A More Humble and Kinder Macroeconomics
in a Less Hyper-Globalized Post-Pandemic World

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"It's chaos, be kind."

-Michelle E. McNamara

1   Introduction

Macroeconomics was in need of significant reform, reimagination and reconstruction even before the pandemic since in the preceding period when a retreat from hyper-globalization became evident. Then came the pandemic, which challenged us and prompted us to ask what we owe each other. The pandemic prompted a major fiscal response in many countries and the added stress on global supply chains spurred further discussion of the future of globalization.

In today's less hyper-globalized post-pandemic world, there are two key challenges that macroeconomics faces as a discipline, one related to internal balance, and one related to external balance. The first challenge involves rethinking monetary policy in a world with greater and more frequent fiscal policy interventions. In this case, one key consideration involves household heterogeneity and non-linearities in the Phillips Curve, a combination that makes policy errors in stabilizing the overall stance of aggregate demand lead to asymmetric losses since it may be costlier to undershoot inflation than to overshoot it. The second challenge has to do with the limited degrees of freedom that price-taking small open economies (SOE)s have. Facing the domestic interplay between monetary and fiscal policy, as well as the pressures from abroad under high rates of exchange rate passthrough, SOEs have at most three degrees of freedom: 1) whether fiscal or monetary policy will be active; 2) how open or restrictive will the country be vis-a-vis restrictions on the current account and capital account; and 3) the government's stock of net foreign assets (NFA).

This essay argues that in response to these challenges, macroeconomics should be reconstructed with more intellectual humility and kindness. This argument is not about a tonal change, although that would be a good complement to the research agenda I am calling for. In the case of the first challenge, by intellectual humility, I specifically mean a call for a greater embrace of uncertainty in our models. Most specifically, I think our standard models should have optimal policy defined in terms of Bayesian model averaging and decision theory where being wrong in one direction might be costlier than in the other direction. By kindness, I mean a greater consideration of the consequences of our ideas for different types of agents by increasing use of heterogeneous agents in our models, especially the baseline workhorse ones. The agenda for intellectual humility and kindness has a natural extension to the second challenge. Humility on this front would involve acknowledging that SOEs may have more limited options than one might think on the basis of a model like the Mundell-Fleming model, because monetary policy gets pressure from both fiscal policy and global capital flows. Kindness would correspond to greater emphasis on the limitations and tradeoffs involved in the policymaking of SOEs and prioritizing a research agenda that focuses on the structure of international pricing power and policies that can increase the degrees of freedom that SOEs have, such as debt restructuring.

The rest of the essay is organized as follows: Section 2 delves deeper into the first challenge, by reviewing recent literature and policy discussions. To organize the arguments and to ensure the consistency of the

assumptions and conclusions, Section 2.2 develops a highly stylized model. This section concludes with a discussion of how the combination of minimal household heterogeneity and non-linearities in the supply curve can result in an asymmetrical loss function for policy, positing that a rational central bank following decision theory might behave in a way that generates inflationary bias. Section 3 tackles the second challenge, similarly reviewing recent literature and policy discussions. Motivated by an extension of the highly stylized model in Section 2.2, Section 3.2 shows that price-taking SOEs have at most three degrees of freedom. Section 4 concludes with some parting thoughts.

2 Challenge 1: Monetary policy might be facing an asymmetric loss function in the age of greater and more frequent fiscal interventions

2.1 Pandemic-era fiscal policy and inflation

The period following the Global Financial Crisis (GFC) was driven by debates about austerity and the zero-lower bound (ZLB). While earlier academic macro research favored austerity, the prolonged period of stagnation spurred debate. Before the pandemic it seemed as though both markets and the academic macro profession had settled on an understanding that fiscal policy could do more in advanced economies, where monetary policy's hands were tied at the ZLB (Furman and Summers, 2019). The policy response to the pandemic was driven by the impulse to "get it right this time" and in many countries there was a sizable fiscal package. Figure 1 suggests a positive correlation between the size of COVID fiscal packages and performance of per capita income. The latter is measured as deviation of per capita real income relative to pre-pandemic forecasts of the IMF's World Economic Outlook (WEO).

Figure 1: Size of Fiscal Packages Is Correlated With Deviations of Per Capita Income From Pre-Pandemic Forecasts
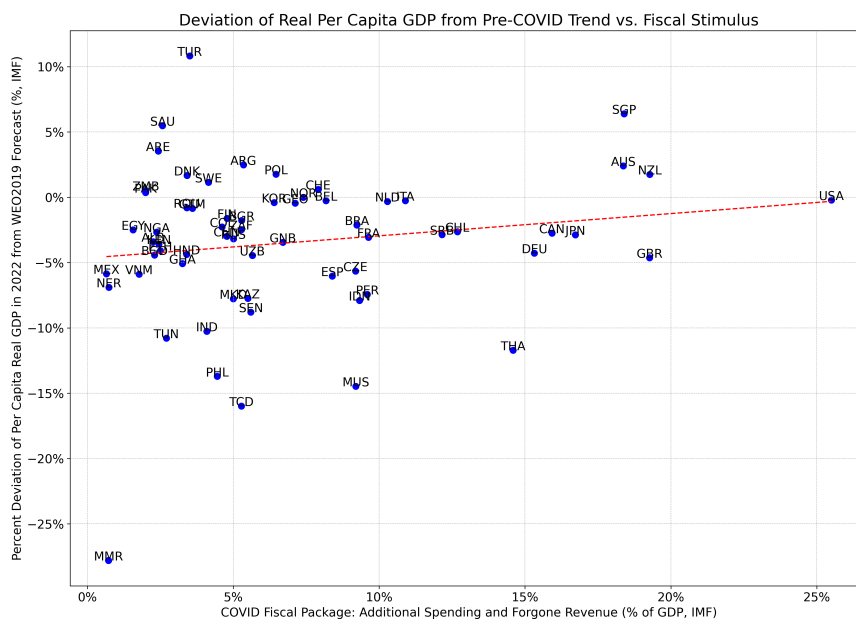
Note: Author's own calculations using IMF World Economic Outlook data and IMF data on fiscal packages.

There appears to be a significant degree of recency bias in contemporary macro discussion and it is as if we are always fighting the last war. At the outset of the pandemic both the public and academic sentiment gravitated towards the need for a substantial fiscal response in order to avoid a protracted recovery as was the case post-GFC. Then came inflation and many, including the FED, argued it was transitory. As inflation

persisted consensus seemed to shift towards demand overshooting and arguments followed claiming that the FED did not respond quickly enough. As of September 2023, there has been considerable disinflation in the United States, while unemployment has remained at record lows. This has generally led to two types of explanations, one having to do with dissipating supply shocks and another having to do with non-linearities in the Phillips Curve (Benigno and Eggertsson, 2023).

The FED has faced criticism for being behind the curve on responding to inflation. Some have used the standard New Keynesian model logic to say in response to inflation the FED should have hiked interest rates sooner (i.e. with $\phi_\pi > 1$ the policy rate responds more than one-for-one in response to inflation). This critique is a lot more nuanced than the New Keynesian model but it is worth asking: What does a central bank do in reality? Could there be reasons beyond policy inertia for a central bank to respond more slowly to inflation? A central bank assesses the strengths of various signals and hikes interest rates gradually as it gets more information. It might have concerns about things like bank balance sheets or equity. A central bank like the FED is aware of all our models and what they do can be thought of as Bayesian model averaging in the context of decision theory. In determining optimal policy, in a sense, it is solving an intertemporal loss minimization problem of the kind explcated in Section 2.3. Suppose the central bank faces an AR(1) supply shock, whose persistence coefficient is not known with certainty. Every good policy process will have some iterative aspect and some learning by doing; it would be intuitive why it might want be optimal to respond slowly to inflation as one receives more signals from the world and updates priors with Bayes rule. Prior research has established that optimal policy can have lags (Woodford, 1999) and Bayesian decisionmaking can be brought in more explicitly.

Let us momentarily put aside the "long transitory" supply shock hypothesis and consider the hypothesis that it was demand overshooting that led to post-pandemic inflation and that under a non-linear Phillips curve, with central banks hiking, it has been possible to lower inflation without causing too much unemployment. Let us suppose that the post-GFC wisdom that played a big role in the pandemic response becomes more prevalent and governments respond to downturns with countercyclical fiscal stimulus packages with greater frequency and magnitude. A key immediate concern would be fiscal sustainability. There is a history of macro literature considering whether fiscal or monetary policy "goes first," following the Unpleasant Monetarist Arithmetic (Sargent and Wallace, 1981). Leeper (1991) has shown that for price level determination within the model if fiscal policy is active (passive), then monetary policy has to be passive (active). Let us suppose that more active demand management by fiscal policy comes within the boundaries of fiscal sustainability not being violated (i.e. fiscal policy is "passive" in that expenditures and taxes are set in a way that makes debt non-explosive and monetary policy is "active" in that it is sufficiently responsive to inflation).

Even under this set of restrictive circumstances, a world in which fiscal policy is used more frequently, will be one where there is greater uncertainty about the overall stance of aggregate demand management. The probability of overshooting or undershooting the amount of fiscal stimulus that is needed is likely. How are central banks to think about this? Here increased humility and kindness can offer insights. If we consider household heterogeneity and a non-linear Phillips Curve, the central bank's loss function can be asymmetric (i.e. it will be costlier to get its inflation call wrong in one direction compared to the other). On average this can make policy slower to respond, introducing an inflationary bias, as it will try to avoid policy errors in one direction more than the other. However, this inflationary bias might actually be optimal policy.

To explore this point, below I develop a highly stylized one-page model. This is not a detailed modeling exercise; rather, I introduce a few equations to help define the causal mechanisms that I am highlighting and to introduce some notation to facilitate thought experiments.

2.2 A Highly-Stylized Model

2.2.1 Saving and borrowing households

Saving household is more patient than the borrowing household, i.e. $\beta^s > \beta^b$. Both households maximize intertemporal utility from consumption. For $i = \{s, b\}$:

$$\max E_0 \sum_{t=0}^{\infty} (\beta^i)^t u(C_t^i)$$

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and is subject to the budget constraint:

$$P_t C_t^s = N_t^s W_t - (B_t - B_{t-1}^i(1 + i_{t-1})) + F_t \qquad (2.1)$$

$$P_t C_t^b = N_t^b W_t + B_t - B_{t-1}^i(1 + i_{t-1}) \qquad (2.2)$$

where C_t^i is consumption,N_t^i is labor supply,B_t is one-period bonds that facilitate borrowing, F_t is the profits of the representative firm owned by the saving household. Solving the maximization problem yields the following equilibrium conditions:

$$u_c(C_t^s) = \beta^s(1 + i_t)E_t[u_c(C_{t+1}^s)\Pi_{t+1}^{-1}] \qquad (2.3)$$

$$u_c(C_t^b) = \beta^b(1 + i_t)E_t[u_c(C_{t+1}^b)\Pi_{t+1}^{-1}] \qquad (2.4)$$

2.2.2 Firm's problem

On the supply side production is given by:

$$Y_t = e^{z_t} N_t^\alpha \qquad (2.5)$$

A representative firm owned by the saving household, solves the following profit maximization problem

$$\max_{N_t} F_t = P_t Y_t - W_t N_t$$

which yields the firm's demand for labor:

$$\frac{W_t}{P_t} = e^{z_t}\alpha N_t^{\alpha-1} \qquad (2.6)$$

Following (Eggertsson et al., 2019), we can introduce some downward nominal wage rigidity, whereby a share of workers will not accept nominally lower wage so the wage norm, $\tilde{W}_t$, will be:

$$\tilde{W}_t = \gamma W_{t-1} + (1 - \gamma)W_t^{flex}$$

where $W_t^{flex} = P_t e^{z_t}\alpha\overline{N}^{\alpha-1}$ and $\overline{N}$ is full employment. The nominal wage has to be above the wage norm at all times $W_t \geq \tilde{W}_t$. If the firm's demand for wages yields a wage lower than the wage norm, market for labor will not clear and labor will be rationed so that

$$N_t = \begin{cases} \overline{N} & if\ \Pi_t > 1 \\ \left(\frac{1-\gamma}{1-\frac{\gamma}{\Pi_t}}\right)^{\frac{1}{\alpha-1}}\overline{N} & if\ \Pi_t \leq 1 \end{cases} \qquad (2.7)$$

To close the model let us define labor supply, fixing the share of labor supplied by each household, for analytical ease:

$$N_t = N_t^s + N_t^b \qquad (2.8)$$

$$N_t^s = sN_t \qquad (2.9)$$

$$N_t^b = (1 - s)N_t$$

where $s \in [0, 1]$ is the share of labor supplied by the saving household.

2.2.3 Policy and equilibrium

The price level in the economy above would be indeterminate if i_t were to be exogenous. Let us introduce a standard Taylor rule:

$$i_t = (\Pi_t^{\phi_\pi})\epsilon_t \qquad (2.10)$$

where

$$\Pi_t = \frac{P_t}{P_{t-1}} \qquad (2.11)$$

and ϵ_t is an exogenous policy error term.

Definition 1 *A non-linear competitive equilibrium for the model is a sequence of 8 endogenous variables* $\{\Pi_t, C_t^b, C_t^s, B_t, Y_t, N_t, N_t^s, N_t^b\}$ *and prices* $\{W_t, P_t, i_t\}$ *such that equations* (2.1)-(2.11) *hold.*

To simulate shocks, I log-linearize the model around the steady state and list the approximated equilibrium conditions in an Online Appendix, where hat notation denotes percent deviation from the steady state and note calibrated values. In this model, downward wage rigidity leads to the presence of a non-linear "Old Keynesian" Phillips Curve (OKPC) as shown in Figure 2. In this setup, given the non-linearity, an inflationary policy error does not lead to a change in output; instead, it leads to redistribution from savers to borrowers. Deflationary policy errors, however, lead to a decline in employment and output. which makes both households worse off. Figure 3a shows that a policy error shock leads to permanently higher real debt and this, in turn, leads to a redistribution of steady-state output due to interest payments. Even as the shock itself dissipates after one period, it leaves behind a permanent distributive impact.
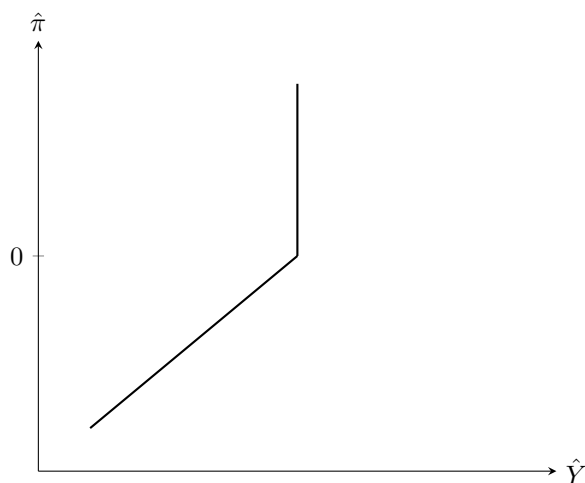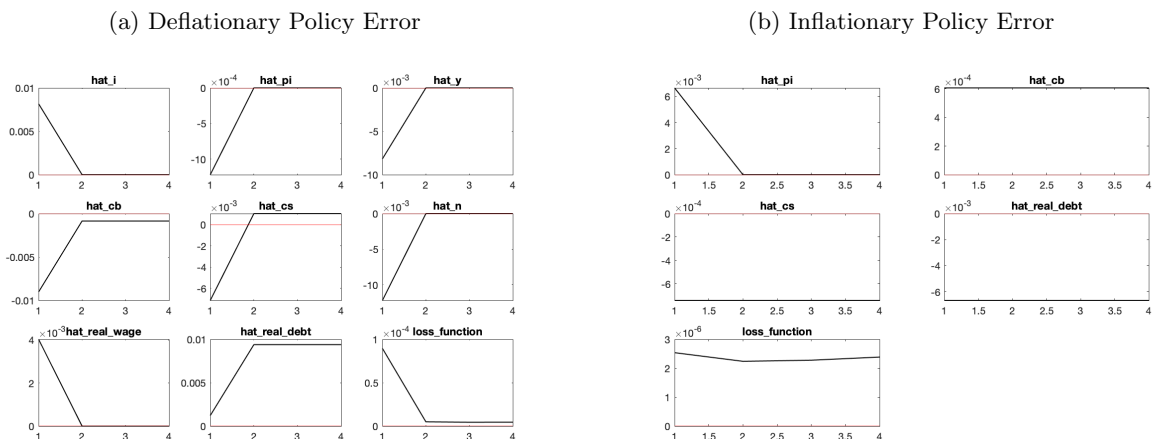
Figure 2: Non-Linear OKPC

Figure 3: Simulation of a One-Period Policy Error Shows Asymmetry of Welfare Losses

(a) Deflationary Policy Error

(b) Inflationary Policy Error

Note: In both cases, the shock is a 1% percent deviation of ϵ_t from its steady state value of 1 for one period. In the case of the inflationary shock, the economy finds itself on the vertical part of the OKPC, whereas in the deflationary shock it ends up in the upward-sloping part. The period loss function values reported above are not deviations from the steady-state and instead these represent $L_t = (s(\hat{c}_t^s)^2 + (1-s)(\hat{c}_t^b)^2)$.

2.3 Optimal monetary policy with an asymmetric loss function

Once household heterogeneity is included and there are winners and losers from overshooting or undershooting inflation (e.g. due to stock variables like debt), whose loss we should minimize is not obvious. One answer is to note that redistribution is a fiscal policy question, whereby the political process can deliver any tax and transfer, once we are at the Pareto frontier. The reality is that redistribution is a difficult question and even in the best case, given budgeting cycles, the redistributive distortions that stem from a central bank's decisions may not be easily mitigated at the same frequency. In that sense it would be helpful to not abstract away from redistributive aspects of monetary policy.

Convention is to formulate optimal policy as aiming to minimize deviations from the steady state for each agent.[1] With that definition, we can see that under heterogeneity and non-linearities, one does not need extreme wealth or wage inequality to realize that the optimal policy problem of the central bank likely involves an asymmetric loss function, if we think in terms of minimizing deviations from the steady state. In fact in the simulation in Figure 3, the share of the population who are net savers and net borrowers are equal. Even with that, the magnitude of the response of consumption is smaller in the inflationary case than in the deflationary case given the non-linear OKPC as evidenced by the period loss-function values reported in Figure 3. Thus, if we suppose that the steady state is optimal and the central bank is trying to minimize positive and negative deviations of consumption away from steady-state values, one would end up with an asymmetric loss function.

Let us assume that the central bank acts as a benevolent social planner and places weights s and $(1-s)$ to match the share of each type of agent in the population and it attempts to solve the following minimization problem:

$$\min_{\{i_t\}_{t=0}^{\infty}} E_0 \sum_{t=0}^{\infty} \beta^t [(s(\hat{c}_t^s)^2 + (1-s)(\hat{c}_t^b)^2] \tag{2.12}$$

Suppose that the shock $\hat{\epsilon}_t$ follows an AR(1) process where $\hat{\epsilon}_t = \rho \hat{\epsilon}_{t-1} + u_t$ and $\rho \in (0,1)$, and that at $t = 0$, a known shock hits so that $u_0 > 0$. The shock itself or a given shock ϵ_0's persistence ρ is unknown and the central bank has priors regarding the distribution of ϵ_0 or ρ. As time passes the central bank finds out more information and updates its priors according to the Bayes rule. What is the optimal path of $\{i_t\}_{t=0}^{\infty}$ that minimizes the lifetime volatility of the two agents' utility under this type of uncertainty? This is in a sense the type of decision theory problem that the FED faced with pandemic-era inflation. If the magnitude of the volatility is higher when policy undershoots inflation as opposed to overshoots it, a rational central bank would likely be cautious in a way that leads to an inflationary bias. In the standard representative agent setup, inflation's deviation from target indicates welfare loss and in general a higher ϕ_π is associated with lower variance of inflation and lower welfare loss; taken to the extreme as ϕ_π approaches infinity we have perfect inflation stabilization. In this setup however, the central bank's loss function will be asymmetric and as a result it might be optimal for the central bank to pick a sequence of interest rates that on average yield an inflation bias; however, this bias would be rational and optimal. This problem could be expanded and formulated more in terms of Bayesian decisionmaking by incorporating explicit learning costs.

The example above is stylized to be thought-provoking. Had this been a representative agent New Keynesian model, where inflation itself is a distortion, a setup in which inflation could increase a lot with little to no effect on output would actually make overshooting inflation costlier for a policy maker. This, in turn would create a deflationary bias as opposed to an inflationary bias. The larger point is that non-linearities alone need not create issues for the formulation of optimal policy; its combination with household heterogeneity, however, makes the problem more difficult to formulate.

Household heterogeneity has a long history in economics (Imrohoroglu, 1989; Huggett, 1993; Aiyagari, 1994; Krusell and Smith, 1998). With notable exceptions, like (Galor and Zeira, 1993), however a lot of focus has been on whether heterogeneity matters for aggregation. Recent research explores broader impacts

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[1]One can alternatively define societal welfare as the deviation of the sum of the two agents' utility from steady-state levels; however, that could be misleading. For example, in Figure 3b, there is redistribution from the savers to the borrowers and that shows up as an increase in total welfare, since inflating away the debt, redistributes from net savers to net borrowers and the latter (are more impatient so the utility they get from moving forward consumption more than offsets the utility loss of savers. That is if one believes in summing units of "utils" across different types of households in a utilitarian manner.

of heterogeneity; even so in many papers exploring optimal policy (e.g. with HANK models) they by and large find optimal policy that looks similar to representative agent New Keynesian models, where household heterogeneity makes little difference and when it does it makes a difference because there is an incentive to redistribute (Kaplan et al., 2018; McKay and Wolf, 2022; Dávila and Schaab, 2023). One could argue that is in part because their Phillips Curves are linear and these papers are focusing on a central bank with symmetric rather than asymmetric loss functions. When one combines a non-linearity like the OKPC with household heterogeneity, the resulting asymmetry of the loss function might imply that there is an inflationary bias, that is optimal, even when one does not have an incentive to redistribute in a utilitarian manner. Recently the literature has been embracing heterogeneity and furthering of this trend would be greatly welcome. Similarly, a number of sources have thought about asymmetric loss functions and more work on this that combines it with household heterogeneity would be in line with the agenda of greater humility and kindness in macroeconomics (Sweidan, 2008; Doyle and Falk, 2010).

3 Challenge 2: Small price-taking economies might have limited degrees of freedom

3.1 Changes in the global economy and the literature

The concept of a more humble and kinder macroeconomics can and should be extended to the study of international economics as well. A cornerstone of international economics is the famous impossible trinity or the trilemma, which argues that a country can have two out of the following three: perfect capital mobility, independent monetary policy and exchange rate stability. Rodrik (2011) argued for a new trilemma in which nations had to choose two out of the following three: hyper-globalization, national sovereignty and democracy, where hyper-globalization is defined as textbook economic integration and the lack of transaction costs for the cross-border flow of goods, services and capital. It would be fair to say that this type of hyper-globalization is on the decline if we consider the fact that the share of trade in world GDP has been declining since the GFC (Figure 4). Since trade and finance are two sides of the same coin, it is not surprising that we see a stalling trend in the cross-border flow of capital in Figure 5. In a similar vein, whereas deviations from covered interest parity used be almost non-existent among advanced economies, these deviations are now more common. It is open to interpretation as to whether what we are seeing is the result of deliberate policy choices, whereby countries are choosing to assert their national sovereignty and democracy over hyper-globalization, or the result of some natural trends (e.g. as countries grow they tend to consume more locally produced services).

Figure 4: Post-2008 Decline In the Flow of Goods and Services
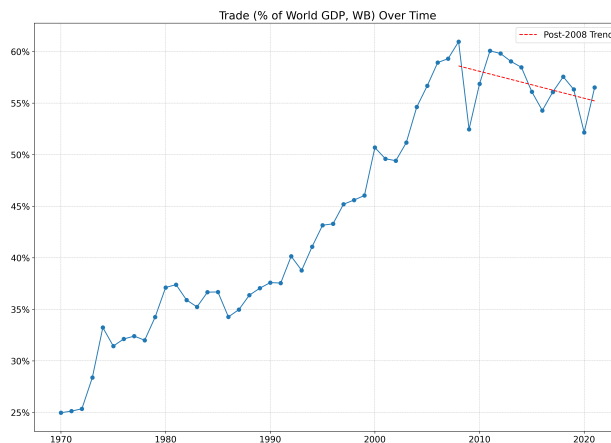
Source: World Bank Data.

Figure 5: Capital Openness and Flows Have Stalled in the Age of "Dilemma not Trilemma"

(a) Chinn-Ito Index

(b) External Wealth of Nations Database
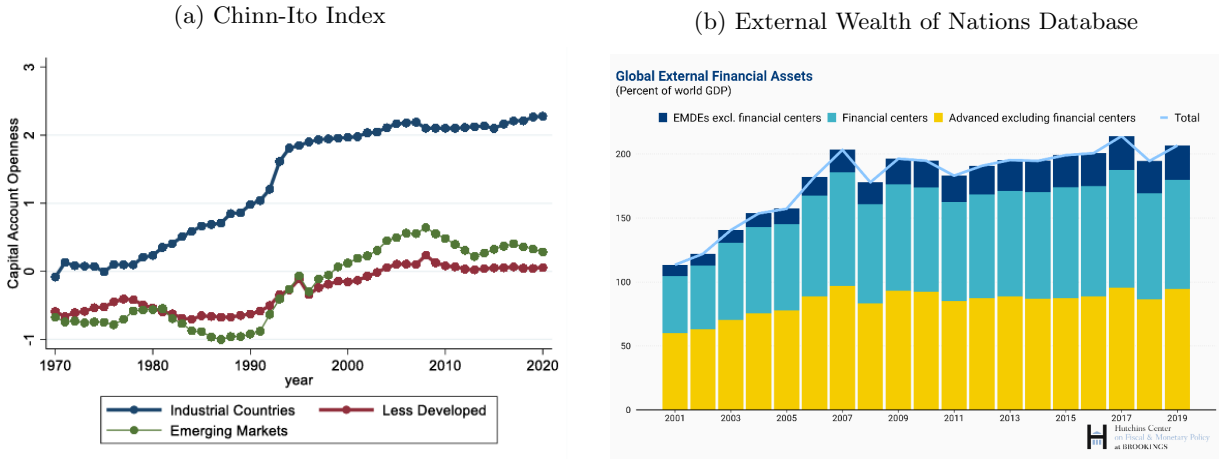
Note: The figure on the left is from Chinn and Ito (2020) and the figure on the right is from Milesi-Ferretti (2022).

While causality is difficult to establish; there are signs that some of these trends can be linked to policy. On the trade front, the literature has given a lot of attention to the backlash to global trade. Evenett (2019) documents the increase in protectionist measures adopted by governments since the GFC and finds that since 2013, more than 70% of global exports faced at least one or more post-GFC trade distortion, rising from 39.98% in 2009. On the flow of capital, capital controls are becoming more popular both as a subject of study and possibly also as policy tools. Rey (2015) put forward the idea that the impossible trinity is a fallacy and that there really is a a dilemma given the presence of a global financial cycle and "independent monetary policies are possible if and only if the capital account is managed." (Farhi and Werning, 2014) showed that there exists an optimal level of capital controls, which helps lean against the wind and smooth capital flows in response to risk premium shocks. Espino et al. (2023) study the case of fixed exchange rate regimes where the growth rate of domestic credit exceeds depreciation; they find that capital controls can delay but not prevent the kind of collapse foreseen by Krugman (1979) and that import controls can stop the decline in NFA, but this results in a distortionary misallocation of resources. Even the IMF revised its stance regarding capital controls and published an institutional view that notes that "capital flow management mechanisms" can be useful in some instances (Fund, 2022). A key underlying factor, in the dilemma debate is the fact that optimal monetary policy may be different under different pricing assumptions. Dmitriev and Hoddenbagh (2014) show that under producer currency pricing (PCP) the combination of floating exchange rate and inflation targeting is optimal, while Devereux and Engel (2007) have shown that under local currency pricing (LCP) pegging might be optimal. Egorov and Mukhin (2023) show that under dominant currency pricing (DCP) the combination of inflation targeting and a floating exchange rate regime remains optimal.
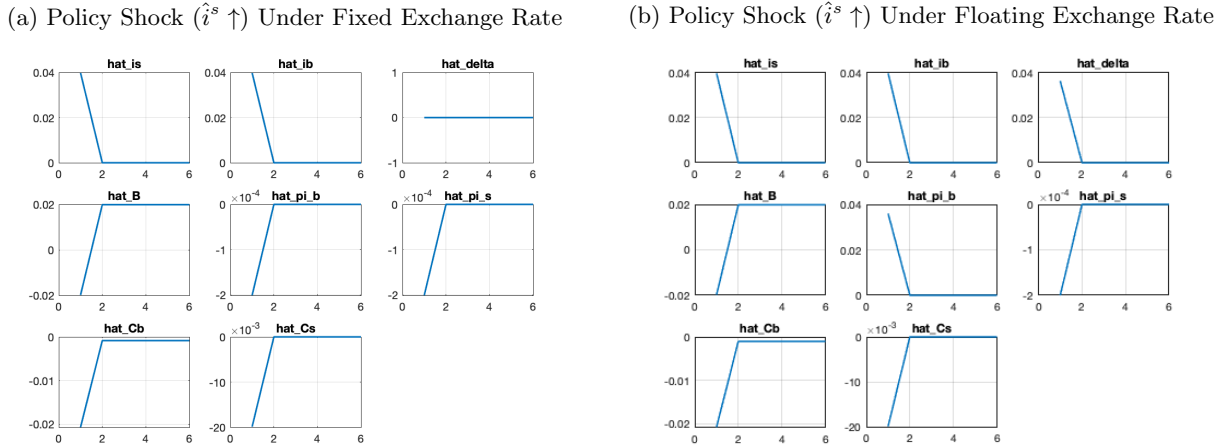
3.2 An SOE's degrees of freedom

Where do the changes in the global economy and international macroeconomics literature leave us with regards to the degrees of freedom a price-taking small open economy might have? To motivate this discussion, in the Online Appendix, I extend Section 2.2's model, by considering the borrowing household and saving household as different countries. Under the law of one price and uncovered interest parity (UIP) condition, if we assume the borrowing country has a steep Phillips Curve (e.g. on the vertical part of the OKPC), while the rest of the world has a relatively flat Phillips Curve (e.g. on the non-vertical part of the OKPC), policy shocks in the rest of the world produce the same consumption allocation in the borrowing country.[2] This is an example of Rey (2015)'s finding, because perfect capital mobility is ensured with the UIP condition. Under this extreme example, the borrowing country has no pricing power, and the choice of exchange rate does not act as a mitigating factor. If the exchange rate is fixed, borrowing country hikes when the FED

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[2]The model behaves like a micro-founded Mundell-Fleming model, when both countries have upwards-sloping Phillips Curves, so this result hinges on having different slopes for the Phillips Curve in the two countries.

hikes (e.g. $\hat{i}^s \uparrow$ can be thought of as an overtightening by the FED) to prevent capital outflows. If it floats and does inflation targeting, the borrowing country will hike when FED hikes, because otherwise exchange rate depreciation will lead to higher inflation.

Figure 6: Demonstrating the Dilemma: Under Perfect Capital Mobility, Floating and Fixing the Exchange Rate Can Yield the Same Allocation

(a) Policy Shock $(\hat{i}^s \uparrow)$ Under Fixed Exchange Rate

(b) Policy Shock $(\hat{i}^s \uparrow)$ Under Floating Exchange Rate

Note: Details are copied in the Online Appendix. Here I consider the case of a borrowing country that has 1% of the population of the rest of the world (i.e. saving country). The shock is a policy error in the saving country hat_is $(\hat{i}^s_t)$. On the left, policy in the borrowing country aims to fix the rate of devaluation hat_delta at 0; on the right policy follows a Taylor rule.

In light of the literature and this example, we can bring in two considerations to the trilemma discussion, fiscal policy and structure of passthrough, while emphasizing a consideration that is already there, which is the level of international reserves. In discussing how many degrees of freedom SOEs have, it is not common to think of fiscal policy as the focus is on monetary policy and exchange rates. It will be helpful to do, because in the SOE setting, even if the central bank is nominally independent monetary policy, gets pressure from two fronts: on the one side by fiscal policy and on the other side by pressures from abroad (e.g. transmitted via the capital account). Since international pricing power or exchange rate passthrough is not the result of short-run policy choices, in practice it appears that price-taking small open economies may have at most three degrees of freedom in short-run macroeconomic policymaking and inflation stabilization: 1) whether fiscal or monetary policy will be active in the sense that Leeper (1991) defined it; 2) how open or restrictive will the country be vis-a-vis restrictions on the current account and capital account; and 3) stock of NFA in the government's consolidated balance sheet.

Figure 7: Degrees of Freedom for a Central Bank in a Price-Taking SOE
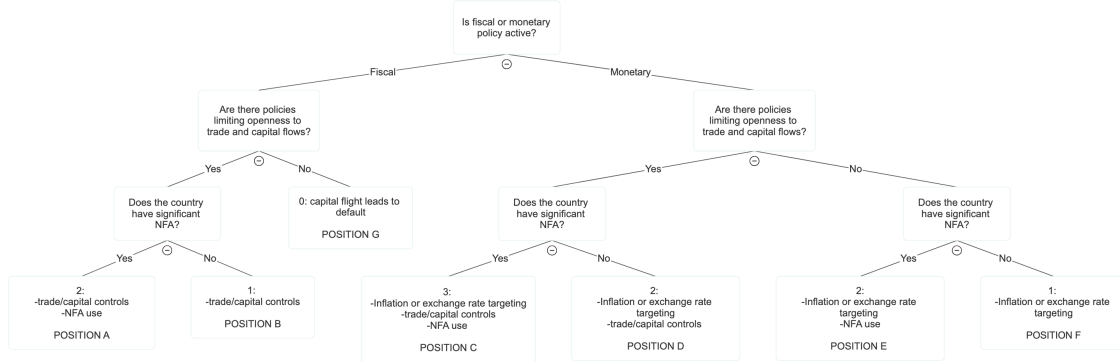
Note: This figure was created to visualize the degrees of freedom that an SOE central bank has if it has little international pricing power. Ethiopia, an example mentioned below, is in Position B (in order to avoid Position G). Position F corresponds to the experiment in Figure 6. Turkey, another example mentioned below, corresponds to Position D after its forced 2023 course correction.

With the first degree of freedom, if fiscal policy is active (i.e. debt is not sustainable) and monetary policy is passive the result would be classical fiscal dominance, whereby the central bank, even if it is nominally independent, will be forced to accommodate (e.g. either in the form of direct transfers to the government where seigniorage is a core practice or by hesitating to raise interest rates), because not doing so would risk default. If fiscal policy is passive (i.e. debt is sustainable) and monetary policy is active (i.e. the central bank does inflation targeting), then the country may achieve price stability. However, this may come at the cost of being unable to counter external pressures as suggested above (Position F in Figure 7).

With the second degree of freedom, by choosing openness vs. closedness, policymakers can attempt to counter external pressures and prevent their unsustainable domestic policies leading to capital flight; however, this comes with distortionary costs. Consider the case of Ethiopia (Position B in Figure 7), where traditional seigniorage takes place in the form of the treasury borrowing from the central bank via direct advances. It also has capital controls, which are imperfect as all capital controls are. If it were to lift capital controls and the financial repression that these policies enable without fixing its underfunded fiscal deficit, capital would flow out of the country and the "tax base" for seigniorage would shrink worsening inflation and risking default (Position G in Figure 7). The country has a parallel market for foreign exchange, which reflects that policy choices are distortionary and rationed foreign exchange is not going where it is most productive within the country; however, in a larger sense policymakers are making a choice. They have active fiscal policy and passive monetary policy and they choose to mitigate the consequences from this with distortionary capital controls to the extent that they can and whatever pressure remains in the system shows up as high inflation (González-Rozada et al., 2023). It is important to note that "closedness" is not a fully viable choice in our time. Capital controls and import control measures can and often are circumvented. In a setting like (Farhi and Werning, 2014), where optimal capital controls involve taxes that are transferred back as a subsidy, distortions can be mitigated; however, under more distortionary measures such as strict import controls there will be welfare loss.

The third degree of freedom, offers the chance for an SOE to counter short-term fluctuations by leaning against the wind. If for example, the central bank builds up international reserves when the global financial cycle leads to excess capital inflows and does the reserve during downturns, then this could provide a key additional tool. Empirically, however, the use of the interest rate defense appears to be common. Huertas (2022) conducted an analysis on why emerging market (EM) central banks tend to "follow the FED," that combines quantitative analysis with interviews conducted with 32 central bankers, where many have explicitly highlighted capital flows and passthrough to inflation as reasons why the response to FED tightening is often rate hikes by central banks. Responses to two interview questions from this paper are reproduced below in Figure 8. Notably the theme of asymmetry comes up again as EM Central bankers note that they would be more responsive to a rate hike by FED than a rate cut. These findings suggest that for many countries their stock of NFA are likely not large enough to comfortably wait out the storm or that they have a preference to keep a lot of reserves (e.g. because they do not know how long a higher interest rate regime by the FED

might last). In either case this limits the practical applicability of the third degree of freedom (i.e. Position A, Position C and Position E in Figure 7 may be less common). That said, notably, some countries like Turkey and Ethiopia have been able to run down their central banks' net international reserves deeply into negative territory and as they did so, differing levels of capital flow measures were adopted. This serves as a reminder that, until they run out of runway in terms of reserves, policymakers can keep unsustainable combinations of fiscal and monetary policies with a combination of increased closedness and utilization of pre-existing NFA.

Figure 8: Interviews of Huertas (2022) With EM Central Bankers Indicate Asymmetry

Question 4: *"On a scale of 1 to 5, how much do each of the following variables influence your decision to respond, insofar as they are affected by a change in US rates?"*
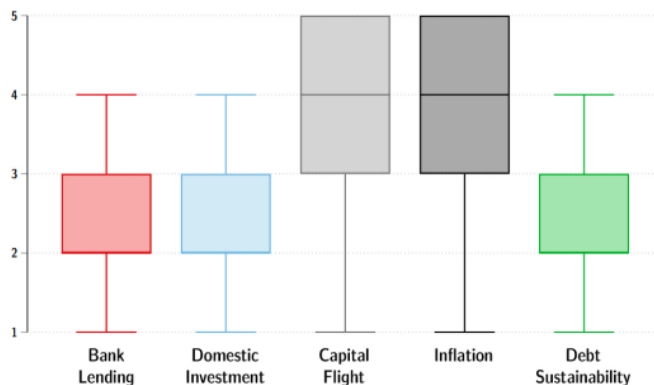
Question 5: *"Is a US rate increase equally as relevant as a US rate decrease? (ie. would your monetary policy reaction be symmetric?)"*
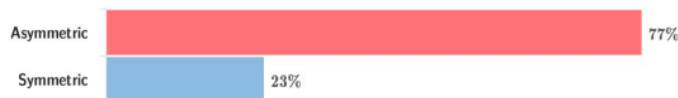
Sources: This figure was published by Huertas (2022) and reproduced here.

We can apply the agenda for humility and kindness to this context as well. Here humility means recognizing limitations of policy in the SOE context as noted above. Kindness would translate to promoting a research agenda that emphasizes the tradeoffs that are involved and ways to increase the degrees of freedom in SOEs. From a decision theory important questions where we might have imprecise (i.e. as it relates to difficulty of causal identification in macro) answers can and should be prioritized. For example, as explored above, it may be the case that the Rey (2015)'s dilemma finding hinges on the pricing assumption that is involved. That has crucial implications for both practical policy considerations and academic research. For some time, PPP, PCP, LCP and DCP were mainly assumptions that went into a model and in that sense, they were tools and not results. More work in this area, such as Gopinath and Stein (2021) that endogenously derives the pricing structure (i.e. dominant currency invoicing) from first principles would be greatly welcome. An agenda like this would also involves an exploration of options like debt restructuring (with commitments that ensure true fiscal sustainability) and FED swap lines for developing countries. These questions especially those that are about possibilities rather than past occurrences may not be the easiest to publish; however, there are great societal benefits from prioritizing them.

4 Conclusion

We need to be humbler about the limits of our knowledge and policy, because the last few years have shown there is too much uncertainty and the right approach will involve continuously updating our priors and acknowledging that we might be dealing with asymmetric loss functions in a world full of non-linearities and heterogeneity. We need to be kinder in considering how our proposed policies might impact different types of agents differently. At all points we should be thinking about the human costs of our ideas if they turn out to be wrong. Economics is a powerful profession and millions may gain or lose livelihoods as a result of our ideas if they influence decision makers, especially inside central banks.

Weber (1904) wrote on the objectivity of science, emphasizing the subjective elements of science; even the very act of a scientist picking a topic to study reflects some prioritization and values. I do not think that we can ever be fully objective in the sense of a completely disaffected philosopher king, a role that some may ascribe to central banks. Instead our values will always be implicitly or explicitly reflected in our research. I hope this essay can serve as a reminder for us to make humility and kindness the values that drive our research.

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