WELFARE MEASURES VS. FISCAL POLICIES: A MICROSCOPIC MODEL APPROACH

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This communication concerns models for the description of the micro-processes of money exchange, taxation and redistribution in a closed market society. Our approach fits in with a complex system perspective. We look at society as a system composed by a large number of heterogeneous individuals, divided into income classes. The individuals exchange money through binary and ternary interactions, leaving the total wealth unchanged. The ternary interactions represent taxation and redistribution effects. Observable collective features like the income profile result from the interplay of these interactions. Due to its analytical character, our approach differs from others which adopt the same or a similar perspective. Indeed, the models are expressed by systems of nonlinear ordinary differential equations of the kinetic-discretized Boltzmann type, involving probability transitions. The differential equations are as many as the classes, distinguished by their average income, in which one divides the population. The models are quite flexible and allow to consider different fiscal systems, characterized, for instance, by different tax rates for the income classes and by different gaps between the maximum and minimum tax rate. In addition, they include the possibility that welfare provisions are specifically weighted for each income class. Dynamics is investigated through computational simulations. The focus in this talk will be on the effects that different fiscal policies and differently weighted welfare policies have on the long-run income distributions. In this connection, the models could help to identify the most effective actions toward a reduction of economic inequality. We find for instance that, under certain hypotheses, the Gini index is more affected by a policy of reduction of the welfare and subsidies for the rich classes than by an increase of the upper tax rate. Such a policy also has the effect of slightly increasing the total tax revenue.

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