Modeling the Dynamics of Wealth Inequality

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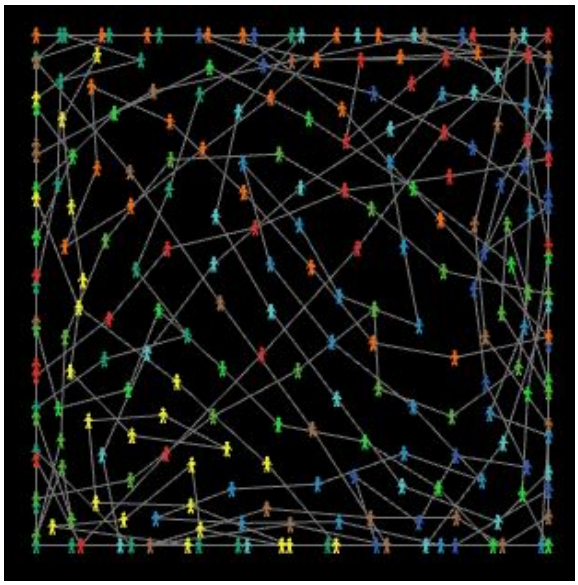
Many experts regard increasing inequality as one of the most pressing issues facing our world. The persistent rise in wealth inequality over the last 40 years is a result of increasing income inequality, a large transfer of wealth from the public to private hands, and systemic barriers to economic mobility. Global inequality (share of wealth to the top 1%) has increased during the period 1980 and 2015, from 16% to 20%, respectively, while the bottom 50% of the population accumulated a share of global income of approximately 9%. Inequality has drastic negative consequences for those living in poverty as well: around 56% of the global population lives on between $2 and $10 a day. However, Oxfam recorded the biggest increase in billionaires in history during 2017. Billionaires increased their wealth by $762 billion during that year. This could have ended global extreme poverty seven times. Moreover, 82% of the new wealth created has gone to top 1%, while 0% has gone to the world's poorest 50%. In light of these staggering numbers, it is useful to have an accessible framework which can be used to analyze the dynamics of wealth inequality and to simulate the effects of various policies that may reduce or exacerbate wealth inequality. In this work, we propose a theoretical framework to study the evolution of wealth inequality in a given population. We consider, among other things, demographic variations, policy effects, and other types of inequality. In addition, we present an agent based model to simulate some of the dynamics of wealth inequality.



Caption: The python based model using 10,000 agents and 30 simulated years. The results consistently returned either agents becoming super rich or agents going into massive debt.