Steering the economy toward growth

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The Federal Reserve is responsible for regulating the economy so that there isn't too much inflation or high unemployment. The "Fed" primarily relies upon a single control valve—adjusting interest rates charged to banks. However, in recent years, this solution has proven to have very little impact, with many years of high unemployment following the financial crisis. Even now, there is weak economic growth and high underemployment.

In the New England Complex Systems Institute's latest paper [1], we study economic activity through the flow of money. We discovered it is not enough to consider the overall activity of the economy. Instead, we must consider two dominant flows, highlighted in red in Fig. 1. On the left is the Labor loop. Workers receive wages and use them to buy products and services. The second flow on the right is the Capital loop. Investors, particularly wealthy individuals, invest in new equipment and facilities to produce goods and services, and they receive returns on their investments. As the economy grows, the flow in these loops increases. However, how much each of them increases is important because they have to be balanced against each other.

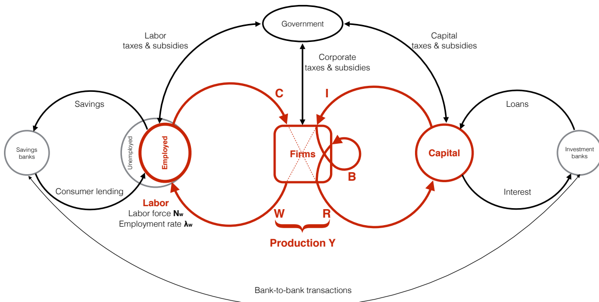

FIG. 1: Monetary flow representing the wages and consumption loop and capital and return loop (red). Transfers from or to banks (savings and loans) and government (taxes, transfers, subsidies and other economic activities) are also indicated (black).

Right away, we see that a single control mechanism cannot both lead to growth and achieve balance between these two flows. Relying on only one control is like driving a car with only a gas pedal and brakes, without a steering wheel.

Figure 2 shows a plot of the economy between 1960 and 2015. The two axes are consumption and investment. We see that if there was a balance between the two flows, the trajectory would go straight to the upper right, causing both wage earners and investors to benefit from rapid growth. However, what we see is that the economy has zigzagged back and forth for decades. Each red dot indicates a recession or financial crisis. The Fed has repeatedly forced the economy back on track by lowering interest rates, but like a car with no steering, we keep running back into the guardrail beyond which the economy does not work.

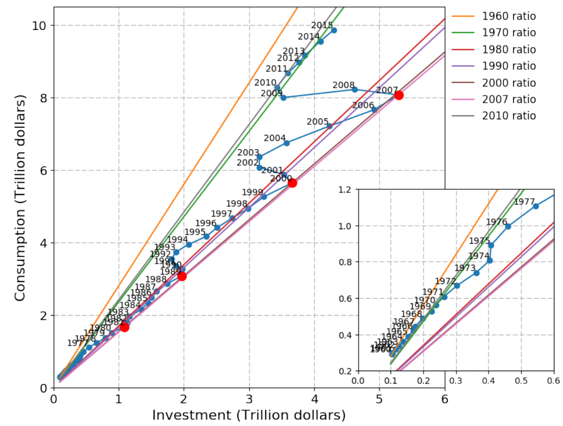

FIG. 2: Consumption versus investment between 1960 and 2015. The straight lines to the upper right represent the growth of the economy if the ratio of consumption to investment were fixed. Recessions occurred in years marked by red dots at a fixed value of investment to consumption.

How did we get here? Our analysis shows there have been two major regimes since 1960. Before 1980 too much money was being injected into the Labor loop. Consumers had more demand than investors could supply, and inflation was on the rise. After 1980, we entered a new regime that favored investors. The change in regime was likely due to tax changes implemented during the Reagan presidency, cutting taxes on investments. We see that this change was a good idea, but it went too far and has remained in place for too long.

The continuing economic imbalance has had major consequences, including limited economic growth and massive consumer debt. Before 1980, consumers saved money as they didn't have enough goods and services to buy. After 1980, consumer debt increased (See Fig. 3). The opposite is true about investors who borrowed before 1980 and saved afterwards, as there was not enough opportunities to invest in. Note that consumer debt and investor savings are now in the trillions of dollars.

We see that the dramatic rise of inequality in recent decades is a direct impediment to economic growth. With severe limits on consumer demand, investors don't have anything to invest their savings in and are unable to gain further returns.

A single control mechanism is insufficient for restoring

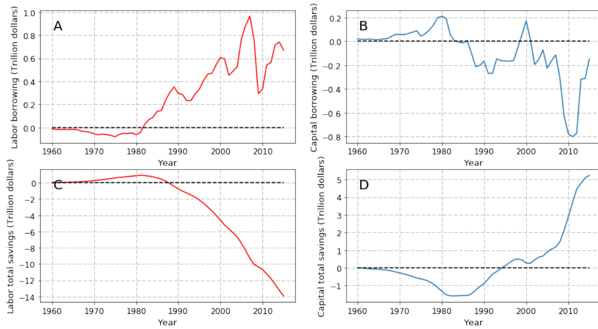

FIG. 3: Borrowing and savings (or debt) for Labor and Capital. A transition from capital borrowing to labor borrowing and capital savings in 1980 is evident. A. Labor borrowing obtained by subtracting wages and government benefits from consumption and taxes. B. Capital borrowing obtained by subtracting returns and government interest payments from investment and taxes. C. Labor total savings obtained by aggregating borrowing since 1960 and D. Capital total savings obtained by aggregating since 1960. Total savings (debt) is obtained by aggregating borrowing since 1960.

balance to the economy. Furthermore, the usefulness of the Fed's preferred mechanism has been exhausted. Figure 4 shows interest rates and inflation rates since 1960. Today interest rates are basically at zero, not because of the financial crisis directly, but because of the ongoing need to promote economic activity in the face of deepening debt. Rates can't be lowered any further. Special methods, known as quantitative easing, used in the financial crisis may not be reliable over the long term.

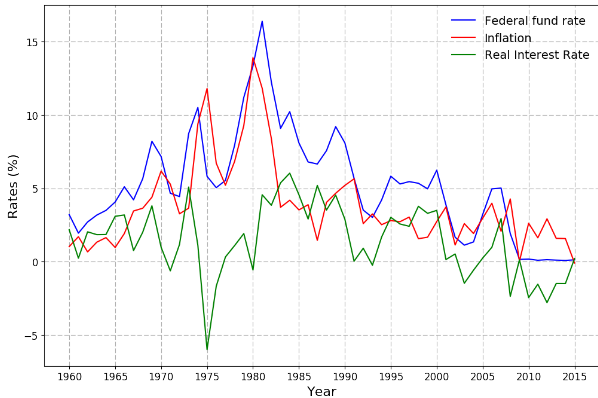

FIG. 4: Interest rate (blue), inflation rate (red), and real interest rate (green) showing the two regimes of behavior prior to and after 1980 consistent with investment limited and consumption limited regimes. This suggests that the current zero interest rate is not due to the financial crisis but rather due to the limiting behavior associated with the consumption limited regime that started in 1980.

What happens if we keep doing the same thing? Figure 5 is a zoomed in version of Figure 2, focusing on the trajectory of the economy between 2007 and 2015. The dramatic measures taken since the financial crisis moved the economy back on course, but it is already starting to veer back to the recession "guardrail." If nothing is changed, the ineffective zigzagging from recession to recession will continue or get worse.

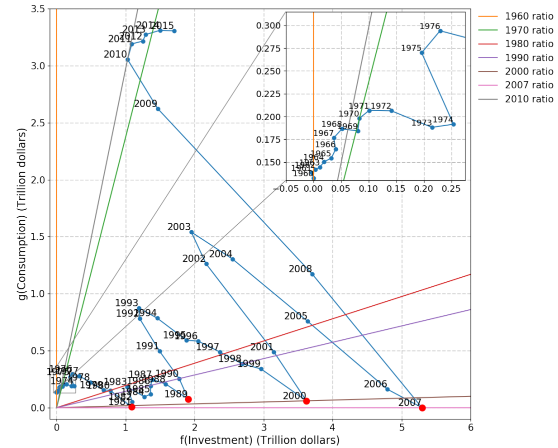

FIG. 5: Same data shown in Fig. 2 but the region of the data between the 1960 and 2007 lines is expanded to the entire first quadrant by setting the 2007 vector direction as the x-axis (by subtracting it from all data) and, similarly, the 1960 straight line as the y-axis. Recessions occurred in years marked by red dots.

To avert this future crisis, we need to start steering the economy in a more constructive direction. The excess of money flowing into the Capital loop should be diverted to the Labor loop. It doesn't help to increase the uninvested savings of the wealthy through more tax cuts. Reducing taxes for the low and middle income earners, increasing wages and social benefits and relieving debt for Labor will fuel new consumption, allowing for increased returns on investment. Alleviating the strain of inequality will restore balance to the economy, leading to beneficial growth for everyone.

This course correction should be done with careful guidance so that we don't under- or oversteer the economy. There are several possible levers for change, including tax reform, consumer and student debt relief, minimum wage increases, and adjustments to entitlement programs. A solution that will promote effective, persistent economic growth will reqiure careful analysis of economic flows.

[1] Yaneer Bar-Yam, Jean Langlois-Meurinne, Mari Kawakatsu, Rodolfo Garcia, Preliminary steps toward a universal economic dynamics for monetary and fiscal policy, arXiv:1710.06285 (October 10, 2017).