caveat that undermines Hayek's assumptions. As insisted in 1949, what essentially undermines state planning is that real knowledge is gained and true economic progress is made from locally generated knowledge derived from 'particular circumstances of time and place;' the state is not privy to such knowledge. Planning ignores this localistic character of knowledge and thus interferes with the self-regulating, spontaneous order mechanism of the market. However, Generative AI has rapidly led to the 'centralization of collective intelligence' and decision-making in the hands of a few large firms such as OpenAI, or, in China's case, the Central Government. Whether such rich data and computational power could birth pareto efficient central planning, whilst perhaps unlikely in the 2020s, remains a relevant consideration in the longer-term future once the current Trade War has reached its conclusion.

To realise the second part of Hayek's argument, it is necessary to link this economic control on a

global scale through central planning to authoritarianism and the global decline in democracy witnessed in the past decade. Having peaked at 5.55 in 2014, the Economist's Global Democracy Index has since fallen to 5.37 in 2020 and 5.28 in 2021, driven strongly by a decline in Western Europe from 8.41 to 8.29. In particular, an economic argument for this trend can be seen in the loss of manufacturing jobs in advanced countries such as the UK to China, with research concluding that the loss of manufacturing jobs to China explained voting patterns for the Leave option in the 2016 EU referendum much more convincingly than other factors such as immigration. This arguably helped to swing the referendum given its narrow margin, and contributed to the emergence of Boris Johnson's populist government in the UK, somewhat undermining democracy, although this process is somewhat out of the scope of this article. Of course, this is only one of a multitude of factors affecting the global decline of democracy, and this argument is partially flawed in that it does not distinguish between the loss of these jobs due to state planning and those due to the

global division of labour as a result of market forces. However, given that the Chinese government's intervention in the free market also includes state subsidies, import duties, and regulatory advantages, it is somewhat difficult to separate the behaviour of these two factors, upholding the validity of this viewpoint.

But this link to democracy can also be criticised from Hayek's original work: he was never particularly wedded to democracy as a system of economic and social organisation. Cornelissen notes Hayek's overall 'ambivalence towards democracy' and criticism of the 'doctrinaire democrat' and 'plebiscitarian dictatorship' as two forms which fail to be efficient, all-competent, and to support the majority wants at any given moment. Hence, whilst undermining democracy, the Road to Serfdom of economic globalisation is not necessarily undermining market efficiency. As before, however, this is unlikely to be true in a world before central planning becomes Pareto efficient, perhaps via Generative AI. In the meantime, as Hayek insisted, 'Whereas the market economy might not always result in the best possible result for each and every individual, the alternatives are by far worse.'

If the globalisation of supply chains is the Road to Serfdom, is deglobalisation the exit? The world's post-covid experience would suggest not, despite initial appearances. Looking at the USA alone, deglobalisation would seem a clear success: just 51% of American imports from Southeast Asian countries originated in China in 2022, down from 66% when the Trump administration's first tariffs were introduced in 2018. This is reciprocated from Chinese firms: In 2016 Chinese firms invested $48bn in the USA; in 2022, a mere $3.1bn. But Freund finds that countries with the strongest trade relationships with China in a given industry have been the greatest beneficiaries of the

redirection of trade, suggesting deep Chinese supply chains still matter to the USA. This is even truer in categories that include advanced manufacturing products, where American officials are keenest to limit China's presence. In these goods, the share of American imports arriving from China declined by 14 percentage points between 2017 and 2022, whereas those from Taiwan and Vietnam gained the greatest market share. Thus, Chinese activity is still vital to the production of even the most sensitive products. Moreover, the USA's attempted deglobalisation has likely had the counterintuitive, but understandable, effect of deepening trade links between China and the USA's allies. As relations across the Pacific worsen, consolidating supply chains in any single country is perceived as risky, leading some Western firms previously uninvolved in China to set up production. As The Economist clearly proclaimed in August 2023: 'Joe Biden's China Strategy is Not Working.' Such a process of deglobalisation would arguably depart from Hayek more than it would from economic logic: Polanyi repeatedly argued that Hayek's insistence on globalisation was an 'ideology dressed in the language of economics.' Thus, even if economically damaging, such deglobalisation is even further from Hayek, who preferred cooperation even to economic efficiency.

Overall, linking globalisation directly to Hayek's seminal work suggests that a degree of decoupling in industries crucial to national security is vital to prevent authoritarian countries driving globalisation, particularly China, from exporting this antithesis of democracy to other countries, and leading to the economic inefficiencies and foregone growth arising from populism. The challenge for future global cooperation, both economic and otherwise, is to implement this finding pragmatically and avoid the injection of

xenophobia and bias to protect beneficial sociocultural and scientific globalisation. As populist governments multiply in the West and the world stands on the brink of a new era of isolationism, however, it is important to consider that economic woes exert pressure on a global scale as much as on a national scale.

OUR HOUSING CRISIS: A LOT TO DO AND NOT MUCH TO LOSE

Mo Kha[4]

The UK economy is not in great shape, you may have noticed. Economic growth has stagnated, real wages are at the same level as in 2005, productivity growth has been slack, public services are in desperate need of cash and public debt as a percentage of GDP has exceeded 100% (Sky, 2021). I focus on one issue in particular – housing. Few will argue that there isn't a housing crisis (though a handful will try) and naturally, this is driven by supply and demand-side factors.

The crux of the supply-side is that we aren't building enough houses, for a multitude of reasons. Firstly, NIMBYist, self-seeking attitudes stringently oppose building which may

disrupt their local landscape, attract noise and other forms of pollution or contribute to the slowing of increasing house prices. This is reinforced politically by a Conservative Party whose voter base makes up this group of NIMBYs. As recently as December 2022, the government announced it will not mandate housebuilding targets of 300,000 new homes a year. Dropping the target alone is estimated to reduce annual housebuilding by 20-40% (Lichfields, 2023). None of the other major parties are absolved from blame regarding their part in this madness: the Liberal Democrats exploited anti-building sentiment to overturn a 16,000 majority in the 2021 Chesham and Amersham by-election, while the newly

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energised Labour have only laid out punchlines but no substantive plans as they look forward to potentially governing (City A.M., 2021).

Figure 1: Diddly Squat, Jeremy Clarkson's farm, an unfortunate victim of Chipping Norton's NIMBYs Source: Amazon Prime Video.

But the system underpinning this unsustainable political equilibrium is the UK's inefficient, dated case-by-case planning system, under which there is no centralised set of rules for home-building. Decisions are made by local authorities, likely beholden to vested NIMBY interests. In fact, an identical development may be granted permission in one case and refused in another. This is a result of the Town and Country Planning Act (TCPA) 1947. Its purpose was to promote developments within a framework of Euclidean zoning, where land is separated into use categories in order to prevent externalities – for example, a school would not be built next to a factory. This system has become obsolete: not only because the volume and complexity of applications has made it impossible for budget-stricken local councils to efficiently process, but also because the legislation had in mind a population who wanted to build houses. Now that is not the case, we have a scenario where two parties (NIMBYs vs developers) have opposing interests but if the NIMBYs object, which they do, then the councils are legally left with little choice but to reject planning applications. It is the NIMBYs who are empowered by this

legislation. This obstructionism is concealed by a deceptively high success rate of an application of 90% – developers only submit proposals which they are completely certain comply with the council's demands (Centre for Cities, 2023). And while the actual decision process takes around 8 weeks, the bulk of the time is taken up by fiddling around with section 106 negotiations. This concerns the Town and Country Planning Act 1990, which allows for councils to reach agreements with developers so that proposed projects benefit the local community. These negotiations can take years and usually revolve around cash sums or Affordable Housing (AH) allocations. I myself have seen instances where London borough councils have rejected proposals for a large Affordable Housing allocation in favour of fewer but more expensive homes in extravagant areas. The contrast between multi-millionaire residents on the same street as housing benefit recipients is stark, to say the least. Clearly, this Kafkaesque system is not fit for purpose.

The shortage in housing extends to the social housing sector, which has not recovered from the Right to Buy scheme. Under this policy, from 1980, social housing tenants were able to buy their homes at a discount ranging from 35-70% in the name of financial security and individual freedom. While this has allowed for a generation of well-off homeowners, it required the council housing stock to be replenished, which has not been the case. Less than 7,000 council homes were built last year compared to 28,000 in 1990, while 1 million households wait for council housing (Shelter, 2022). Councils are left with a housing benefit bill of around £29 billion annually – almost equal to the annual budget for defence spending. Housebuilding as a whole has halved from 3 million new dwellings in the 1960s to less than 1.5 million in the past decade. Since approximately a quarter of private

developments must accommodate Affordable Housing, a slowdown in the private sector hurts the public housing stock as well.

Another main constraint on development is cost. Input costs at around £331 per square foot compare to the US at £173 (Realtor, 2016; TwentyEA, 2023). Part of this is due to construction materials, as multifamily homes are built using timber in the US rather than concrete or steel like in the UK (Potter, 2020). Another key reason is relatively unproductive labourers, with productivity in the construction sector at a lower level than in 1997 (ONS, 2021). Regulation is also a factor – Michael Gove has recently had to intervene over a new rule mandating upstairs windows to be at least 1.1 metres from the floor in order to stop people from falling out (The Telegraph, 2023b). While there are undoubtedly similar examples of red tape in the US, it is hard to imagine a US Cabinet secretary spending time resolving such trivial issues.

The demand-side factors are less significant but remain relevant. First, the UK's £895 billion quantitative easing (QE) programme, introduced in 2009, has flushed institutional investors with reserve balances. In turn, these highly liquid reserves have been used to bid up the prices of financial assets like stocks as well as properties (Bank of England, 2023a). Second, a decade of near-zero base interest rates has made mortgages repayments more affordable, boosting house prices. This has had knock-on effects on Joe and his housing costs, be it purchasing an inflated property or renting one out. Finally, Buy-to-Let has aided this boost in house prices, in turn encouraged by capital gains tax (CGT) unequalised with income tax rates.

Both supply and demand factors conspire to frustrate potential first-time buyers on decent wages with little family wealth. The average house price to earnings ratio is around 9:1 (12:1 in London) while in 1980 it was barely 4:1. Put in historical perspective: property prices have not been this expensive relative to earnings since 1876 (Schroders, 2023). It would take the typical first-time buyer almost 9.6 years to save for a deposit, rising to 15 in London (The Guardian, 2023a).

Ensuring property prices remain sustainable supports a range of positive externalities. According to Bowman's housing theory of everything, more and better houses can improve health, productivity and climate change outcomes, among other goods. Take productivity: Bowman gives a tidy example of how people can waste precious time trying to fix leaky pipes rather than paying the local plumber, whose prices are high to cover his costs of living locally. If housing was cheaper, not only would people have more disposable income but people would be more productive by spending more time doing what they do best. This effect, combined with the benefits of urban agglomeration such as knowledge spillovers, can be incredibly rewarding. If New York, San Jose and San Francisco (all notorious for restrictive planning rules) loosened their regulations to the US average, the productivity benefits could increase GDP by 9% (Hsieh and Moretti, 2019). Similarly, London and the rest of the UK could reap such rewards.

The gains are not just found through productivity and wages. More money and time encourage people to start more families in a world where the cost of raising a child from birth until 18 years of age exceeds £200,000 (LV, 2023). The current fertility rate stands at around 1.6 children per woman, significantly less than the rate of 2.1 children required to not shrink the population (The Telegraph, 2023a). At least matching this rate would prevent the

tax base from being overwhelmed by paying the pensions of an increasing population who now live longer. Climate impacts would be reduced as people produce 2 tonnes more CO2 emissions per capita living outside cities and large towns, where most development would be concentrated, than those who do (Centre for Cities, 2022). Transportation is now the largest contributor to UK CO2 emissions and the bulk of this is down to personal transport. Improvements in fuel efficiency has ironically led to greater total emissions as driving becomes cheaper. Encouraging shorter travelling distances by living closer to jobs is environmentally friendly, while saving time on lengthy suburb-city commutes and money on cars and expensive rail. Londoners waste 227 hours in traffic a year (The Independent, 2019). Though, any potential benefits are caveated with a need for required investment in public transport which we don't seem to be great at currently. Even health benefits from such urban living is impressive as walking and cycling are encouraged other reliance on cars – with most journeys in America being via cars, it's not hard to see why they're struggling with obesity though causes are obviously more nuanced than this. There is a positive, linear link between GDP per capita in the UK in proportion to obesity rates (The Guardian, 2023b). Regional inequality may also be less 'locked in' as workers who are deterred by housing costs in areas with the most productive jobs stay in their hometowns, only to drive down wages locally as a result. Some argue the solution is to prevent such barriers to out-migration, most notably Edward Glaeser, though this is only one school of thought. All in all, the housing theory of everything wraps up housing as a potential driver for massive, positive change affecting most parts of our lives. It suggests that solving our current crisis can go a long way in facing the challenges we face that I named at the start as well as living standards,

obesity rates, stress levels, innovation and general life satisfaction. It can allow more of us to do more and do better, if done right.

So what is to be done exactly? Firstly, the TCPA 1947 must be repealed and replaced by something that works. Some argue, including Bowman, that a replacement should entail a form of radicalised democracy where developments would only require the majority support of the street it is built on. Thus, those who live near NIMBYs but do favour developments can vote to do so. While there is some debate as to what reform look should precisely look like, frankly any zone-based planning system would be a marked improvement on what we currently have.

*Figure 2: A council house project of 'cake-cut' houses where developers avoid streets full of identical designs
Source: Oakesstudions.com.*

Second, the Government of the day must not neglect infrastructure investment where it is required in order to fully exploit more and cheaper homes. In 2020, the National Infrastructure Commission recommended that the Government invest an additional £31 billion in major transport projects outside of London (Centre for Cities, 2020). Though, the Centre for Cities thinktank advises that existing transport networks should also be looked at for efficiency gains e.g. bus franchising. The process of reversing QE, or quantitative tightening (QT), is also underway though only 11.6% of gilts will be sold in the first year so its

effects will be gradual (Bank of England, 2023b). Further, the Government may want to look at ways in reducing development costs which can exceed £3,000 per square metre in London, amongst the highest in the world (Statista, 2022). And if it wants to curb speculative investments, it should look at restricting Buy to Let mortgages and the amount of leverage they use. The average UK landlord has 8 properties in their portfolio, fuelling a vicious cycle of increased rental demand by people who cannot afford to buy a home (Uswitch, 2023). Finally, policymakers should look to adopt the Land Value tax (LVT). This is a unique tax in that it is economically sound, non-distortionary and favoured by practically all mainstream schools of economics. Yet curiously, it is completely devoid of public or Government attention as a potential policy for reasons which I am yet to lay my finger on. Of course, this isn't exhaustive nor perfect and some may argue for the equalisation of CGT and income tax as well as reform of 20th century council taxes.

Housing policy has deteriorated to such a state that relatively simple reforms have the potential to be transformative. Housing could soon be the largest policy issue of national debate. The Labour Party looks serious in its quest for proper government, while you can never rule out an ambitious Conservative seizing what looks like a political treasure trove, such is the ruthless, winning nature of the Party's 'reform to survive' model. What is guaranteed is that reform will be a protracted process with many hurdles.

THE COST OF INCONSISTENCY: CHARITABLE DONATIONS

Naina Gupta[5]

The frequency and severity of crises are increasing: natural disasters are becoming more life-threatening, the COVID-19 pandemic and the War in Ukraine have destroyed lives, and the cost of living is rising in many countries. Crises exacerbate pre-existing societal issues, and result in greater reliance on charities, as the capacity of governments to provide additional welfare support is limited. For example, the Trussell Trust reports giving out a record 2,986,203 emergency parcels in the year from April 2022 to April 2023, the highest since 2017 to 2018, as a result of more people relying on food banks due to the cost-of-living crisis (Trussel Trust, 2023).

However, charities face a critical issue: charitable donations are often cut during periods of financial stress. During 2019-20,

donations from individuals contributed 48% to 58% of a charity's income in the UK, meaning charities are reliant on donations as a source of income (Small Charities Data, n.d.). Since 2019 there has been a decline in the number of people donating to charities: from 58% of the population, to 53% in 2021 and 54% in 2022 (Charities Aid Foundation, 2023). The timing of this coincides with the COVID-19 pandemic which saw many incomes reduced due to the furlough scheme and unemployment. This trend of reduced giving continued, as in 2022 24% reported they had made or were considering making changes to their charitable behaviours, including reducing or cancelling a regular charity donation, and choosing not to make a one-off donation (Charities Aid Foundation, 2023). But what is the effect of inconsistent donations on charities?

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Firstly, it is important to establish why individuals vary in the consistency of their donations. The decision to donate to charity, as well as how much to donate and how often, are influenced by how intrinsically altruistic a person is. For those who aren't naturally givers, and do not have altruistic preferences, the utility gained from donating to charity is derived from the decision to donate, the knowledge they are doing a good thing, and the fact that other people are aware of this altruistic decision, rather than the act of giving itself. This results in people mainly donating in response to being asked to give to charity, as they derive utility from being perceived as a 'good person' and feel good by knowing they are doing good (Andreoni and Serra-Garcia, 2016). As less altruistic people prefer to only donate upon request, this results in inconsistent donations rather than regular commitments. In addition, as social pressures are mainly felt when a decision is made to give, and this is also when non-altruists gain most utility, non-altruists respond to social pressures to donate by deciding to give in the future if possible, worsening the time inconsistency of their donations. For those with altruistic preferences, they are willing to give regardless of social pressures and often donate regularly, both to improve their own utility and to signal to others that they are a highly altruistic person. In the UK, around 28% of the population give to charity regularly, with 3% donating weekly, and 15% donating monthly (NPT UK, n.d.), indicating most individuals do not have altruistic preferences over giving, or cannot afford to donate regularly.

To understand the effects of inconsistent donations, especially during times of crisis, the question becomes: how much are donations affected by factors such as income changes? The price and income elasticities of donating

can be used to understand how donations change in response to crises and vary between groups. But what is the price elasticity of donating? Surely the price of donating is just the amount of the donation? Well, as established, most people are not altruistic, so policymakers need to incentivise people to donate. Incentives are usually financial in the form of tax relief, where a proportion of the donation amount is taken off income tax. A higher rate of tax relief reduces the cost of donating to charity and increases the incentive to donate by more. Some countries, such as the UK, also have match rebate policies for charitable giving. In the UK, the Gift Aid scheme means those paying income tax can benefit from tax relief, with the additional perk of the government contributing a further 25% of the donation made to that charity, or 40% for those earning over the 40% income tax threshold. This further increases the incentive to donate, as either 125% or 140% of an individuals' donation goes to charity. The price elasticity of donating to charity is estimated to be -1.11 to -1.44, meaning a 1% reduction in the cost of charitable giving (a 1% increase in tax relief), results in a 1.11% to a 1.44% increase in donations (Peloza and Steel, 2005, p265). Regardless of the exact magnitude, these values show charitable giving is price elastic, so larger incentives to give to charity result in larger donations.

However, the price elasticity of donating to charity varies between different groups of people. Comparing the price elasticity of donating between different income groups reveals higher income groups have a slightly higher price elasticity than lower-income groups, at -1.09 for higher income groups compared to -0.91 for lower-income groups, meaning higher income earners are more responsive to changes in the price of giving (Peloza and Steel, 2005, p267). However, the

difference between these two groups is not significant enough to be able to conclude any trend linking to the variability of charitable donations (Peloza and Steel, 2005, p267). Furthermore, as tax relief policies rarely change, especially during times of crisis, this provides a limited insight into the effect of inconsistent donations on charities.

Other studies focusing on the income elasticity of donating to charity show the income elasticity of donating to charity decreases as income increases (Wiepking and Bekkers, 2012). As income rises, donations to charity increase at a lower rate for higher-income households than lower-income households. During a recession, lower-income households are more likely to face more severe reductions in income, as sectors such as retail are often most affected by recessions due to reductions in consumer demand, compared to higher earners in the service sector which are less affected by recessions. This means donations from lower-income households will fall most rapidly during recessions and so charities lose most donations from lower-income groups, though donations from higher income groups would be less affected. The overall impact on charities therefore depends on the proportion of low versus high earners donating to that charity.

Demographic factors also play a role in influencing how much individuals donate to charity. There is a gender gap when donating to charity, as women often feel more pressured to respond to fundraising campaigns and are often more socially minded than men (Andreoni and Serra-Garcia, 2016). This results in more time inconsistent donations from women, as 30% of female participants give when asked now to give now, whereas 50% give when asked now to give later. However, for men, 32% of participants give now when asked

to give now, and 39% give when asked to give later (Andreoni and Serra-Garcia, 2016).

However, although women are less likely to donate regularly than men, women are more likely to donate to charity than men overall. From 2013-14 to 2021-22 in England, more women than men donated to charity consistently, such as 72% of women stating they donate to charity compared to 61% of men in 2021-22. The price and income elasticities of donating to charity are more elastic for men, meaning men are more sensitive to changes in income and tax relief policies when donating (Wiepking and Bekkers, 2012). During recessions, when incomes are reduced, men are less likely to continue donating than women. However, as men are less likely to donate to charity during healthy economic periods, the reduction in donations to charity by men may not be that detrimental during recessions. The true effect will depend on the charity itself, as women are more likely to donate to certain types of charities, such as animal welfare charities (Charities Aid Foundation, n.d.).

For those with religious beliefs that encourage charitable commitments, or those with personal connections to particular charities, these individuals may have more altruistic preferences over giving regardless of other lifestyle factors such as income, race or gender. This is often demonstrated through those with religious or personal connections to charities having regular commitments to charitable donations, such as consistently donating a certain amount or percentage of their income to charity. This would result in the donation patterns of these charities being more price and income inelastic, as the religious or personal connection to give is stronger than any financial incentive.

Overall, this offers a mixed picture of how donations respond to crises. It's also worth noting that even though some individuals have inelastic demand as to whether or not they donate, the amount they donate may still fall if they are financially constrained. This means the impact on charities can be substantial during times of crisis. So, is there anything charities can do insure against losing donations when they most need them? To reduce the effects of inconsistent income, charities benefit from diversifying their sources of income. Alternative sources of income include the private sector, such as corporate partnerships and sponsorships, where firms contribute financially to campaigns and projects, helping to cover some costs that charities face. Charities themselves could establish businesses such as charity shops in order to gain a greater income (though the benefits of this during a recession may be limited when consumers have lower disposable incomes). Other sources of income include investing some funds to generate income through dividends payments. Additionally, The National Lottery donates around 40% of its funds to charities, and raises around £8m in ticket sales, contributing a substantial amount to charity. Furthermore, charities can create fundraising campaigns to maximise donations at the lowest cost. Social media campaigns are an effective method of reaching many individuals and spreading a charity's message and plea for donations at a low cost. If charities were to also create fundraisers that encouraged people to donate in the future, this could capitalise on those who derive more utility from deciding to give than the act of giving, and be more successful in increasing donations, as giving is 50% more likely when gifts are delayed (Andreoni and Serra-Garcia, 2016).

Essentially, consistency is key. In an ideal world, charities would be given the luxury of consistency when it comes to the biggest share of their income. Though perhaps by reducing donations to charities and prioritising their wellbeing during a crisis, this also reduces demand for charities at their most stressful time. Overall, the damage caused by a reduction in donations varies between charities, depending on the demographic makeup of their donors, as some groups are more sensitive to economic changes when donating. But charities themselves also have some sway in how much they are affected. If charities are aware of the demographics of their donors, and how variable their income is from individuals' donations, they can diversify income sources and tailor fundraising campaigns to smooth income flows, and reducing their vulnerability to the variations of individuals' donations.

DE-NILE (A DRY RIVER IN EGYPT): THE VICIOUS CYCLE OF INADEQUATE CLIMATE RISK REPORTING

Philippa Stokes[6]

FY2022 reporting was the first-time asset managers in the UK were mandated to report their climate risk exposure through the Taskforce for Climate Financial Disclosure (TCFD)'s reporting framework. This represents the seismic shift in climate concerns from purely social to financial and economic. However, beyond the UK, climate risk is regularly ignored by financial institutions which leads to inaccurate risk profiles and potential climate market bubbles. This paper will answer several fundamental questions: What is climate risk? How does it permeate the financial sector? And what are the risks of underestimating it?

Even in 2015, then-Bank of England head Mark Carney warned about the "tragedy of the horizons" – that the window for financial managers and insurers to price in climate risks before they would start to have dramatic impacts on business cycles and financial stability was closing. (Carney, 2015) However, the 2022 ECB climate risk stress test found that only 40% of financial institutions include climate risk in their institutional stress testing, among which 40% do not including those results regularly in investment decisions. (ECB, 2022)This is indicative of broader market approaches to climate risk, with worries from the UK Financial Stability Board that markets are not accurately considering climate risk in asset prices and balance sheet risk levels which could leave businesses and markets exposed to large repricing as climate events occur more

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often and institutions are unprepared. So how does climate risk manifest, what institutions need to consider it and what are the perils if ignored?

There are three manifestations of climate risk: physical, transitional, and reputational. Increasing natural disasters, rising temperatures and disruptions to supply chains are physical risks that affect not only businesses but residential mortgages, insurance, and the labour force. A study from European Environmental Agency found that between 2009-2021, inflation-adjusted economic losses from weather events fuelled by climate change increased by 31% or a 3.2% increase per year. (EEA, 2023) Transitional risks are a business's ability to adjust to the internal and external changes to slow climate change including carbon prices, technology costs when replacing carbon-intensive processes, and shifting consumer preferences. Transitional risks are more difficult to model as they rely on unpredictable political and market responses rather than quantitative environmental changes. The final risk is reputational risk to businesses that are unable or unwilling to comply with changing market focuses on sustainability. The ability to accurately model and underwrite each asset and businesses' exposure to each of these three risks is key to the accurate pricing of investments. However, the market has been slow to first collect the information required to form accurate models of shifting climate risks, then to implement these models in key business activities such as stress testing and financial reporting to regulators and shareholders.

Physical Risks

It is unlikely there will be any businesses or operations entirely devoid of risk due to the pervasive nature of climate change in all facets of life. Given the interconnections between different industries, it is important to trace both physical and transitional climate risks from their direct manifestations to the real economy. Indeed, financial institutions may face steep losses if they price climate risks inaccurately.

As recent events have unfortunately proven, the physical climate risk to assets includes acute events, such as the increasing rate of wildfires destroying crops, displacing workers and disrupting supply chains. It also includes chronic changes in climate, such as rising sea levels or more severe droughts, which are dramatically changing agricultural supply chain reliability and economies. For financial institutions such as asset managers and banks, their exposure comes through their asset sheet deterioration as investments depreciate (such as the increased severity of rainstorms decreasing the life expectancy of outdoor machinery due to exposure) and increasing default risk on loans for bank from failing businesses due to higher costs of operation or shifting demand. The situation for insurers is worse. Insurance and reinsurance companies will also experience similar asset depreciation. Moreover, it is likely both life insurers and property and commercial insurers will experience higher claims rates. For example, air pollution in India may reduce life span increasing life and health claims, and for general insurers catastrophic events raise claims rates. Florida's state-run property - insurance company recently stated that hurricane Ian (exacerbated by climate change) had "depleted its reserves" and it would be forced to raise surcharges on its millions of policy holders in the case of another major hurricane which may come into effect depending on the impact of Hurricane's Lee and Idalia with will hit Florida within a month and are both strengthened by warmer waters in the Gulf of Mexico. (Mortillaro, 2023) As catastrophic events become more frequent, reinsurance becomes more expensive for all forms of insurers.

Insurance companies will therefore have to question whether they are able to increase premiums to compensate for these risks or whether they will need to leave certain industries. Both options have been taken: on one hand, the industry on the whole is increasing premiums. On the other, both Statefarm and Allstate – two of the US's largest insurers – ceased insurance in the state of California due to the outsized risks of wildfires. Neither present a desirable alternative as both affect the marginal profitability of new projects and businesses that require insurance to distribute risk. (Brooke, 2023) Climate change will also make insurance less diversified as previously uncorrelated weather events such as floods and hurricanes will become intensified and correlated which increases the concentration of insurance risk. The physical impacts of climate change are estimated to have cost on average US$212bn annually over the last decade. (EEA, 2023) However, whilst the implementation of TCFD frameworks in the UK (and soon in New Zealand) has increased awareness of these risks there are worries that, even in businesses that report climate exposure, risks are underestimated. This is at least partially due to a lack of knowledge surrounding the assumptions made in these models and exclusions in the reporting framework. A report by the Institute and Faculty of Actuaries at the University of Exeter found that "benign models" were used by financial institutions in their TCFD reporting that regularly did not include "impacts related to extreme weather, sea-level rise or wider societal impacts from migration or conflict" when estimating decreases in GDP due to climate change in a 3C 'Hothouse' scenario (Hodgson, 2023).

A failure to price climate risk itself may itself increase climate risk. For instance, insurance companies may underestimate their risk and therefore prices, which in turn impact cash flow and solvency. It also represents a significant missed opportunity for insurance (and the market more broadly) to promote and incentivise climate transition innovation. Given the risks for businesses and houses that are designed to be low climate intensity and strengthened against climate events is so much lower, it should be significantly cheaper to insure however the riskier climate intensive industries and houses for instance by rising water are priced lower that they should be. Thus, resources are not driven towards climate safe alternatives to secure insurance as there is insufficient pricing pressure. This is true for the industry more broadly as if scenario models are underestimating the risks, then they are not sufficiently pricing them into the market so investing in climate progressive ideals is not as relatively attractive as it should be (especially when considering the rapidly growing transition risk that will be discussed next).

Transitional Risks
More than 70 countries currently have net zero targets which will require significant policy change to achieve. It should be recognised that the transition away from energy intensive industries and constrictions on energy production and consumption will disrupt industry and hence individual business, their cash flows and valuations and hence financial markets. There are number of ways that transition will restructure the economy and without planning and accounting for these risks, businesses will be left with a "number of stranded assets, plants, and equipment designed for carbon-based production" or usage due to policies which make these economically unviable (Matikainen & Soubeyran, 2022). Research by LSE found that the costs of this would be borne in part by pension holders if significant restructuring is not undertaken. Businesses will also need to anticipate changing

consumer preferences which presents financial harms and opportunities to those able to leverage such shifts.

Just as with physical risks, the lack of accurate transition risk pricing also has limited shifts towards less carbon-intensive practices and energy sources which further harms climates and increases transition risk as governments will need to make more disruptive changes to policy to limit temperature increases. The impact of transition risks depends on the stability of the transition which in turn affects the stability of the financial industry as a "disorderly transition" in which delays to policy change causes uncertainty and dramatic changes in future policy, will lead to volatile price events, and asset price impacts as risks are re-rated.

Thus, in the case of both physical and transition risks the reluctance of businesses to anticipate and invest in assessing the full scope of climate change and risks means that the risks are not accurately priced into business decisions and financial stability reporting. This in turn means that there is less pressure to reduce this risk as the reporting risk is not sufficient to cause concerns about the pervasiveness of systemic climate risk. This means that businesses continue to make decisions that expose themselves to climate impacts which will only increase repricing and re-risking events in the future. Glimpses of this are already being seen in the US. A study by the Federal Deposit Insurance Corporation (FDIC) showed in the 1,617 instances of banks failing or requiring government assistance, banks in Oklahoma and

Texas showed stress rates increased when oil prices fell showing a systemic risk due to exposure to the oil sector which will suffer as renewable energy and nuclear become dominant fuel sources (FDIC, 2018).

Reputational Risks

The final climate risk is reputational risk. Some may argue that the pressure being brought to bear makes financial institutions increasingly aware of the reputational risks of facilitating polluting industries through debt and equity financings. Financial institutions, by their very nature, require trust and solid reputations to have licence to operate. As activists become more outspoken reputation is having a positive impact on creating accountability. However, as of yet there is no common standard for disclosure of net zero financials, so it is difficult to separate those financing green transition work and those financing oil when financing oil companies so some may hide from such accountability and continue to finance carbon intensive endeavours. Similarly, the asset management industry is stymied in its effectiveness by fears of greenwashing due to inadequate clarity and inconsistency on ESG reporting standards (Bank of England, 2019).

These systemic risk factors are only beginning to be found but it starts with strong and accurate climate risk and ESG reporting and frameworks. Otherwise, risks will continue to be under reported and underestimated until they are realised. The longer we fail to understand the risks, the more financial pain we will face adapting to them later.

THE SINO-AMERICAN DECOUPLING: IS IT IN THE US' INTEREST?

David Lu Yong Quan[7]

Introduction

US-China trade has reached nearly US$700bn, surpassing any bilateral economic relationship in history (Yong, 2019). Based on the argument that the USA's trade imbalances vis-a-vis its major partners are unfair and inequitable, Trump adopted what he considered as corrective policies in 2018, imposing tariffs on more than $360bn of Chinese goods in a bid to correct its trade deficit ($419.2bn) while punishing China for its flagrant theft of intellectual property and purportedly deliberate currency manipulation (Halsall et al., 2023). However, the issue extends far beyond America's balance of trade. Arguably, the Trump Administration has failed to reconcile the strategic costs of decoupling beyond punitive retaliation in at least four respects: the decline in domestic consumer welfare, loss of endorsement from US multinational corporations, and the increasing likelihood of economies disengaging their supply chains away from the US rather than China. These factors demonstrate unequivocally that decoupling from China is unfeasible and detrimental to American interest.

American consumer welfare

In scrutinising the effects of protectionist trade policies, we can organise the discussion around a well-known formula dating to Dixit and Norman (1980). In neoclassical models, the

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aggregate equivalent variation, EV, corresponding to a change in import tariffs – the sum of money that would suffice, if properly distributed across the agents in the economy, to leave them indifferent with a tariff change – can be expressed, to a first-order approximation, as follows:

$$EV = -\underbrace{\mathbf{m}'\Delta\left(\mathbf{p}_m^*\left(1+\tau\right)\right)}_{EV_m} + \underbrace{\mathbf{x}'\Delta\mathbf{p}_x^*}_{EV_x} + \Delta R,$$

Where m and x are vectors with quantities of imported and exported commodities before tariffs change, $\mathbf{P}_m^*$ and $\mathbf{P}_x^*$ are the import and export prices, τ are ad-valorem import tariffs, $\mathbf{R}$ is tariff revenue, and Δ denotes the difference between the post- and pre-trade war outcomes. The mechanical effect of a tariff is to raise the tariff-inclusive price of the commodity being taxed, lowering the demand for imports of that commodity. Through market clearing, and assuming away well known "paradoxes" such as in Lerner (1936) and Metzler (1949), this reduction in demand lowers the before-tariff import price but typically not enough to fully offset the tariff increase, so that the tariff-inclusive price increases (Fajgelbaum & Khandelwal, 2021).
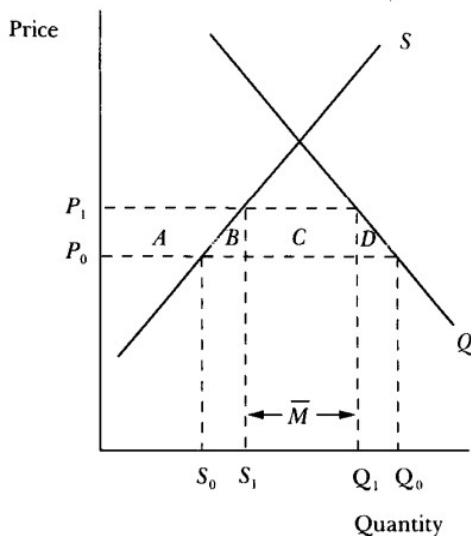
Figure 1: Domestic effect of tariffs (Feenstra, 1992).

Using a tariff diagram, as the price of imports increases from P_0 to P_1 and quantity traded falls from Q_0 to Q_1, this represents a loss of consumer surplus (Area D) as less imports are consumed at higher prices. The US is highly China-dependent for a range of consumer goods, with the 2018 US Census Bureau data illustrating that 82% of mobile phones and 94% of laptop computers imported to the US were from China (Rudd, 2019), implying the demand for these products are highly price inelastic. Price hikes and reduced variety yielding large welfare losses as a result of shifting suppliers means that imports cannot be readily replaced in the near-term without producing an American consumer revolt. With such entrenched consumer dependence, decoupling is certainly easier said than done.

The Thucydides Trap – mutual loss of export revenue

The flip-side of before-tariff import prices falling with tariffs is rising export prices, a manifestation of Lerner's symmetry: as tariffs reallocate resources away from export-oriented activities and demand away from imports, US producer prices increase and so do export prices (Fajgelbaum & Khandelwal, 2021). Hence, if each country keeps escalating retaliatory tariffs in the mistaken expectation that the other side will eventually back down – with China responding with tariffs on more than $110bn of US products in response to Trump (Halsall et al., 2023) – the result will be further decline in export competitiveness, high trade barriers and a reduction in cross-border commerce that leaves both sides worse off. The exchange of retaliatory policies resembles a classic circumstance modelled by game theory. Referencing the payoff matrix (Fig. 2), imposing tariffs (T) stands as the dominant strategy that leaves each player better off regardless of what strategy the other chooses, resulting in the Nash Equilibrium of (T,T), in which neither player has an incentive to deviate unilaterally, yet would both benefit from bilaterally reinstating

free trade (F,F). An incessant cycle of tit-for-tat retaliation entrenches this dynamic seemingly towards an infinite horizon.

Figure 2: Payoff matrix for trade war.

As a result of this cyclical retaliation, US exports underperformed by 16% in 2020, worsening as the gap expanded to 22% in 2021 (Bown & Wang, 2023). Likewise, Fig. 3 demonstrates no real improvement in export revenue even as China displayed signs of concessionary behaviour through the "phase one" agreement, as declining American competitiveness was associated with higher input costs due to Trump's tariffs – coupled with the fact that China bought none of the extra $200bn of US exports in Trump's trade deal. Similarly, even the modest increase in the nominal value of exports from 2021 to 2022 is attributed to annual inflation rather than genuine improvements in export performance, exposing that the US cannot afford decoupling in the context of a protracted trade conflict given its reliance on trade with China.
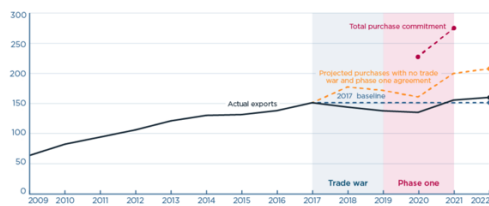
Figure 3: US exports to China of goods and services covered by the phase on deal, billions USD, 2009-2022 (Bown & Wang, 2023).

Impact on US multinational corporations

Stranded in the middle of the trade war are US and Chinese companies with $550bn in revenues at stake in each other's markets. US companies have around $400bn of revenue at

risk in China (Fig. 4), compared to Chinese firms who have three to five times less revenue exposure to the US market.
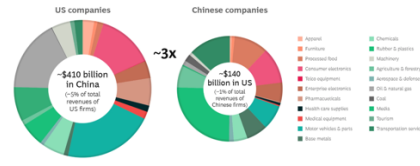
Figure 4: Revenue exposure for US and Chinese companies (Varadarajan et al., 2021).

For upstream players, rerouting the incumbent supply flows away from China will be arduous but fruitless labour, undermining the law of cost minimisation and the spirit of free market economics. Over the past 20 years, China has overtaken the US to become the largest value-added manufacturer in the world, accounting for 28% of all global production by 2018. It has achieved this through expanding its skilled talent pool and augmenting its physical infrastructure with greater spending than the US and Europe combined (Black & Morrison, 2021). If foreign companies in China send a significant portion of their China-based production to the US while tariffs continue to be a dominant decoupling tool under the Biden administration, the impact on revenues and profits could be severe. Furthermore, American foreign direct investment in China has also been on the rise (Fig. 5), with the US greenfield investment position estimated to be US$200.4bn (Zhang & Shi, 2020), contributing to the substantial sum of capital expenditure and fixed costs to construct new offices, plants and sites from the ground up. Once construction has commenced, greenfield investments as sunk costs cannot be easily withdrawn, exposing the dependence of American businesses on China and heightening the complexity of decoupling.
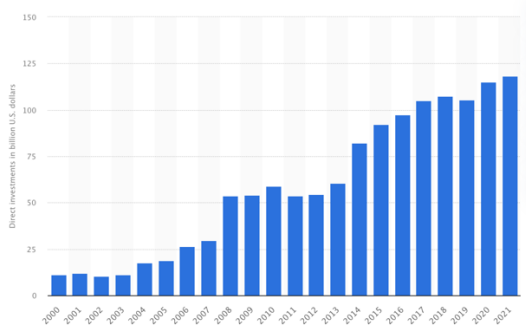
Figure 5: Foreign direct investment position of the United States in China from 2000 to 2021 (Statista Research Department, 2023).

Conclusion

Therefore, US policymakers are beginning to discover that the Chinese economy is not a discrete organism that can be easily separated from the global economy but rather a Siamese twin. Furthermore, China is increasing its influence on the world stage with the US abdicating its global leadership under Trump's "America First" policy (Zhang & Shi, 2020). In developing countries like Bangladesh, Indonesia, Thailand and Vietnam, with massive low-cost labour forces and good-quality infrastructure, the US has been thoroughly outmatched by China in terms of FDI (Fig. 6).

As a result, the manufacturers in these countries (representing optimal substitutes for China) would, ironically, be more likely to participate in supply chains with China than the US, elevating the challenge of US decoupling and setting up backup supply chains.
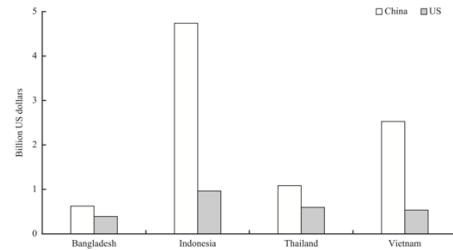
Figure 6: FDI flows from China and the US to selected countries (Zhang & Shi, 2020).

Given that US hegemony in the global economy is weakening whereas China has proven itself to be a reliable supply-chain hub during the pandemic, US-China rivalry could harbinger an antagonistic "one world two systems" global order. The world deserves to be recoupled based on mutual benefits rather than being divided into rival blocs, making the re-initiation of dialogue and cooperation between the US and China essential for all.

IS THE PHILLIPS CURVE STILL AN EFFECTIVE POLICY TOOL? REVISITING THE LUCAS CRITIQUE

You Peng[8]

Introduction

Who killed the Phillips curve? The gradual demise of the *prima facie* obvious inflation-unemployment tradeoffs was observed during the past decades across countries. It first failed to predict the stable inflation after Great Financial Crisis (GFC), likewise during the GFC recovery. The 'hibernating' then 'flattening' of Phillips curves is also proverbial since 1980s in most advanced economies.

The original Phillips curve (*henceforth PC*) developed by William Phillips in 1958 revealed an empirically negative relationship between unemployment and wage inflation rate. The literatures ensued also supported such relationship and spawned large developments in macroeconomic policy, especially with to monetary stance. Academics like Samuelson and Solow had interpreted the PC as a structural relationship—menu for exploitable inflation-unemployment tradeoffs (*henceforth EIUTs*). It has then been rationalized into heuristic models guiding policymakers to stimulate growth with a non-inflationary price increment (e.g., <3%) at the cost of endurable Keynesian unemployment. Afterwards, Friedman (1968) highlighted such hypothesis' deficiency—inflation expectations that determine wage setting was not incorporated. As Phelps' Quasi PC left room for expected inflation, Friedman attempted to explain expectation formation adaptively (*AE*) to obtain NAIRU, yet this disconformed to rationality hypothesis and involved systematic bias. While Muth (1961) implicitly expressed problems aforementioned in a dynamic process and

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highlighted rational expectations' role (*RE*), the Lucas (1976) critique explicitly argued that macroeconometric models have instable parameters, and differing from Friedman, he asserted that private agents are forward-looking and thus the effects of monetary and fiscal policies could be negated, provided they are systematic and anticipatable.

Accordingly, this essay strives to first explore why inflation has been disentangled with unemployment, via observing the changes of basic expectations-augmented PC over time; then evaluate whether RE as Lucas posited deprecates the short-run PC (*SRPC*) tradeoffs and curtails policymakers' efforts in reducing unemployment, rather than factors otherwise.

The disappearing tradeoffs and rationally-expected inflation

To commence, an expectations-augmented PC derived from equilibrium in WS-PS model is:

$$\pi = \pi^e - \beta(u - u^n) + v$$

Notation glossary	
π	Inflation
π^e	Expected inflation
β	PC Slope ($\frac{1}{\beta}$ gives sacrifice ratio)
$u - u^n$	Cyclical unemployment (actual-natural)
v	Cost-push shocks

Why was the PC originally stable? A principal reason is the weak π^e channel due to the gold standard in early 20th century making inflation expectations tied down. This excludes the effect of persistent money illusion (by the same token, Phelps and Friedman address π^e). As when inflation psychology is absent, inflation becomes less persistent and less sensitive to v like oil-price increases, allowing central bankers greater flexibility to achieve maximum

employment, without increasing π^e that shifts PC.

Contrarywise, if there are channels for π^e to self-fulfill, such as in the pre-Volcker regime with accommodative monetary policies, the sunspot fluctuations due to agents' forward-looking behavior and anticipation of the Fed rules systematically tolerating inflation increments with low real interest rate were equilibrative, in line with Lucas' critique. This complicates trading-off inflation for unemployment since output deviation would be zero once policy's effects ($A{\rightarrow}B$) are anticipated—the inflation bias ($A{\rightarrow}C$) (Fig.1). Contrastingly, Volcker-disinflation episode with tightened monetary policies witnessed steepened PC.

FE: Full Employment
AS: Ex-ante Shock Aggregate Supply (Phillips Curve)
AS': Ex-post Shock Aggregate Supply (Phillips Curve)
AS'': Ex-post Shock Aggregate Supply (Phillips Curve) with Rationally Expected Inflation (MP response Anticipated)
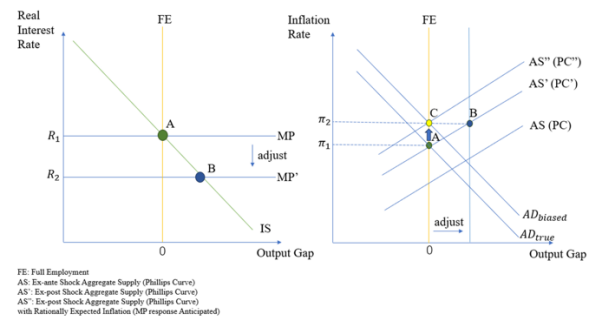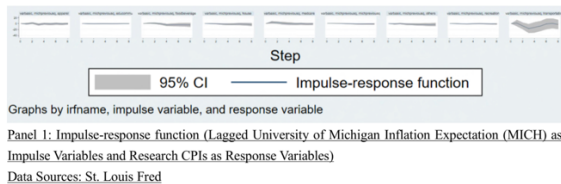
Figure 1: IS-MP curves with resultant changes in AS-AD curves and inflation (discretionary) bias

Albeit when we account for v, it was also the pre-Volcker laxer policies which failed to mitigate extrinsic fundamental shocks making unemployment stubbornly high. Yet inflation was found to be *merely* transitorily affected by short-term price shocks or exchange rate's shifts post-Volcker.

In a nutshell, inflation has been less sensitive to unemployment and less persistent to shocks, and well-anchored π^e appears to dominate—shifting of PC overtakes movement along PC. As surveyed π^e exhibits strong AE characteristics, by building a reduced-form VAR model I could show paucities of such nigh adaptively-expected inflation in explaining the

past-decade U.S. realized inflation: Most impulse-response functions displayed a weak correlation—coefficients' estimates biased towards zero (Panel 1). Another compelling evidence of inflation expectations forming more rationally is that the post-GFC 'missing disinflation' could be explained by ascending firm-level inflation expectations tracking that of households. This insinuates that private agents consistently update their expectations by observing real changes, anticipating policy shifts, then change their expenditure paths to realize inflation, with employment largely stabilized.

Panel 1: Impulse-response function (Lagged University of Michigan Inflation Expectation (MICH) as Impulse Variables and Research CPIs as Response Variables)
Data Sources: St. Louis Fred

The extent to which Lucas' critique is against EIUTs

While schools like New-Keynesian readily reckoned with Lucas position and incorporated RE into modeling, I agree with Rudd (2021) that RE does not strictly hold in models with expectation formation, and policymakers' exploitation will not always breach PC tradeoffs.

Friedman (1968) chiseled adaptively expected inflation (myopic) $[\pi_t^e = \pi_{t-1} + \varepsilon_t, \varepsilon_t \sim N(0,\sigma^2)]$ into the PC, such that $\Delta\pi_t = -\beta(u - u^n) + v$. Lucas and Sargent disparately considered individuals "forward-looking" $[\pi_t^e = E_{t-1}(\pi) = \pi_t + \varepsilon_t , \varepsilon_t \sim N(0,\sigma^2)]$, so PC shifts one-for-one with π^e under strong-form RE. Withal, even RE framework employed specific AE price formulation, such as in Lucas–Rapping aggregate supply model. Moreover, weak-form RE, epitomized by Lucas imperfect-information model (1972), highlighted short-term money non-neutrality: stochastic money

stock change brings nominal-price disturbance which eventually conveys information imperfectly, culminating in a short-term hedging behavior, which supports the SRPC relation.

Policy to no avail?

Fiscal stimulus can reduce short-term unemployment under AE. To enumerate, during the U.S. pandemic-triggered (sectoral) recession, unemployment soared to 13.2% incipiently and declined sharply thereafter, with government current spending topped out in 2020's second quarter (normalized comparison in Panel 2). The presence of inattentive agents—those unaware of current inflation, updating belief sporadically and purely adaptively—may account for this. Howbeit, EIUTs may be constrained in low- inflation regime, as when inflation is high and salient, everyone is alert enough— consumers discern the price of consumption goods, businesses discern the input cost like wages.

Panel 2: Indexed Government spending, Unemployment Rate and Insured unemployment (U.S.)
Source: BEA; BLS; U.S. Employment and Training Administration
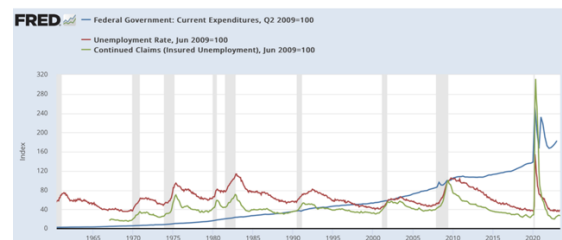
However, Lucas criticized that parameters like marginal propensity to save are variable—stimulus package and tax abatement could be entirely offset by private-sector saving—leaving a multiplier of null and labor demand unchanged. Yet factors like Keynesian spillovers also erode fiscal policies' potency to reduce factor-market slack (Keynesian unemployment). I.e., stimulus raises price of non-Keynesian markets, towards which substitution occur attributed to complementarities, redirecting expenditures away.

Monetary policy shifts could have real effects, even if macroeconomic data are immediately available, as presumably most have little incentive to track it carefully. However, the effects are uncertain. Central-bank intervention may chase its own tails due to the expectations trap: central banks are pressured to increase inflation not to reduce but to prevent increases in unemployment. Cost-push expectations trap pushes central banks to raise money growth, while firms remain disinclined to employ more workers due to higher wage settlements under inflationary pressures. Besides, imperfect knowledge forces agents to adopt an adaptive-learning technology when forming expectations, causing an additional interaction layer between monetary expansion and employment outcomes.

Case-by-case consideration

Notably, culprits of disappearing EIUTs differ across countries and regimes. E.g., many have gathered the beginning and perspective end of the pandemic as a regime change. Respectively, the PC re-steepened in Covid-19 recovery phase (2021:Q1-2022:Q2) in industrialized countries like U.S., U.K. and France, identified by the lowered sacrifice ratio. Meanwhile, the pandemic left more scars in potential output in China where private agents remain cautious, partly out of culture, hence save more—the PC appeared flat.

Conclusion

In retrospect, Lucas' critique is overtime more discernible as well-anchored inflation expectations seem to rule out EIUTs in regimes where inflation is realizable. Growing evidence suggests more rational formation of expectations, favoring Lucas' critique, yet adaptive-learning process insofar is to be reckoned with and exploitable by the policymakers. Inattentive agents' presence temporarily restores EIUTs for policy surprises in low-inflation regimes. Policy ineffectiveness is also inasmuch as complementarities amplifying Keynesian spillovers; outcome is uncertain due to the expectations trap and imperfect information. It is often useful to cogitate more fundamental economic aspects, like regimes directly affecting real activities and expectation formation.

WHY THE INDUSTRIAL REVOLUTION REVOLUTIONISED LIVING STANDARDS

Hanyun Qian[9]
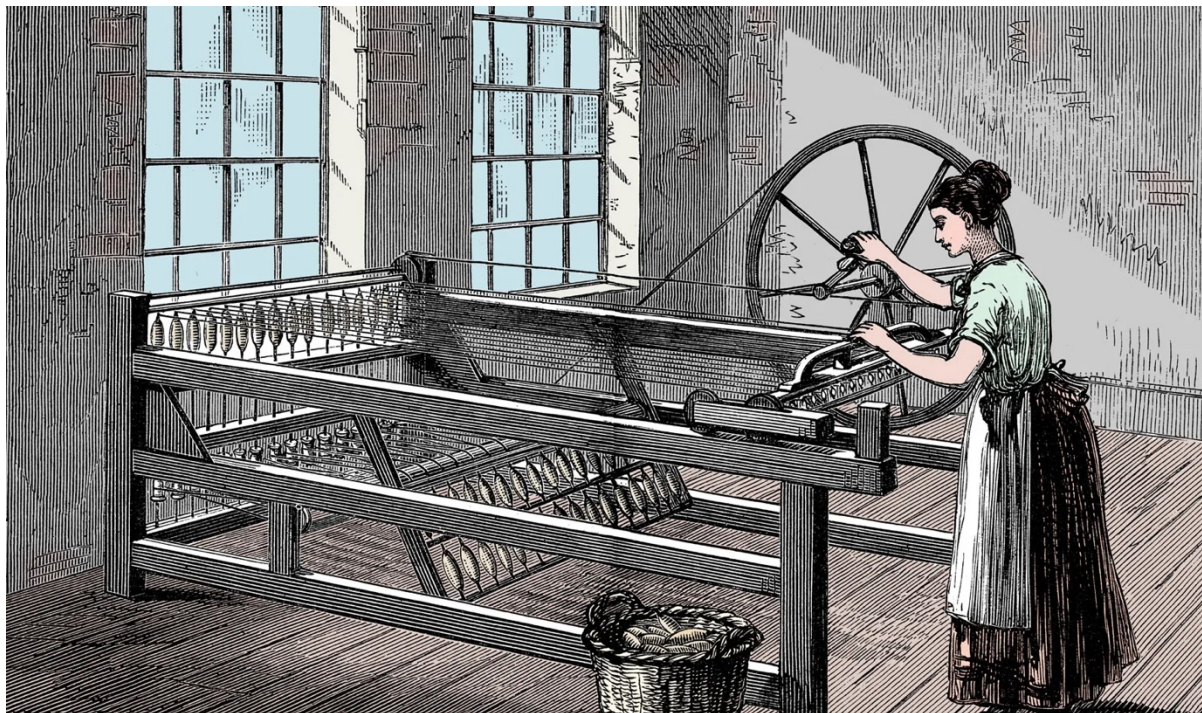
Introduction

People living in 1800 were no better off than those living in 100,000 BC, as noted by Clark (2007). Humanity was lingering in the Malthusian trap without long-term change until the Industrial Revolution, but this does not mean that the living standards were constant throughout the ages.

Economic success characterised the Song Dynasty and the Roman Empire. Following the fall of Rome, global copper production fell from 15,000 to 2,000 tonnes per year, until the prosperous economy of the Northern Song led to an increase to 13,000 tonnes per year, comparable to the early years of the Industrial Revolution (Hong et al., 1996). Two-thirds of the tax revenue of the Song Dynasty in 1077 came from trade and manufacturing, whereas that of the Ming was largely agricultural (Liu, 2005).

This implies that the central dilemma of the agricultural age is probably not its inferior growth, but the incessant interruption of its economic development, thereby obliterating erstwhile economic accomplishments.

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[9] Hanyun Qian a student at Suzhou Foreign Language School in China, winning third place in the 2023 Marshall Essay Competition.

Unsustainable Growth
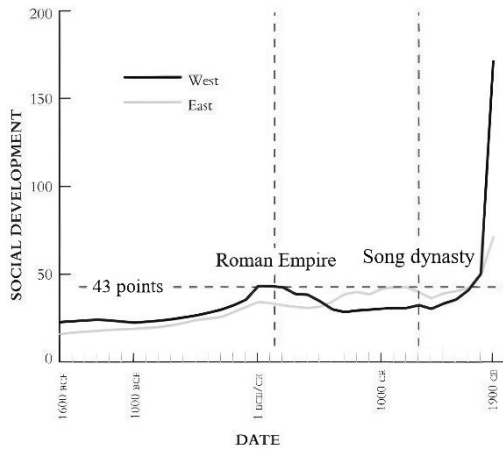
Social development between 1600 BCE and 1900 CE.
Source: Morris, 2010, p. 168.

The further development of the Roman Empire and the Song dynasty may, in the view of Ian Morris (2010), have been blocked by a line before the breakthrough of both East and West around 1700 AD. This phenomenon is worth investigating.

Ancient societies were particularly vulnerable. There is a strong correlation between cold periods and the occurrence of wars in China (Zhang et al., 2004). The Krakatoa volcanic eruption nearly collapsed the Eastern Roman Empire (Gibbons, 2018), and the Yellow River flood was a major cause of the fall of the Northern Song Dynasty (Storozum et al., 2018). The 'Little Ice Age' led to numerous uprisings and crises worldwide, resulting in the 'global crisis of the 17th century' (Parker, 2017).

But this is not the case in modern times. In the United States, the Great Depression improved people's health, with mortality rates declining at almost all ages (Granados & Roux, 2009). The Chongzhen drought caused a population decline of 17.3 million in the Ming dynasty, but if it occurs in modern China, the devastation only represents 4.53% of GDP, according to the implication of Qu et al (2021).

It could be said that resistance to disasters is one of the most intuitive indicators of development. If the income of the lower strata is not sufficiently high and heavily dependent on agriculture, it might drop below subsistence level in case of an overwhelming disaster that affects the original economic network. According to Maslow's hierarchy of needs, people will prioritise their survival needs and be drawn back to the point where the undifferentiated curve resembles an L-shape. This will constrain industrial development and the general welfare (see Appendix A).
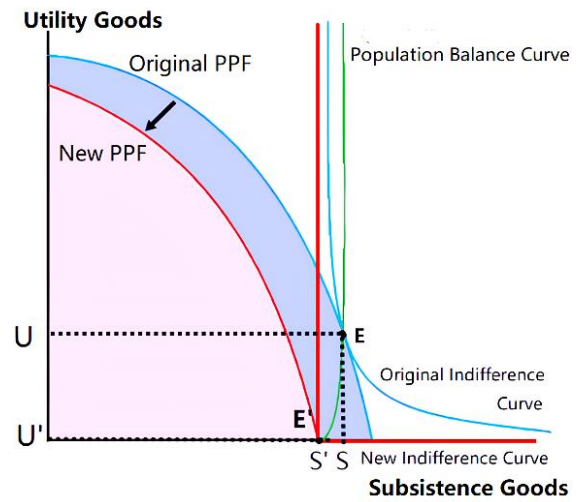
In a catastrophe, reducing industry is actually a Nash equilibrium, and according to Dawkins (1989), individuals would not give up survival for the benefit of the group. State intervention may, under certain conditions, forcibly break this equilibrium at the expense of the peasants, as in the case of the Holodomor in Ukraine, which was caused by the USSR's 'decision to industrialise this peasant country at breakneck speed' (Davies & Wheatcroft, 2009, p. 441).

This means that the Malthusian theory that 'disasters increase per capita welfare', as exemplified by the Black Death, is not universally applicable. The Roman army, by contrast, was severely weakened by the Antonine Plague, which led to multiple crises (Duncan-Jones, 1996).

I shall define the 'Maslow division line', which represents a level above subsistence, primarily for the lower strata. Below this, economic development is fragile and industrial development is restrained; above it, society is more capable of self-recovery. This concept helps to explain the 'unsustainable growth' preceding the Industrial Revolution, as well as its aftermath, where mankind endured wars without reverting to the Dark Ages. The breakthrough lies in the 'trickle-down effect'.

Trickle-Down Effect

As Engels (1845) described, the situation of British workers in the early 19th century was miserable. Yet unskilled labourers in Britain earned, on average, three times that of the Qing Dynasty in terms of grain prices (Broadberry & Gupta, 2006).

Socialists take a more intriguing perspective. According to Engels (1882), the British working class benefits from Britain's dominance in the world market and colonies. Lenin (1920) characterises this as nothing but bribery. Nehru (1933) notes that colonisation of India and elsewhere generated much wealth for Britain, some of which flowed to the working class to raise their living standards.

It was the 'trickle-down' effect that dominated the era due to industrialisation. In comparison, 90% of those near subsistence level in Rome did not benefit from the massive economic growth in the ancient Mediterranean (Scheidel & Friesen, 2009).

Consider the underlying causes. The long-run elasticity of grain demand is so insignificant that Adam Smith (1776) suggests that the price of corn indirectly reflects the value of labour. A harvest can potentially reduce a farmer's income (see Appendix B).

This is clearly reflected in the Lewis model. Surplus labour does not contribute to overall production. The transfer of surplus labour between the subsistence and capitalist sectors is beneficial, but constrained by Maslow division line.

Industrialisation depended on demand, yet the wealthy minority could not support the consumption of large-scale industrial goods. Their fortunes are converted into precious metals, which leads to wealth sequestration and monopolisation of commerce, while the scarcity of luxury goods makes it difficult to become industrial mainstays.

By comparison, the textile consumption market is extremely large. 10% of British working class consumption was spent on clothing and bedding (Clark, 2007); the immense demand of overseas trade stimulated the rapid growth of the cotton textile industry, which accounted for nearly half of all British exports within a few decades.

Source: Davis, 1979, p. 36.
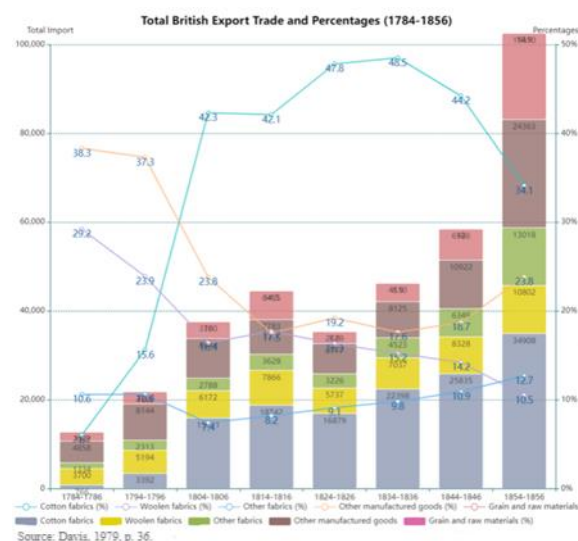
Many approaches can address the food gap. The UK's food needs could be met by importing, while later-developing countries can leverage the scissors difference or attract FDI. Countries with high volumes undeniably

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require expanding markets for carrying throughput, which renders their industrialisation more arduous.

Conclusion

Prior to the Industrial Revolution, living standards were not static, but rather Sisyphean. The trickle-down effect created by industrialisation removed the lower classes from Maslow division line, thus sustaining economic growth.

The average income growth of the lower strata is related to three factors: economic growth rate, population growth rate and the ratio of pre- and post-income distribution (see Appendix B). Hence, we can divide the process of industrialisation into three stages:

I. The Malthusian Trap. In this trap, wealth disparity is not significant (Kohler & Smith, 2019) and economic growth is highly erratic. The dominant factor is therefore the rate of population growth.

II. The Industrial Revolution. Although inequality is increasing (Wallerstein, 1974), economic growth is sufficient to overwhelm the other two factors.

III. The Distributional Trap. As Solow's model approaches steady state in some economies, the average rate of global economic growth has tended to decline over the decades (Harvey, 2005), making inequality within and between countries increasingly crucial.

The empirical study of the trickle-down effect (Kangas, 2002) demonstrated that general economic prosperity is a necessary but not sufficient condition for higher incomes for the poor. We had never before, have not yet, and probably never will, find a once-and-for-all path, but we shall rejoice in the historical achievements of humanity in the past and move forward with caution and modesty, for so far not a single journey through history has been futile.

ASSESSING THE CONSEQUENCES OF THE THREE-CHILD POLICY OF CHINA

Xuanlin Zhang[10]

With the fertility rate estimated to remain below the replacement rate of 2.1 by the end of this century (Fig.1), China is subject to an impending demographic crisis. To tackle this population deadlock, six years after the implementation of the two-child policy, the Chinese government issued the three-child policy in 2021, hoping to further increase the birth rate. This essay explores the major short-run effects of the policy as stimulation and strain on associated industries. Additionally, an Ordinary Least Squares (OLS) linear regression model based on Cobb-Douglas production function is employed to justify the policy's long-run implications and relevance.
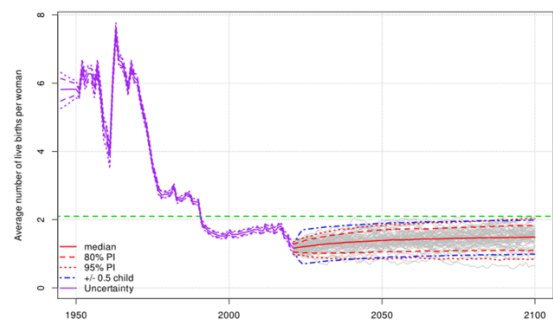
Fig.1   China: Average Number of Live Births per Woman
(Source: http://population.un.org/wpp)

In the short run, a boost in the birth rate is anticipated to stimulate consumption in related industries, especially the property sector. The demand for larger homes will likely increase when couples give birth to a second/third child.

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In Chinese culture, the convention is for retired grandparents to assist parents in babysitting and hence nuclear families need to not only accommodate more children, but also their grandparents. This process nudges consumers' preference towards larger and more expensive land. Moreover, in order to increase children's competitiveness in the future marriage market in China, affluent households usually prepare apartments for their children in advance (Zhu, 2015). Hence, the policy will promote the property market of China instantaneously and for years to come, which is particularly beneficial for property developers in China, who have just undergone a default crisis over the last winter and are currently facing a severe downturn in the sector. This policy could possibly ameliorate declining demand in the property sector (Vaswani, 2022).

However, the effect this policy casts over the housing market may not be entirely positive. Competition for property, especially in school districts, will be fierce, further driving up housing prices. Concerns were also raised regarding the healthcare system. Massive population, limited resources and inefficient management are accountable for China's inadequate performance in healthcare (Hu, 2020). The system relies heavily on urban hospitals, which only accounts for 3.5% of medical institutions in China, but handles 45% of all outpatient visits (Nelson, 2021). Many are worried that increased demand for health services will impose further strain on China's defective healthcare industry. For the educational sector, public schools are subjected to an increased number of students, forcing them to allocate less educational resources per student and decreasing the quality of education provided. The policy will also exacerbate the already intense competition in education and increase education costs resulting in fewer

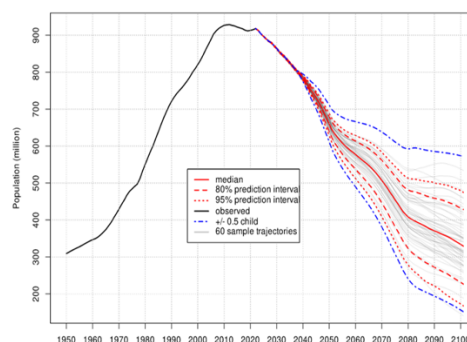pathways for low-income households to provide proper education to their children.

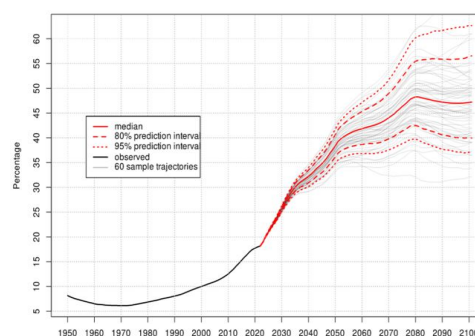Fig.2 China: Population between Age 15-59

(Source: http://population.un.org/wpp)

Fig.3 China: Percentage of Population Aged 60 Years or over

(Source: http://population.un.org/wpp)

To assess the long-run implications of the policy it is necessary to delve into the demographic causes behind China's economic downturn. With a declining working population and growing elderly population (Figs.2-3), China is no longer able to reap demographic dividend and faces an unprecedented ageing population.

To the economy, this means dwindled consumer desire and greater pressure on the working population to support the elderly, compromising its fast-paced development. Moreover, urban firms have lost access to cheap 'surplus' labour with low marginal productivity from rural areas (Scheineson & Carin, 2014). Recent high wage inflation has raised the discussion on whether the Chinese economy has reached the Lewis turning point (Lewis, 1954; see Fig.4). Despite conflicting views (Zhang & Yang, 2011; Das & N'Diaye, 2013), there is a consensus that China is indeed short of labour. Whether it is to alleviate the ramifications of a dissipating demographic

dividend, or defer the occurrence of the Lewis turning point, higher fertility appears critical to sustaining China's growth.
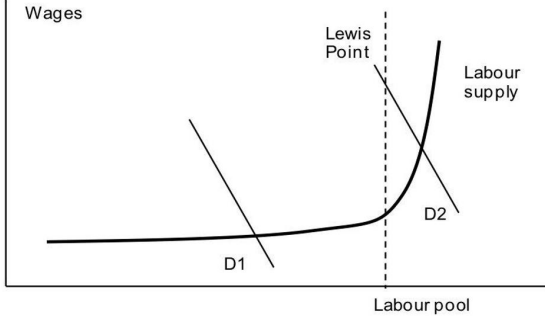

Fig.4 A Stylized Diagram of the Lewis Turning Point
(Source: http://www.businessinsider.com)

To test the above analysis, we utilize a refined Cobb-Douglas production function (Eqs. (1)-(2)). Using data extracted from the National Bureau of Statistics of China from 1988 to 2020, an OLS linear regression is conducted (Table 1).

$$Y = AK^\alpha L^\beta T^\theta \ (1)$$
$$lnY = lnA + \alpha lnK + \beta lnL + \theta lnT \ (2)$$

Table 1   OLS Regression Results of Cobb-Douglas Production Function
（Source: Author's Calculation）

Variables	Coefficients	P-value
ln K	0.664***	0.0000
ln L	0.752**	0.0136
ln T	0.118*	0.0530
Constant	-0.4662	0.1263
	Total number of Observations =33	**R-Squared =0.9973**

Notes: * (**, ***) indicates significance at 10% (5%,1%) level, respectively.

The marginal productivities of capital, labour and technology are evaluated as followed:

$$MPK = \frac{\partial Y}{\partial K} = \alpha \frac{AK^\alpha L^\beta T^\theta}{K} = \alpha \frac{Y}{K} \ (3)$$
$$MPL = \frac{\partial Y}{\partial L} = \beta \frac{AK^\alpha L^\beta T^\theta}{L} = \beta \frac{Y}{L} \ (4)$$
$$MPT = \frac{\partial Y}{\partial T} = \theta \frac{AK^\alpha L^\beta T^\theta}{T} = \theta \frac{Y}{T} \ (5)$$

After substituting the OLS regression results in Table 1 into Eqs. (3)-(5), these calculated

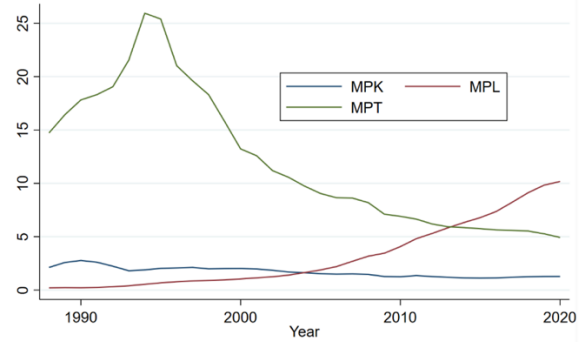marginal productivities are plotted over time (Fig.5).

Fig.5   MPK, MPL and MPL from 1988 to 2020
（Source: Author's Calculation）

MPK decreased from nearly three in 1990 to approximately one in 2020 (due to over-investment in capital (Liang, 2015)), while MPL increased from merely 0.2 in 1989 to over 10 in 2020 (Fig.5), indicating that increasing labour generates higher returns to economic output. The importance of technology in motoring the economy is evidenced by MPT nearing five. Therefore, aside from implementing fertility policies, the government must provide quality education in order to drive future technological progress and shift the Chinese economy from resource-driven to productivity-based growth.

However, doubts are cast on whether the three-child policy will boost fertility as expected, for the prior two-child policy produced insufficient results. The immense stress due to the great pension burden arising from an ageing population and the brutal 996 working hour system (work from 9:00am to 9:00pm, 6 days/week), coupled with exorbitant housing and education costs, forces people to postpone or abolish childbearing. Rising wages increases the shadow price of childbearing (represented by P_N & P_Q), tightening the budget constraint (Becker & Lewis, 1973; see Eq.(6)). Moreover, four decades of the one- child policy appears to have shaped people's fertility preference, in which they are used to the norm of a three-person family. Hence, the worry is that China

might have already fallen into a low fertility trap (Lutz & Testa, 2006).

$$I = NQ\pi_C + NP_N + QP_Q + Z\pi_Z \quad (6)$$

Notes:

> I represents income, N, Q, Z denotes the number of children, the quality per child and consumption of all other commodities, respectively. π_z denotes the price of Z, π_C represents a price index of goods and services devoted to children, P_N and P_Q represents the shadow prices of quantity and quality, respectively.

In conclusion, the three-child policy will stimulate consumption in related industries in the short-run and boost the fertility rate to provide necessary conditions for economic growth in the long-run. However, it may not be sufficient in granting enough incentives for couples to bare children due to constraints like life stress, social norms, and high costs. In May 2022, the city of Hangzhou started offering property-buying perks to three-child families (Zhu, 2022). Applying more of these policies in conjunction with the three-child policy, will enhance China's chances of raising fertility to its desired level.

MANAGING A SOFT LANDING: U.S. INTEREST RATES AND UNEMPLOYMENT

Yunhan Gao[11]

Introduction

If you walked into a U.S. market in March 2022, you would be surprised to find out that eggs are 13% more expensive than they were last year. The Federal Reserve (Fed) has raised its interest rate by 225BP, the steepest in nearly 30 years. Under the rate hike, U.S. residents might worry about their jobs, not surprising since the well-known Phillips Curve (PC) explains the negative correlation between inflation and unemployment. However, historical data in table 1 indicates that unemployment falls after the hike. This essay will interpret historical data and determine the short- and long-run effects of the rate hike in 2022 on unemployment.

Short-Run Effects

In the short run, after the PC was knocked off its pedestal during the 1970s stagflation, two theories became popular. One concludes that only a 'price surprise' affects employment, which is untenable in the absence of an adequate business cycle theory. Another argues that when there is a rise in the fixed cost—capital, firms will seek cost reduction by laying off variable costs—labor. However, the intervention of trade union avoid workers in the 21st century from being fired or exploited so easily, this theory does not apply to the U.S.

Historical data in table 1 is inconsistent with the literature. In the short-run, the unemployment rate did not rise but fall, even given the "Dotcom Bubble" in December 2001 after the fourth rate hike, which leads to the bankruptcy of 52% of internet companies, causing job losses.

As the cost of labor, workers' nominal earnings respond to an external shock. In figure 1, the wage rate displays a hump-shaped response for

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the hike 2004-2006. Initially, contraction in monetary policy increases firms' production and selling price expectations in a manner consistent with imperfect information theory.

	Period of interest rate rise	Rate hike basis point	Unemployment rate in the Dec. before rate hike (%)	Unemployment rate in the Dec. after rate hike (%)	Unemployment rate in the second Dec. after rate hike (%)
1	1983.4-1984.9	275	10.8	7.3	7
2	1987.1-1989.7	343.75	6.6	5.4	6.3
3	1994.2-1995.2	300	6.5	5.6	5.4
4	1999.6-2000.5	175	4.4	3.9	5.7
5	2004.6-2006.6	425	5.7	4.4	5
6	2015.12-2018.12	225	5.6	3.9	3.6
7	2022.3		3.9		

Table 1: Historical unemployment after rate hikes.
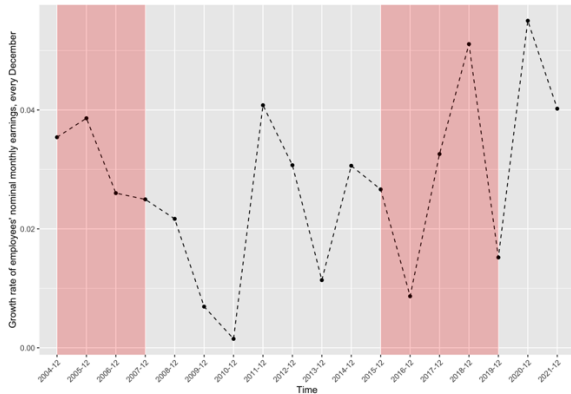
Figure 1: Growth rate of avg. monthly earnings of employees.

But after firms observe reduced economic activity and eventually perceive a fall in demand, they revise expectations. The price level drops responding to the higher price of capital, leading to a fall in marginal revenue and a downward adjustment in marginal cost. Workers' wages then fall. This drives up labor demand, but labor supply goes down due to the lower return from working. Unemployment therefore falls. Over time, the shock is absorbed by the economy, and wage growth shows much less volatility.

From 2004 to 2006, Japan is a counterfactual of the U.S. case, one of the most influential economies in the world but without a rate hike. The wage growth rate in Japan shown in figure 2 supports our analysis, that the opposite would occur in the absence of the rate hike. Another candidate for a counterfactual of the U.S. today is the U.S. in the near past. During the hike period 2015-2019, multiple events including the rate hike occurred, which makes the effect of interest rate unclear, hence the experience of

this period is less applicable to the current one compared with 2004-2006.

Although the overall effect is small in magnitude, layoffs will have an unbalanced influence on different social groups, people of color, low-wage service workers, and mothers are more vulnerable.

Long-Run Effects

The Natural Unemployment theory concludes that in the long-run the Phillips Curve is vertical at Non-accelerating Inflation Rate of Unemployment (NAIRU) and won't be affected by any inflation adjustment.

However, the actual NAIRU can't be measured directly. Before COVID, unemployment falls to 3.5%, below the Fed's prediction of 5% (figure 3). While the inflation did not spiral up, the actual NAIRU should be some level below Fed's prediction, located at a point below 3.5%, around which the current unemployment lies. And we shouldn't expect it to change significantly in the long-run.

Some argues that the NAIRU has been largely raised due to the sharp rise in price level. However, the price was largely driven up by temporary layoff (rose from pre-pandemic 14% to current 78%, BLS), which does not contribute to the NAIRU.
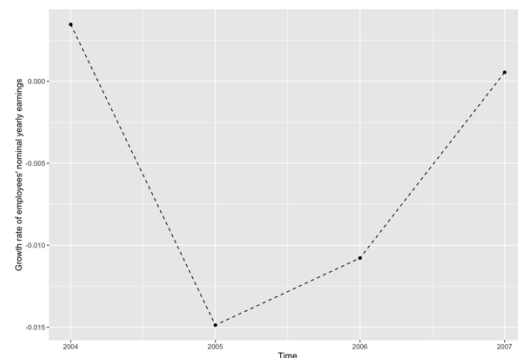

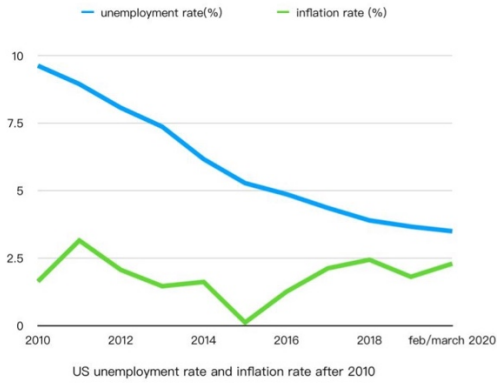*Figure 2: Growth rate of avg. monthly earnings of employees.*

Figure 3: Historical unemployment rate after interest rate hikes. Source: U.S. Bureau of Labor Statistics (BLS).

Model

We now model our above analysis. A typical firm maximises profits:

$$max_L \ \Pi = p \cdot Q - w \cdot L - r \cdot K_0 \ (1)$$

where p is price, w is wage, r is interest rate, and capital stock is fixed at some level K_0 in the short-run. The production function is

$$Q = f(L, K), f'(\cdot) > 0, f''(\cdot) < 0 \ (2)$$

where concave technology f is assumed. Firm's problem leads to the only first-order condition

$$w = p \cdot \frac{\partial Q}{\partial L} \ (3)$$

$$(2) \& (3) \Rightarrow \frac{\partial Q}{\partial L} > 0 \ (4)$$

The marginal product of labor $\frac{\partial Q}{\partial L}$ is positive and remains constant in the short run, an increase in the interest rate followed by a price rise causes the nominal wage to fall.
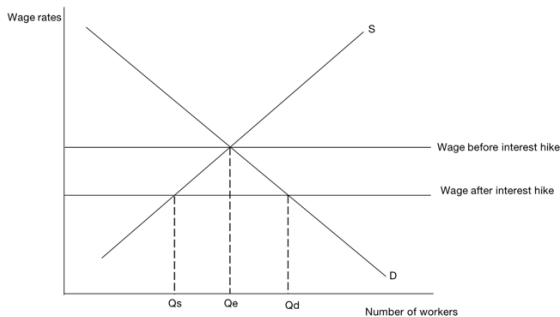

*Figure 4: Competitive Equilibrium in Short-run Labor Market.*

Figure 4 shows the effect of a wage fall below the equilibrium on labor supply and demand. A gap (Qd − Qs) occurs. Less is supplied and more is demanded, unemployment then falls. In the long run, both labor and capital are adjustable. The firm's problem leads to (3) and an extra condition:

$$r = p \cdot \frac{\partial Q}{\partial k} \ (5)$$

Effects through the labor channel are identical to that in the short run. Subject to a fixed resource constraint

$$m = wL + rK \ (6)$$

the firm purchases less capital and more labor under the new prices (r', w') after the hike $(r' > r \Rightarrow w' < w)$. For capital-intensive technology, the iso-cost curve and production probability frontier given (r', w') will cross below the old intersection (case 1), production shrinks. For a labor-intensive firm, the new intersection is above the old one (case 2), production expands. The individual effect differs by technology.
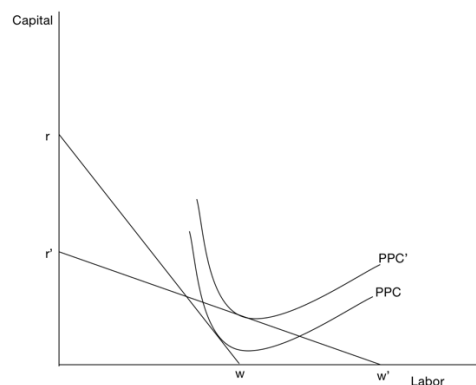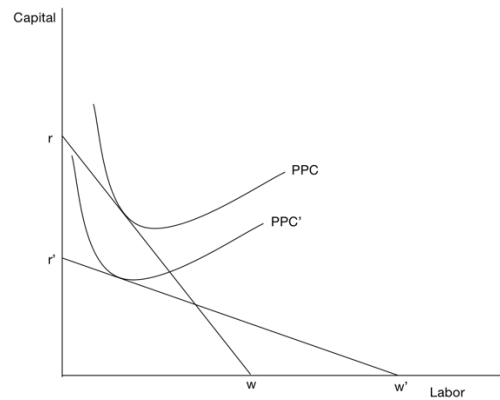
(a) Case 1: capital intensive technology (b) Case 2: labor intensive technology

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Figure 5: Firm's maximisation

Conclusion

In the short-run, the rate hike will lead to an immediate fall in unemployment, being absorbed in several years and negligible in the long run. Nevertheless, the remaining job losses in lower socio-economic groups require more progressive policies to alleviate the inequality. In the long run, unemployment will return to the NAIRU level, monetary policies thus have no impact on it, only a sustained higher demand level can reduce it. To mitigate the side effects of the rate hike on production long-term intensive policies should incline toward capital-intensive firms.

Figure 5: Firm's maximisation

HOW WILL 'FRIEND SHORING' IMPACT THE U.S. ECONOMY? A THEORETICAL ANALYSIS

Shuo Xu[12]
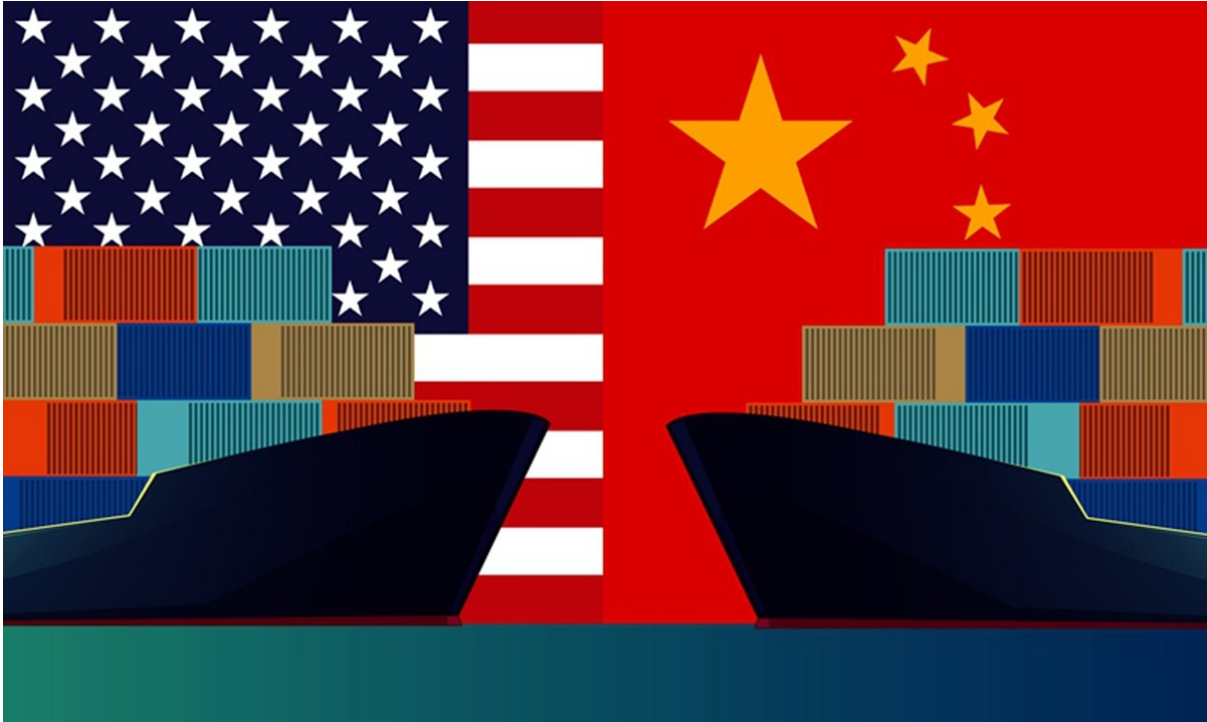
Introduction

The war in Ukraine and the Sino-U.S. geopolitical tensions have brought the U.S. to a new model of globalization – 'friend-shoring.' U.S. Treasury Secretary Janet Yellen defined the policy as reducing reliance on countries where the U.S. has geopolitical tensions and deepening ties with countries that adhere to the same set of norms and values (as the U.S.) to secure a reliable supply chain (2022). In this paper, I will analyze the short-term impacts of friend-shoring on the U.S. with the offshoring model developed by Robert Feenstra and discuss the policy's long-term impacts.

Model Underlying Discussion

Feenstra's offshoring model slices the manufacture of a final good into s tasks and ranks the value chain along an axis from 0 to 1, where 0 denotes the lowest-skilled tasks, 1 denotes the highest-skilled tasks, and each task s requires s skilled workers and $1 - s$ unskilled workers (Fig.1) (2008).
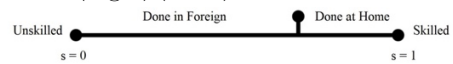

Fig.1: The continuous value chain ranked

The model assumes that Foreign unskilled labor wages, W_L^*, are lower than those at Home (W_L) (in this case, the U.S.), the relative wage of low-skilled labor to high-skilled labor is lower in Foreign than at Home ($W_L^*/W_H^* < W_L/W_H$), and the capital costs are uniform across the tasks (Feenstra, 2008; Feenstra & Taylor, 2017).

Since producing abroad also involves extra costs such as transportation, a coefficient, $T > 1$, is introduced. Therefore, the costs of labor for offshored tasks are TW_H^* and TW_L^*, while costs of labor at Home are W_H and W_L (Fally, 2018). Moreover, we mainly consider the most commonplace case of $W_H / W_H^* < T < W_L / W_L^*$, in which low-skilled tasks are offshored. Considering all assumptions, we obtain:

$$Cost\ of\ task\ s \begin{cases} at\ Home: C(s) = sW_H + (1-s)W_L \\ Offshored: TC^*(s) = TsW_H^* + T(1-s)W_L^* \end{cases}$$

where the asterisk denotes the task being offshored (Fally, 2018). As the firm seeks to minimize its costs, it would only send a task abroad when $TC^*(s) < C(s)$, which means:

$$TsW_H^* + T(1-s)W_L^* < sW_H + (1-s)W_L$$

Therefore, the firm will only offshore tasks where:

$$s < \frac{W_L - TW_L^*}{(TW_H^* - W_H) + (W_L - TW_L^*)} \equiv s^* \in (0, 1)$$

This means that lower-skilled tasks, where $s < s^*$, are offshored, and higher-skilled tasks, where $s > s^*$, are performed at Home (Fally, 2018).

Modeling Friend-shoring
As trade with Russia only comprises a small portion of U.S. trade, friend-shoring mainly means shifting away from China, the largest offshoring destination for American firms (Hammer, 2017). In the past decades, China has grown into the only country in the world with all categories listed in the United Nations industrial classifications and built an extensive logistic network (Rapoza, 2019; Wei, 2020). The well- developed industrial infrastructures have greatly improved the speed and efficiency of manufacturing and transportation (Wei, 2020).

Shifting supply chains away from China will mean higher production and transportation costs as firms no longer enjoy China's efficient industrial infrastructures. Costs from building facilities and rebuilding supply chains will incur as well. The higher costs imply a higher T in the offshoring model, which means $T' > T$. As firms would only send a task abroad when $TC^*(s) < C(s)$, an increase in T will lead to less offshoring, that is, a lower s^* (shown in Fig.2 as $s^{*'}$).

Fig.2: The value chain under friend-shoring

As a result of the higher costs, the previously offshored tasks between $s^{*'}$ and s^* ($s^{*'} < s < s*$) are now done in the U.S.

Impacts on the Labor Market
To explore the impacts of a lower s^*, we assume that there are Q final goods in the U.S. Therefore, the number of skilled and unskilled workers needed in the U.S. are:

Skilled: $Q \int_{s=s^*}^{1} s\, ds = Q(1-s^*)(1+s^*)/2$
Unskilled: $Q \int_{s=s^*}^{1} (1-s)\, ds = Q(1-s^*)^2/2$

(Fally, 2018). We can observe from the two downward-sloping equations that as s^* decreases, the demand for both skilled and unskilled workers will increase in the U.S., indicating that shifting supply chains away from the efficient network in China will not only bring jobs to the 'friendly' offshoring destinations but also place more American workers at work.

With friend-shoring, some once-offshored lower-skilled tasks are now done in the U.S. Since the once- offshored tasks are less skill-intensive, we will observe a decrease in the U.S. relative demand for skilled labor. As the relative demand for skilled labor declines, the skill premium (W_H / W_L) will, in turn, drop (see Fig.3).
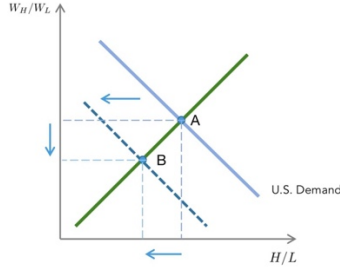

Fig.3: Change in the skill premium and the relative demand for skilled labor

Impacts on Price Levels

While the labor market is a significant factor that policymakers consider, the potential impacts of friend- shoring on prices shall also be examined. From our model above, we know that the original price level for the final product in the U.S. is:

$$P_F = \int_{s=0}^{s=s^*} TC^*(s)ds + \int_{s=s^*}^{1} C(s)ds \; < \int_{s=0}^{1} C(s)ds$$

With higher offshoring costs $(T' > T)$ and fewer tasks offshored $(s^{*\prime} < s *)$, the new price level for the final product in the U.S. will be:

$$P_F' = \int_{s=0}^{s=s^{*\prime}} T'C^*(s)ds + \int_{s=s^{*\prime}}^{1} C(s)ds \qquad < \int_{s=0}^{1} C(s)ds$$
$$= \int_{s=0}^{s=s^{*\prime}} T'C^*(s)ds + \int_{s=s^{*\prime}}^{s=s^*} C(s)ds + \int_{s=s^*}^{1} C(s)ds < \int_{s=0}^{1} C(s)ds$$

Since $T' > T$ and $TC^*(s) < C(s)$, we have:

$$\int_{s=0}^{s=s^*} TC^*(s)ds < \int_{s=0}^{s=s^{*\prime}} T'C^*(s)ds + \int_{s=s^{*\prime}}^{s=s^*} C(s)ds$$

Therefore, the price level for the final product after friend-shoring will be higher than before $(P_F' > P_F)$, adding pressure to the already-high U.S. inflation.

Impacts in the Long run

Unlike the short-run impacts on employment and price levels, the long-term impacts of friend-shoring are harder to estimate and involve more uncertainties. Although the price levels of the final goods are expected to hike due to higher costs, friend-shoring's inflationary impacts can phase out in the long run as supply chain changes settle. However, as the more efficient production infrastructures are forgone for the less efficient, the American economy will suffer inefficiencies in the short and long run, implying potentially slower economic growth.

Conclusion

The offshoring model demonstrated the expected and unexpected impacts of friend-shoring on the U.S. In the short-run, unexpected by many, more jobs will return to the U.S., and the relative demand for skilled labor will decrease. Moreover, the policy will also have inflationary impacts. In the long run, the inefficiencies from friend-shoring may undermine American economic growth. Regarding the inflationary impacts, price levels should be closely monitored, and the U.S. can deploy monetary and fiscal tools when needed. If made, infrastructure investments in the U.S. and abroad may also mitigate inefficiencies.

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