Mathematical Finance Company
QTSM CIR Green's Function Multifactor CIR and Affine Options SIRP ESG RS-ESG DMRP RS-DMRP

May 14, 2024

Honorable Mike Yanacheak
Chair, Generator of Economic Scenarios, GOES Subgroup
National Association of Insurance Commissioners

Re: Model Governance and Forward Calibration

Dear Mr. Mike Yanacheak,

Please accept this comment on the governance of the GOES generator. This discusses the topic of forward calibration to economic data and models based on the microfoundations of economics. This has relevance to the risks of extended low rates and also of low corporate profits and higher default rates on corporate bonds. These scenarios are of especial interest for the risks of offshore reinsurance and pension risk transfer that are invested into risky tranches of collateralized debt obligations. Some of the risk may be missed without forward calibration to the economic microfoundations of the GOES descriptve model type generators.

Sincerely yours,

Mark S. Tenney

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Generator of Economic Scenarios, GOES, Model Governance IMF and World Bank 2024 Spring Meetings Polycrises, Quagmires, Bottom Traps, and Downward Spirals PQBTDS- Integration of Global North and South Lucas Style Critique of Descriptive GOES Model Backward Calibration Forward Calibration to Microfoundations Draft and Preliminary Comments and Corrections welcome 08:45

Mark S. Tenney

Tuesday 14th May, 2024

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Chapter 1

Intro

1.1 Forward Calib Intro

The IMF and World Bank 2024 Spring Meetings were in part focused on the polycrisis, as some see it, in the Global South. The IMF and World Bank leadership lost control of the narrative as the week long meetings went on, and many participants said that the polycrisis in the Global South was real, that it was now and it was growing and would not be solved by routine dialogue with the IMF and World Bank. The leadership of the IMF and World Bank attempted to walk back this message at the end of the week.

The IMF and World Bank have been pointing to a global slow down in the growth of total factor productivity. This started in the Global North in the 1970s. In some countries, it has been severe.

In Canada, total factor productivity has not changed since the 1970s. If one assumes even a modest increase in capital effectiveness, this means that labor effectiveness must have gone down in Canada due to the large inflows of labor from the Global South since the 1970s.

Total Factor Productivity at Constant National Prices for Canada (RTFPNACAA632NRUG) https://fred.stlouisfed.org/series/RTFPNACAA632NRUG

”World Must Prioritize Productivity Reforms to Revive Medium-Term Growth Without ambitious steps to enhance productivity, global growth is set to fall far below its historical average”

Nan Li, Diaa Noureldin April 10, 2024 https://meetings.imf.org/en/IMF/Home/Blogs/Articles/2024/04/10/world-must-prioritize-produ ctivity-reforms-to-revive-medium-term-growth

Total Factor Productivity at Constant National Prices for United States (RTFPNAUSA632NRUG) https://fred.stlouisfed.org/series/RTFPNAUSA632NRUG

U.S. Total Factor Productivity Slowdown: Evidence from the U.S. States Author/Editor:Roberto Cardarelli ; Lusine Lusinyan https://www.imf.org/en/Publications/WP/Issues/2016/12/31/U-S-Total-Factor-Productivity-Slowdown-Evidence-from-the-U-S-42967

If one assumes that there has been a higher increase in the effectiveness of capital than the rate of increase of total factor productivity, then that implies that there has been a decline in labor effectiveness in the US from the inflows of labor from the Global South.

1 – 1 Polycrisis now or just a threat?

https://www.ndi.org/our-stories/polycrisis-how-unchecked-public-debt-fuels-corruption-and-bad-governance

A session on the IMF. This is more focused on the Global South. "The Polycrisis - How Unchecked Public Debt Fuels Corruption and Bad Governance"

https://www.imf.org/en/Videos/view?vid=6351187004112

A more general view than just the Global South is here.

https://www.weforum.org/agenda/2023/01/polycrisis-global-risks-report-cost-of-living/

1 – 2 Mexico is in a very deep monocrisis on total factor productivity, maybe a polycrisis

Both Canada and Mexico are already in crisis situations in terms of total factor productivity. Mexico's total factor productivity has actually gone down substantially since the 1970s. This is due in part to the drain of young adults to migration to the US.

The IMF and World Bank have began to emphasize that the Global South's problems are in part due to migration to the Global North of their young adults. This robs them of growth and the ability to support their aging populations. It also means they have only a tiny budget to spend on climate change prevention measures.

https://www.imf.org/en/Blogs/Articles/2024/04/23/latin-americas-shifting-demographics-could-undercut-growth?utm_medium=email&utm_source=govdelivery

Mexico is behind on controlling emissions. https://yaleclimateconnections.org/2024/04/what-is-mexico-doing-about-climate-change/

Gita Gopinath of the IMF and others were emphasizing that the developing world is spending more on debt servicing than on health, education and welfare. Climate change spending comes behind those and is squeezed to a tiny amount.

Total Factor Productivity at Constant National Prices for Mexico (RTFPNAMXA632NRUG) https://fred.stlouisfed.org/series/RTFPNAMXA632NRUG

This decline in Mexico's TFP is remarkable. Together with the large illegal border crossings into the US, Mexico could be considered to be in a polycrisis.

1 – 3 Canada is in a deep monocrisis on total factor productivity growth

Canada has had no growth in total factor productivity since the 1970s. This could be the main reason for considering it in a polycrisis. A monocrisis in total factor productivity inevitably is caused by and manifests itself in other crises and problems. Some other statistics are consistent with this assessment. Some are not.

Average earnings over the period since the 1970s are harder to piece together for Canada. As in the US, there are subperiods in this time that look better than others. Average earnings rise more than median because of excess rises at the top.

Some links on Canadian wage movements that are at odds with each other in some cases follow. Some are distinctly more positive than others.

https://www150.statcan.gc.ca/n1/pub/14-28-0001/2020001/article/00006-eng.htm

https://www150.statcan.gc.ca/n1/pub/75-001-x/1993002/57-eng.pdf

Statcan does not make it easy to find a pieced together long series on median or average earnings and broken out by gender. The following article pulls together disparate data from Statcan and finds little earnings change over the period from the 1970s to 2017.

https://globalnews.ca/news/3531614/average-hourly-wage-canada-stagnant/

https://publications.gc.ca/Collection-R/LoPBdP/BP/prb015-e.htm

https://www65.statcan.gc.ca/acyb02/1967/acyb02_19670756015-eng.htm

1 – 4 Backward calibration misses the crisis in Total Factor Productivity

Backward calibration of the Generator of Economic Scenarios (GOES) to descriptive level financial market data misses the forward looking crisis of low total factor productivity. Thus it may embed in the scenario projections parameters too much optimism about future economic outcomes.

If labor effectiveness in the US is falling due to labor inflows from the Global South, then backward looking calibrations of the GOES model to financial market data will miss the fall of corporate profits from declining labor effecitness. This will them miss lower equity returns, higher corporate defaults and much higher defaults and failures of risky tranches of corporate debt obligations that are used in offshore reinsurance and pension risk transfer schemes.

Slow or even declining TFP is a polycrisis generator because it will squeeze corporate earnings, wages, government budgets, climate change measures, and social and economic resilience. This will lead to social and economic fragmentation in both the Global South and Global North.

The squeeze in corporate earnings will lead to rising corporate defaults and to severe losses on risky tranches of CDOs. It will also cause equity indices to grow slower and have longer periods of little growth or even substantial decline in some scenarios. In some scenarios, even medium risk tranches of CDOs will fail to payoff.

These losses will cause offshore reinsurance invested in risky tranches of CDOs to fail. It will also cause failure in pension risk transfer that is invested into risky tranches of CDOs. These can overwhelm state guarantee funds.

If public sector pensions follow the same path of investments and even try some pension risk transfer, there may be shortfalls in state and local pensions. This can place state and local governments under extreme budget constraints.

1 – 4.1 Lucas style critique of backward calibration of GOES generator

Macromodels failed in the 1970s due to a lack of microfoundations and a lack of forward looking rational expectations. Lucas of the University of Chicago made a famous critique of these models lack of microundations as the source of their failure. This included a failure to have forward looking rational expectations based on the changing behavior of the agents in an economic model, including workers, corporations, consumers and government.

Descriptive economic scenario generators that lack forward based calibration to economic data and that fail to take account of the global flows of labor and capital will miss extended periods of low or negative rates as well as squeezing of corporate profits and higher rates of corporate defaults and the consequent failure of offshore reinsurance and pension risk transfer based on investment in risky tranches of corporate bond and debt obligations.

1 – 5 Government interest rates can be low or negative in some scenarios

In some scenarios where total factor productivity growth is zero or even negative, the marginal product of capital can be very low or even negative. It can be negative because of declines in the effectiveness of labor or because the US is a safe haven for excess global capital which is then invested even though the marginal return on capital is negative. This is the risky rate of return on capital. Thus government interest rates will be below this negative risky capital return. So US government interest rates can be deeply negative in some scenarios and not change from those levels for extended periods. This is because of the US's unique position as the safe haven of last resort for excess global capital. This can cause US government interest rates to be the most negative in the world for extended periods.

1 – 6 Public model for forward calibration to economic data

There needs to be a complete public model for GOES that can be calibrated to fundamental economic data. The public model can then be used to calibrate the vendor private model if that structure is retained. The complete public model has to cover corporate defaults, equity, and interest rates in an integrated framework.

1.2 Offshore reinsurance and pension risk transfer

Offshore reinsurance and pension risk transfer to insurance are based on investing in risky traches of collateralized debt obligations and related instruments. These strategies can fail in the IMF and World Bank flavored scenarios considered here.

Senate interest in offshore reinsurance and pension risk transfer has helped shed light on these.

2 – 1 Senate hearings 2022

https://www.brown.senate.gov/newsroom/press/release/sherrod-brown-continues-push-private-equity-firms-involvement-insurance-industry

https://www.c-span.org/video/?522705-1/hearing-insurance-industry-practices

2 – 2 IMF Spring Meetings 2024

https://www.imfconnect.org/content/imf/en/annual-meetings/calendar/open/2024/04/15/183575.html

This included participation by Steven Seitz, Director US Federal Insurance Office, and Nellie Liang Chair, FSB SCAV and Under Secretary, U.S. Treasury.

Seitz gives a comment around 1:27, that is hours and minutes. The video is for the whole block.

1.3 IMF World Bank 2024 Spring Meetings

At the IMF and World Bank 2024 Spring Meetings, a major focus was on the polycrisis in the Global South. The IMF and World Bank senior leadership are reluctant to completely embrace this view. At least one speaker indicated that this is an ongoing dialogue with the IMF and World Bank.

3 – 1 Polycrisis at Civil Society Forum Spring 2024

The Civil Society Forum is part of the IMF and World Bank meetings and is inside their buildings.

Nonetheless, the term was used to describe at least one session.

https://www.imf.org/en/Videos/view?vid=6351187004112

"The Polycrisis - How Unchecked Public Debt Fuels Corruption and Bad Governance"

Thursday April 18, 2024.

3 – 2 Other related sessions

The common framework is an initiative started by the G20 to deal with the debt situation in the developing world.

https://www.imf.org/en/Videos/view?vid=6351419194112 Navigating the Intertwined Debt and Climate Crises - Unveiling and Assessing Solutions

Seminar: Capital flows and growth: where is the money going? Friday, Apr 19, 2024 — 12:30 PM - 1:30 PM https://www.imfconnect.org/content/imf/en/annual-meetings/calendar/open/2024/04/19/182933.html?calendarCategory=T3Blbg==

US debt service costs

https://markets.businessinsider.com/news/bonds/us-debt-economy-outlook-government-spending-deficit-bond-market-treasuries-2023-9?op=1

"It cost the US $695 billion to service its debt the last fiscal year, according to the Office of Management and Budget, or just around 2.5% of US GDP. "

Some interesting comments on the meetings are here.

https://www.politico.com/newsletters/global-playbook/2024/04/19/workers-of-the-imf-unite-00153281

IMF Today has summaries of each day. https://www.imfconnect.org/content/imf/en/meetings/SM24/IMFToday.html

Richard Quest hosting a lively session on AI. "Seminar: Debate on the Global Economy: The Macroeconomic Implications of AI APRIL " https://www.imf.org/en/Videos/view?vid=6351181584112

3 – 3 IMF leadership walking back the polycrisis

By Saturday morning, April 20, 2024, at the end of the week in the last session, the IMF leadership felt it necessary to walk back the polycrisis talk in many of the sessions during the week. They were worried that the impression had been made that the Global South was bankrupt and that further lending by public or private groups was throwing good money after bad. It was not their intent to scare the investing community into not investing in these countries.

https://www.imfconnect.org/content/imf/en/annual-meetings/calendar/open/2024/04/20/183319.html?calendarCategory=T2ZmaWNpYWwvQnkgSW52aXRhdGlvbg==.UHJlc3M=.V29ybGQgQmFuaw==.T3Blbg==

"Fiscal Forum: Leveraging Fiscal Rules and Frameworks to Navigate Today's Fiscal Challenges"

Saturday, Apr 20, 2024 — 11:00 AM - 12:15 PM

1:09 in -6:42 from end.

Gita Gopinath:

"We don't see a systemic crisis" "Several countries in distress." "Not a systemic debt crisis."

"US deficits very large. Increasing debt levels." "Growth", "Higher interest rates, stronger dollar." "Complications for the world." "Article 4". "Debt ceiling risk. Doesn't help." "US do more in raising revenues."

In effect, they had lost control of the narrative during the week, and the outside groups and speakers had painted a picture much darker than the IMF and World Bank leadership had intended.

US Article 4 consultation from June 15, 2023.

https://www.imf.org/en/Publications/CR/Issues/2023/06/14/United-States-2023-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-534755

1.4 Zambesi Scenario: Global Capital Flow South

In the Zambesi scenario, the IMF and World Bank decide that they want to stimulate global capital to flow south by cutting off global labor flows north. They are able to persuade national governments to implement the total cutoff of labor from outside the developed nations.

Ideally, this would be a total and permanent cutoff without any loopholes or exceptions. Global capital would have no hope for global labors flow north so that they would be forced to invest excess global capital in the Global South.

The name Zambesi Scenario comes from the fact that the Zambesi river flows south. In this scenario, global capital flows south instead of global labor flowing north. In the Nile Scenario, global labor floods north and leads to even worse problems.

Initially, Global Capital, would be resistant to this and continue to invest in safe havens in the Global North. Without labor flows into the Global North this would cause the capital to labor ratio to soar in the Global North. That would reduce the marginal product of capital. If this was continued, the marginal product of capital would fall below the rate of depreciation of capital. In this situation, capital investments would not produce an increase in the stock of capital, because depreciation on capital decreases the stock faster than savings out of output increase it. This is the Solow Swan maximum.

In addition, as the capital to labor ratio rose, wages would rise. The excess global capital trying to find investment would spark start up firms in the Global North, and pull in idle workers including from marginal groups such as the old, minorities, new graduates from high school and college without skills, the long term unemployed, even the homeless. As this process went on, wages would continue to rise and reduce corporate profits.

Large public corporations that have developed excess bargaining power over the last 60 years from the inflow of global labor and the higher labor participation rates of women would see a reversal of their bargaining power. They would no longer be able to transfer costs such as depreciation, and government and social mandates to workers, vendors, and customers. Instead, they would see their corporate profits squeezed. Their profit to GDP ratio would fall and go back to what it was in the 1970s or even less.

As this went on, and the credibility of the permanent halt in global labor flows north built up, global capital would have no other option but to invest in the Global South. The potential barrier against the flow of global capital to the Global South would have been pierced, tunneled under, and crossed above, so that the flow would be continuous and consistent and achieve a critical mass of change in the Global South.

This would fund debt repayment, health, education and welfare and the most critical item of spending to prevent and alleviate global climate change.

4 – 1 Rise in corporate defaults

Large publicly traded companies are now under pressure. They have lost their bargaining power increase over the last decades that allowed them to transfer depreciation, government and social mandate costs to workers, suppliers and customers. Wages have risen, competitors have sprung up, and their profit margins are squeezed. Many have to default.

4 – 2 High Risk Collateralized Debt Obligation (CDO) tranches fail

The high risk tranches of CDOs fail because some of the corporate names in their pool of assets are failing. The low risk tranches are barely able to survive and the high risk tranches are unable to payoff.

4 – 3 Offshore reinsurance fails from risky tranche failures

Offshore reinsurance has invested in very high risk tranches of CDOs and other collateralized security obligations. As these tranches fail, offshore reinsurance will fail.

4 – 4 Pension Risk Transfer fails from risky tranche failures

Pension risk transfer to insurance has also invested in risky tranches of CDOs. So it too fails.

4 – 5 State guarantee funds are overwhelmed and can't make good insurance

1.5 Nile Scenario: Global labor floods north

In the Nile scenario, global labor floods north. The restrictions or barriers to immigration are flooded over. Illegals, refugees, the regular flows all continue unabated.

The effectiveness of labor declines and at some critical point, collapses. The low effectiveness of labor flows through to the marginal product of capital, causing it to collapse. In effect, it falls to the levels of the Global South.

The marginal product of capital falls below the rate of depreciation. Because of this, corporate profits are squeezed even though wages have fallen.

5 – 1 Climate change measures are unaffordable even in the Global North

With the loss of labor effectiveness in the Global North, there are no longer funds to pay for Climate Change in either the Global South or North. The Global North can't pay for climate change measures anywhere.

This leads to losses in labor and capital effectiveness on a planetary scale. The Potsdam Institute for Climate Research has estimated that even before catastrophic climate events, there will be losses to economic efficiency and output from incremental climate deterioration.

https://www.pik-potsdam.de/en

https://www.pik-potsdam.de/en/news/latest-news/rainy-days-harm-the-economy

5 – 2 Corporate debt defaults rise

The squeeze on corporate profits leads to corporate defaults. In this scenario, the entire society and economy is collapsing towards Global South levels. The defaults will pick up a momentum and create a polycrisis of default. This is more extreme than in the Zambesi Scenario.

5 – 3 Even medium risk CDO tranches fail

In the Nile Scenario, not only do risky tranches fail, but medium tranches fail. In some cases, even safe tranches may fail as the crisis in corporate debt expands and accelerates.

5 – 4 Offshore reinsurance collapses

Offshore reinsurance collapses much more than in the Zambesi scenario because even medium and some safe tranches fail to payoff.

5 – 5 Pension risk transfer collapses

Pension risk transfer is caught in the same polycrisis as offshore reinsurance.

5 – 6 State guarantee funds are overwhelmed

In this scenario, not only do state guarantee funds collapse, but the rest of retirement is collapsing due to the simultaneous fall of wages and corporate profits. When the effectiveness of labor goes down, then both wages and corporate profits go down. This is a duocrisis. But this duocrisis in wages and profits then spreads to government revenues and then undermines Social Security, Medicare, and state and local pensions.

1.6 Amazon Scenario: Polycrisis south, negatve rates north

In this scenario, there is a polycrisis in the Global South. This causes global capital to come to the north, especially to the US. Depending on how labor flows in this scenario will affect the subsequent developments in the US.

If global labor flows to the US are limited, then there will be a rise in the capital to labor ratio. This will be like the Zambesi scenario.

In this sub-scenario, marginal returns on capital will fall as in the Zambesi scenario, and the return on risky investment will be low. This will then push down the yield on government bonds to negative levels. US government bond yields could stay negative until the polycrisis abates in the Global South.

If global labor flows to the north during the polycrisis in the Global South, then labor effectiveness in the Global North will fall. It might even go through a critical point and collapse. In either case, the marginal products of labor and capital will fall. So both wages and profits will fall. The fall in wages will also push down sales and profit margins on sales for corporations.

As in the Nile scenario, the results will be that corporate profits will be squeezed. The lower returns on risky investments may then flow through to US government bond yields, pushing them negative and keeping them there.

If the young adults of the Global South come to the Global North during the polycrisis in the Global South, then the Global South won't be able to get out of the polycrisis. There will be too few able workers. Government budgets will lack revenue. They won't be able to spend on education, health or climate change. Without their young adults as workers and consumers, the corporate sector in the Global South will see sales and profit margins fall. This will further limit their ability to invest.

As the IMF has indicated in its blog, the lack of young adult workers is already a critical problem, even a crisis for Mexico. They need their young adult workers in Mexico, not in Denver. When their young adults are in Denver, that means that the budget for climate change in Mexico will stay dead last among competiting concerns of health, education and supporting the elderly.

1.7 Forward Calibration

Forward calibration is necessary because the events of the last 50 years can't repeat themselves in many cases. The rise of the labor force participation rate of those 25 to 54 could not repeat because the rate for women increased too much to repeat that increase. There has also been a strong movement by law firms to spread non-compete agreements to even the lowest paid most menial job. This reflected the need of the legal profession to find work for lawyers as the number of lawyers increased at a faster pace from the 1970s. This led to an extreme increase in corporate bargaining power. That allowed public corporations to transfer costs of depreciation, government and social mandates to workers in the form of low pay, or to suppliers or customers. That movement is now finding opposition at the state and federal level.

7 – 1 Rise in labor force participation rate of women

" Infra-Annual Labor Statistics: Labor Force Participation Rate Female: From 25 to 54 Years for United States (LRAC25FEUSM156S) "

https://fred.stlouisfed.org/series/LRAC25FEUSM156S

The total participation rate of men and women aged 25 to 54 is 83.5 percent.

Labor Force Participation Rate - 25-54 Yrs. (LNU01300060) https://alfred.stlouisfed.org/series?seid=LNU01300060

The greater participation by workers from the 1970s to 2024 can't be repeated.

The bargaining power of public corporations had an extreme increase during this time period. That increase in bargaining power can't be repeated from this increase in the supply of workers.

The following looks at all US corporate profits. https://fred.stlouisfed.org/graph/?g=1Pik

https://cdn.pficdn.com/cms/pgim-fixed-income/sites/default/files/2021-04/The%20Evolution%20of%20U.S.%20Corporate%20Profits_2.pdf

Large publicly traded corporations have seen their bargaining power increase more than the overall corporate sector.

Associated with this rise in labor force participation rate is a rise in age of first marriage for men and women and fertility rates that are often below replacement.

7 – 2 Rise of non-competes and erosing of worker bargaining power

During the last 50 years, non-competes have been applied to a surprisingly large percentage of the work-force. The FTC has established a rule to remove most of these agreements.

https://www.ftc.gov/news-events/news/press-releases/2024/04/ftc-announces-rule-banning-noncompetes

"In January 2023, the FTC issued a proposed rule which was subject to a 90-day public comment period. The FTC received more than 26,000 comments on the proposed rule, with over 25,000 comments in support of the FTC's proposed ban on noncompetes. The comments informed the FTC's final rulemaking process, with the FTC carefully reviewing each comment and making changes to the proposed rule in response to the public's feedback. "

This process will make it harder for the courts to over-rule this ban.

The reaction of the corporate law firms to this rule is interesting. It sheds light on how the economy has been rigged against workers without mercy. Some of the corporate law firms sound like generals rallying their troops in the cause of retaining non-competes.

https://www.skadden.com/insights/publications/2024/04/ftcs-final-rule-banning-worker-noncompete-clauses

Also a report by CRS.

https://crsreports.congress.gov/product/pdf/LSB/LSB10905

7 – 3 Expansion of corporate bargaining power has reached its limits possibly

This expansion of corporate bargaining power over the last 50 years has allowed them to transfer costs to workers, suppliers and customers. To some extent, that includes even depreciation for the largest firms with the most bargaining power.

This expansion of corporate bargaining power is unlikely to be continued and is meeting organized resistance to try to role it back.

The huge expansion of corporate profits relative to GDP is in part from this ability to transfer costs from corporations to their suppliers, workers and customers. That includes depreciation, which is the key cost retarding growth in the Solow Swann analysis of the limits to growth.

If depreciation costs and other government and social mandate costs are transferred back to the large public corporations from their workers, suppliers and customers then that will reduce sharply the ratio of their corporate profits to GDP.

7 – 4 Retraction of corporate bargaining power scenarios

A retraction of corporate bargaining power and corporate profits will then lead to higher default rates. Those will especially impact the risky tranches of Corporate Debt Obligations, CDOs.

Offshore reinsurance and pension risk transfer to insurance are heavily investing in risky tranches of CDOs. Thus a retracement of the expansion of bargaining power of large public corporations back to workers, customers and suppliers will raise default rates and undermine the solvency of offshore reinsurance and pension risk transfer.

This requires a calibration of the default rates, equity profits and equity returns and interest rates to reflect this type of shift of bargaining power away from the large public corporations whose bonds are the ones underlying these CDOs.

7 – 5 Calibration of GOES to microfoundation models, Lucas type critique

The Generator of Economic Scenarios, GOES, is a descriptive model not a microfoundations model. Thus it requires calibration to more fundamental models and economic data which are forward looking. These models should have built into them that the labor force participation rate of 25 to 54 has little more room to grow and that the expansion of corporate bargaining power by non-competes is now meeting major resistance.

Scenarios in which these bargaining power transfers from workers, suppliers and customers to large publicly traded corporations are reversed are a major area for the risk analysis of offshore reinsurance and pension risk transfer that are heavily investing in risky tranches of CDOs that assume these trends will continue, when they can't.

Just like descriptive models in macroeconomics need microfoundations to work, so do descriptive financial model need calibration to microfounded forward looking economic models and data. This is a parallel to the Lucas critique of macro model failures in the 1970s.

The Lucas critique was that macro models in the 1970s failed in modeling the business cycle because they were not based on microfoundations, in particular rational expectations. Because of their lack of microfoundations, macro models could not be used to manage business cycles.

The same problem is true of purely descriptive financial models used to project over long time periods. Because they lack microfoundations in economic data, and are not forward looking, they will not be able to produce the deep monocrisis scenarios from the downward spiral of total factory productivity in the Global North and Global South. Nor can they adequately model the inter-relationship of the Global North and Global South.

We exist on one planet. And models that ignore this reality will fail in the long term. They may fail even in the short term. The inter-relationship of the Global North and Global South can no longer be ignored in models of the economy of the US. The labor flows from the Global South to the Global North are undermining the economy in both places. They are starving the Global South of young adult workers when they need this. This pushes climate spending to almost zero.

Canada is a perfect test case of the effect on labor effectivness of the flow of labor from the Global South. Canada's total factor productivity has not increased since the mid 1970s. Obviously, capital is more productive and Canada has it. Canada has cell phones, internet, computers, fiber, fuel efficient cars, etc. But despite that manifest technology improvement, its total factor productivity is unchanged for 50 years. This remarkable fact is only explainable by a substantial decrease in labor effectiveness.

The same phenomena has been observed in the Global North but not to the same extreme as Canada for much of that period. However, for the last 20 years, there has been a further flattening of the total factor productivity graph throughout the Global North.

The flattening of total factor productivity in the Global North is now spreading to the Global South, causing its total factor productivity to flatten as well. This could be the start of a downward spiral of total factor productivity between the Global North and Global South. There is at least a flatlining crisis, which may become an absolute decline. The IMF is warning that this deepening monocrisis in total factor productivity is a threat to the entire global enconomy including its ability to spend on health, education, elderly and climate change.

For labor effectiveness, it is a decline already. Canada is a natural experiment to prove that. It had almost zero increase in total factor productivity, an obvious increase in capital effectiveness, and thus a decease in labor effectiveness. This would explain the low growth in total factor productivity and its almost flatlining for the last 20 years in the rest of the Global North.

Some of these microfoundation models can produce scenarios of negative interest rates in the US that persist for decades. If the Global South and Global North get locked into a downward spiral from labor flows from South to North that they can't get out of, then that can produce scenarios of both long term negative rates in the US and squeezed corporate profits with high default rates of corporate bonds and the failure of risky trances of CDOs and of offshore reinsurance and risk increasing pension risk transfer based on investing in them.

7 – 6 Microfoundation calibration models maintained by community framework

To model these scenarios, including ones where things get worse, requires calibration of the vendor's GOES generator to models based on economic microfoundations that are capable of producing these scenarios. These models can be maintained by the community of interested parties instead of being an official model. This would give valuable input into the ongoing calibration of the official vendor GOES generator. It would also not lock the calibration process prematurely into one specific microfoundations model. The state of microfoundations models for this purpose is not very advanced. So there is a need for many flowers to bloom in this area.

7 – 7 Maintaining schedule of vendor GOES roll out

Allowing the community to maintain microfoundations models for calibrating the official GOES vendor model will also allow the roll out of the vendor model in its current form to proceed on schedule.

Bibliography