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Economical Dependency Evolution and Complexity

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Abstract : The purpose of this work is to show the complexity behind economical interrelations in a country and provide a linear dynamic model of economical dependency evolution in a country. The model is based on National Transfer Account which is one of the most robust methodology developed in order to measure a level of demographic dividend captured in a country. It is built upon three major factors: demography, economical dependency and migration. The established mathematical model has been simulated using Netlogo software. The innovation of this study is in describing economical dependency as a complex system and simulating using mathematical equation the evolution of the two populations: the economical dependent and the non-economical dependent as defined in the National Transfer Account methodology. It also allows us to see the interactions and behaviors of both populations. The model can track individual characteristics and look at the effect of birth and death rates on the evolution of these two populations. The developed model is useful to understand how demographic and economic phenomenon are related

Keywords : ABM, demographic dividend, National Transfer Accounts (NTA), ODE
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