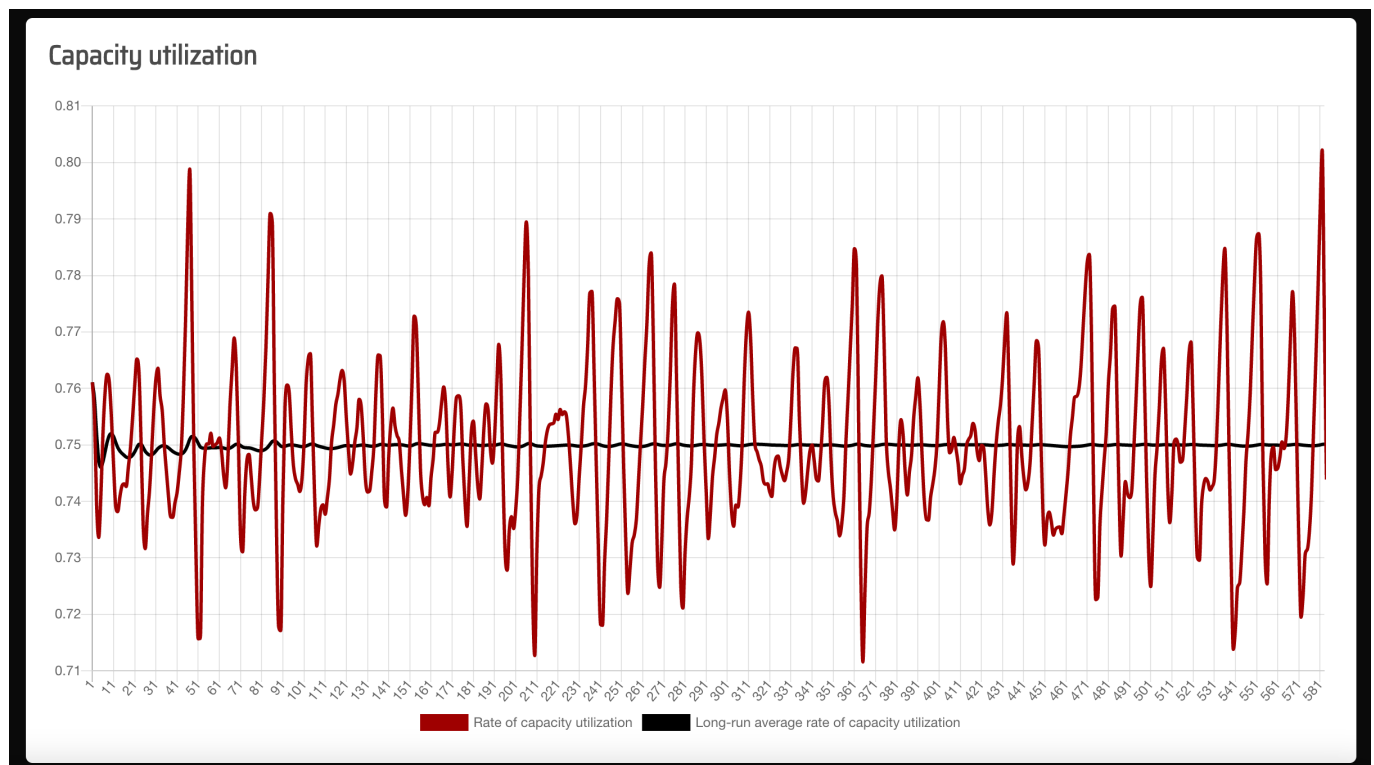


Disequilibrium Macroeconomic Model Simulator

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This React.js app allows the user to choose inputs for a macroeconomic model, and then view an animation showing the results. The app solves the model using the Runge-Kutta method, and describes a disequilibrium framework in which users can understand the long-run dynamics with statistical calculations. It is based on work from an article I published in Metroeconomica, which can be found here: <https://doi.org/10.1111/meca.12377>



Links


A link to the deployed application can be found at <https://sthompsonchicago.github.io/macro-disequilibrium/>.

Here is a quick video demonstration: <https://youtu.be/fQP0RxZOOuA>.

Here is a link to my code in a GitHub repository: <https://github.com/SThompsonChicago/macro-disequilibrium>.

Description

After loading the application in a web browser by going to the link given above, the user will be presented with an interface, which gives options to change various parameter values.



Macroeconomic Disequilibrium Simulator

Using time averages to understand long-run dynamics

About this page

This is a web application intended to help the user visualize the dynamics of a macroeconomic model from [this article](#). A distinguishing feature of the model is the fact that, rather than relying on the (empirically dubious) concept of equilibrium, the dynamics are understood by calculating time averages. This means variables can fluctuate in complex and unpredictable ways, but the long-run trends display important regularities that can be predicted with simple mathematical formulae.

To see how the model works, click the "Run" button in the control panel below. Underneath the control panel, the graphs display animations describing the dynamics of different variables in the model. Scroll down further to see more detailed information. You can also check out this [video demonstration](#).

Control panel

Run

Pause

Reset

Government expenditures

Mean annual growth rate: 0.03

+

-

Standard deviation: 0.01

+

-

Consumer spending

Target financial assets/income ratio: 0.40

+

-

Adjustment speed: 25.00

+

-

Investment

Target capacity utilization rate: 0.75

+

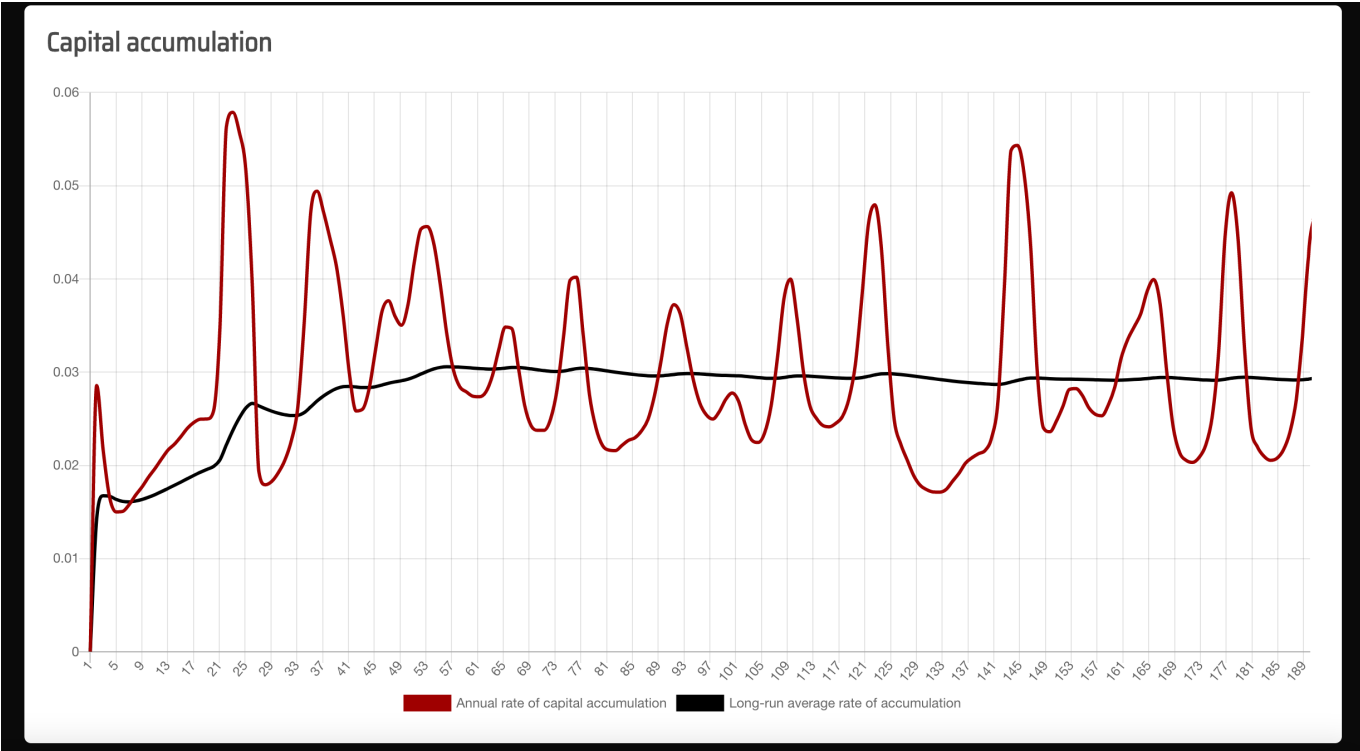
-

Scaled adjustment speed: 0.40

+

-

After clicking the "Run" button, the user can scroll down to see the dynamics of the model, which are displayed as animations in the graphs below. The graphs show the rate of capital accumulation, the rate of capacity utilization, and the growth rate of government spending, as well as the long-run average values of these variables.



The user can observe that the long-run averages converge to the predicted values derived in Thompson (2022). This model provides a disequilibrium framework for understanding theories of growth driven by non-capacity-creating semi-autonomous demand, and thus builds on work by others including Serrano (1995), Allain (2015), Lavoie (2016), Fiebiger (2018), Thompson (2021) and Pérez-Montiel and Pariboni (2021)

Contact

My GitHub profile can be found [here](#). You can contact me via email at s31@umbc.edu.

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