THE EFFECT OF THE DIFFERENCE BETWEEN RETURN ON CAPITAL AND ECONOMIC GROWTH ON ECONOMIC INEQUALITY

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GOALS

Thomas Piketty argues that when return on capital is greater than economic growth, wealth inequality is increased [1]. This report investigates his proposition by considering a simple economic model.

METHODOLOGY

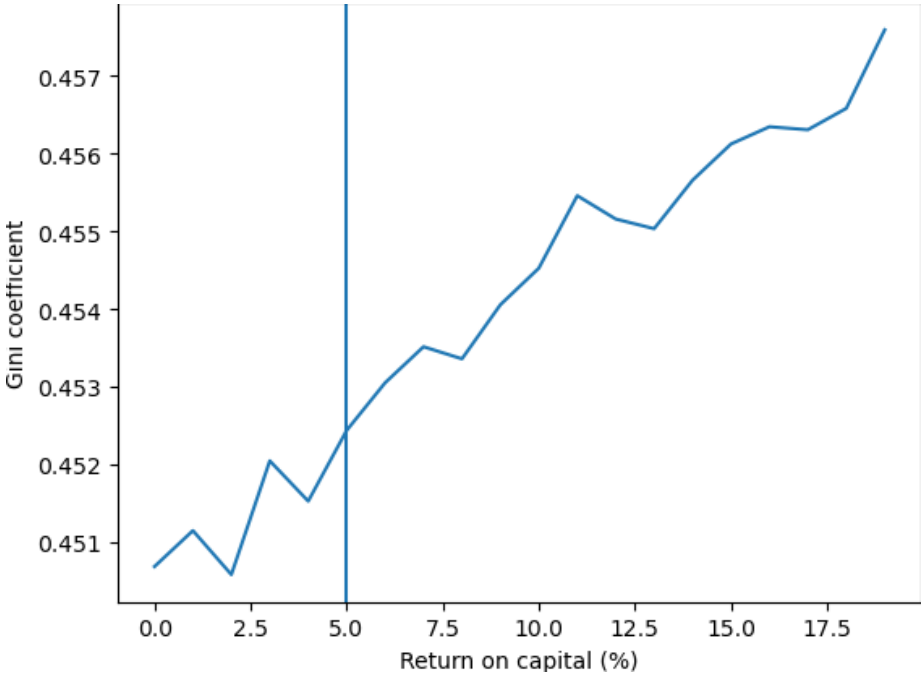
Our model consists of 50,000 individuals, each starting with one unit wealth and a randomly selected, fixed income. Each timestep begins with the increase of each individual wealth by the global return on capital constant. Then individuals are randomly grouped into pairs, each pair randomly distributes their shared wealth between themselves - this is to simulate economic exchange. Finally, every individual receives their income and the total wealth in the system is normalized to 50,000 units - this is to avoid wage inflation and numerical stability issues.

The total income earned and total return on capital per timestep are equal to 50,000*g and 50,000*r respectively, where g is the economic growth constant and r is the return on capital constant.

Twenty simulations will be run with return on capital constant ranging between 0% and 19%, and a fixed economic growth constant equal to 5%. The return on capital constant is to be plotted against the average gini coefficient in the last 50 timesteps of a 150 timesteps simulation.

RESULTS

The following graph, produced by our model, shows a strong positive linear correlation between return on capital and the gini coefficient, measuring economic inequality.



CONCLUSION

Our evidence supports Thomas Piketty's argument. We have shown that in a simple economic model, when return on capital is greater than economic growth, economic inequality is increased. In fact, inequality continues to increase as return on capital increases beyond economic growth.

It is important to acknowledge the limitations of our model. We admit that there may exist a property that applies to real economic systems, but not our model, that nullifies this effect. However, we are not aware of such a property.

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[1] T. Piketty, Capital in the Twenty-First Century (August 2013)