Economic Migration and Capital Flows: Designing Policies for Global Inequality Reduction

Matthias Wildemeersch[1], Elena Rovenskaya[1], Alexia Fürnkranz-Prskawetz[2], Jesus Crespo Cuaresma[3]

[1] IIASA, [2] TU Wien, [3] WU - Vienna University of Economics and Business

Motivation

Inequality is widely considered to hinder economic growth and can potentially trigger social unrest. Historical records show that inequality varies largely over time and across countries, and ongoing trends are a source of growing concern. In this research, we aim to enhance the understanding of the driving forces of inequality, and propose market policies able to reduce international inequality. We do this by developing a network model that consolidates the intertwined effects of migration and foreign direct investment on the consumption distribution. Based on the theoretical framework, we aim to design regulatory responses that maintain high levels of economic welfare while reducing inequality.

Relevance

- We contribute to a better understanding of inequality dynamics and deal simultaneously with multiple countries/regions and the interaction between labor and capital flows.

- We present a theoretical model that considers economic migration and foreign direct investment as the main driving forces of the inequality dynamics. The regulatory constraints on the movement of labor and capital are an integral part of the model.

- We provide a tool to test the effect of regulations on economic welfare and welfare distribution. The model is useful for the design of a regulatory framework.

Labor and Capital Flows

Multilayer network model

Labour dynamics
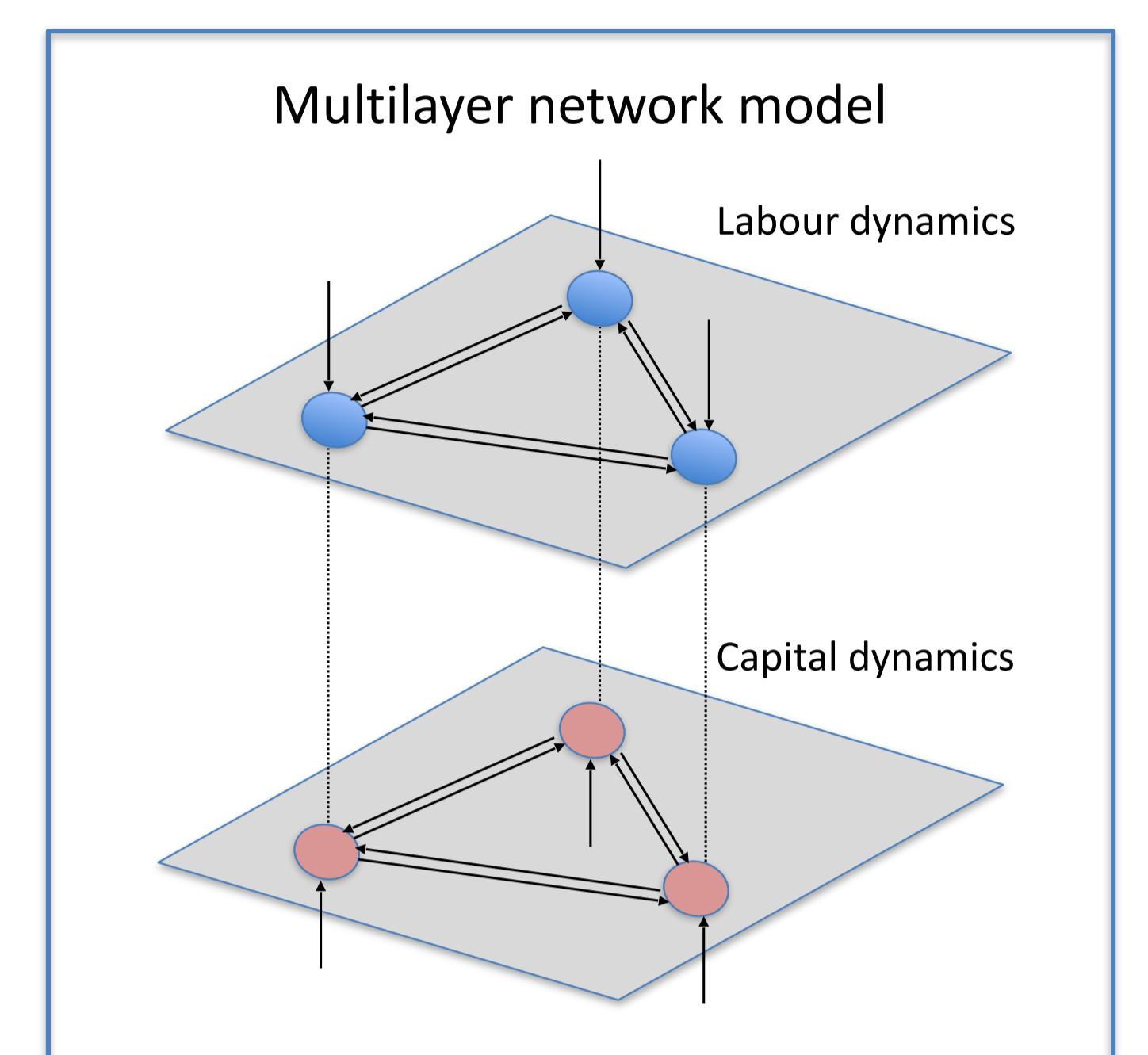
Capital dynamics

Network dynamics

- Labor dynamics are driven by population growth, population shocks, and wage differentials
- Capital dynamics are driven by saving and depreciation rate, investment, and capital interest rate differentials
- Regulations apply to the openness of the labor and capital markets, and affect the magnitude of network flows

Internal dynamics   network flows   exogenous effects

$$\dot{L}_i(t) = n_i L_i(t) + \sum_{j \neq i} \left(F_{ij}^{\mathrm{L}}(t) L_j(t) - F_{ji}^{\mathrm{L}}(t) L_i(t) \right) + D_i^{\mathrm{L}}(t)$$

$$\dot{K}_i(t) = s_i Y_i(t) - d_i K_i(t) + \sum_{j \neq i} \left(F_{ij}^{\mathrm{K}}(t) K_j(t) - F_{ji}^{\mathrm{K}}(t) K_i(t) \right) + D_i^{\mathrm{K}}(t)$$

Internal dynamics   network flows   exogenous effects

Feedback between network layers through wages and capital interest rates

Notation	
Symbol	**Description**
c_i	consumption per capita at node i
Y_i	output at node i
K_i	capital stock at node i
L_i	labor stock at node i
n_i	population growth rate at node i
s_i	capital saving rate at node i
d_i	depreciation rate at node i
F_{ij}^{L}	link weight affecting magnitude labor flow
F_{ij}^{K}	link weight affecting magnitude capital flow
$D_i^{(\mathrm{L})}$	exogenous labor shock at node i
$D_i^{(\mathrm{K})}$	exogenous capital stock at node i

Sensitivity analysis

- What are the policies that are successful in increasing welfare and reducing inequality?
- We study the sensitivity of social welfare and inequality in a three-country network with respect to the openness of the labor market.

Social welfare   Inequality
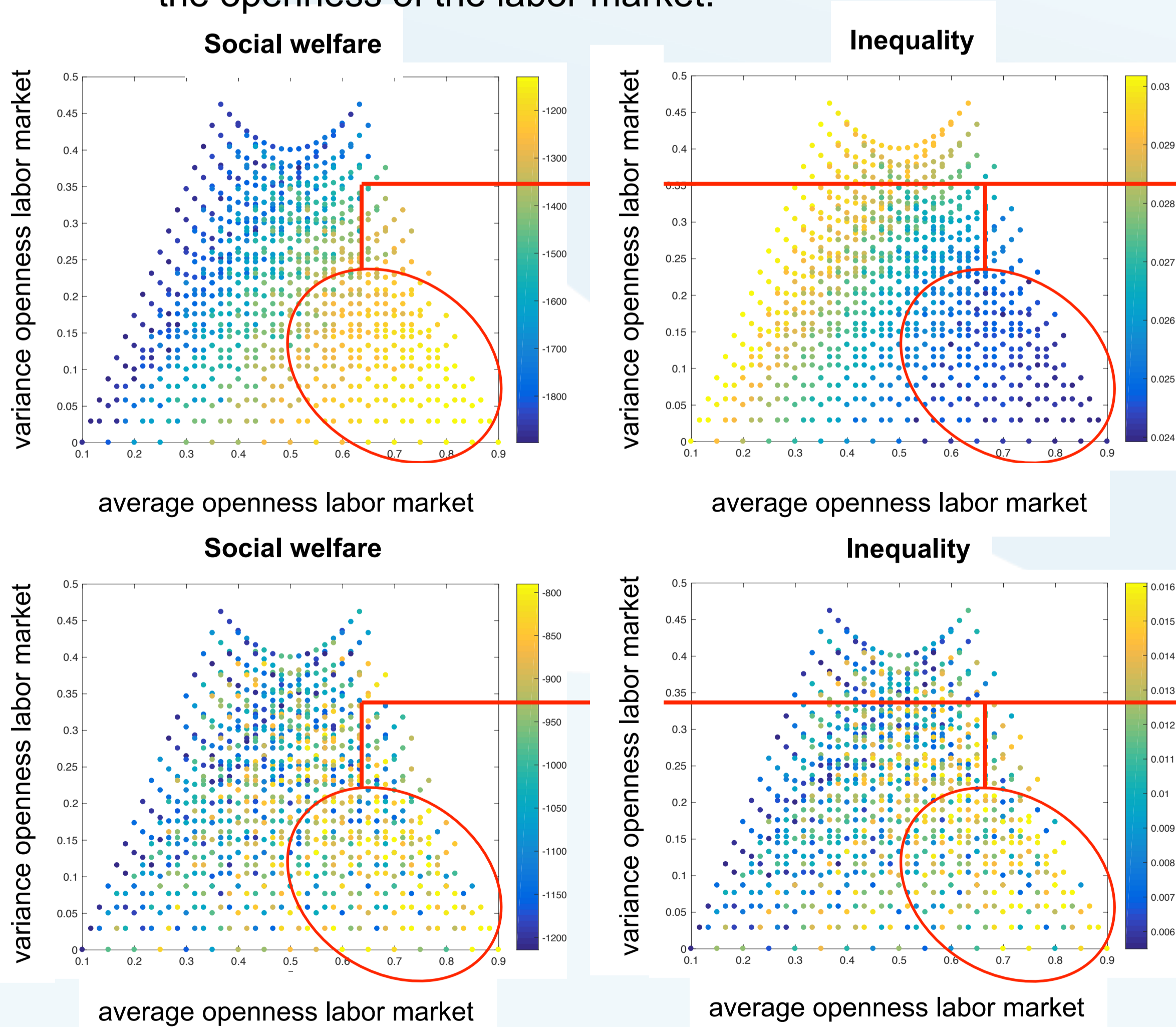
- Parameter values: n = [0.02, 0.03, 0.04] and s = [0.05, 0.03, 0.01]
- Highest values of social welfare correspond with lowest values of inequality

Qualitatively very different results

- Parameter values: n = [0.04, 0.03, 0.02] and s = [0.03, 0.03, 0.03]
- Highest values of social welfare correspond with highest values of inequality

Dynamic Optimization

The labor and capital dynamics are integrated into a decision model to optimize economic welfare, represented by a social welfare function

$$w^{\mathrm{WE}}(c_1, \ldots, c_n) = \sum_{i=1}^{n} L_i \ln c_i \quad \text{with} \quad c_i = (1 - s_i) Y_i / L_i$$

or inequality, represented by the standard deviation of the consumption per capita.

As an example, we optimize the social welfare with respect to the openness of the labor market. Different policies unfold for the different countries in the network.
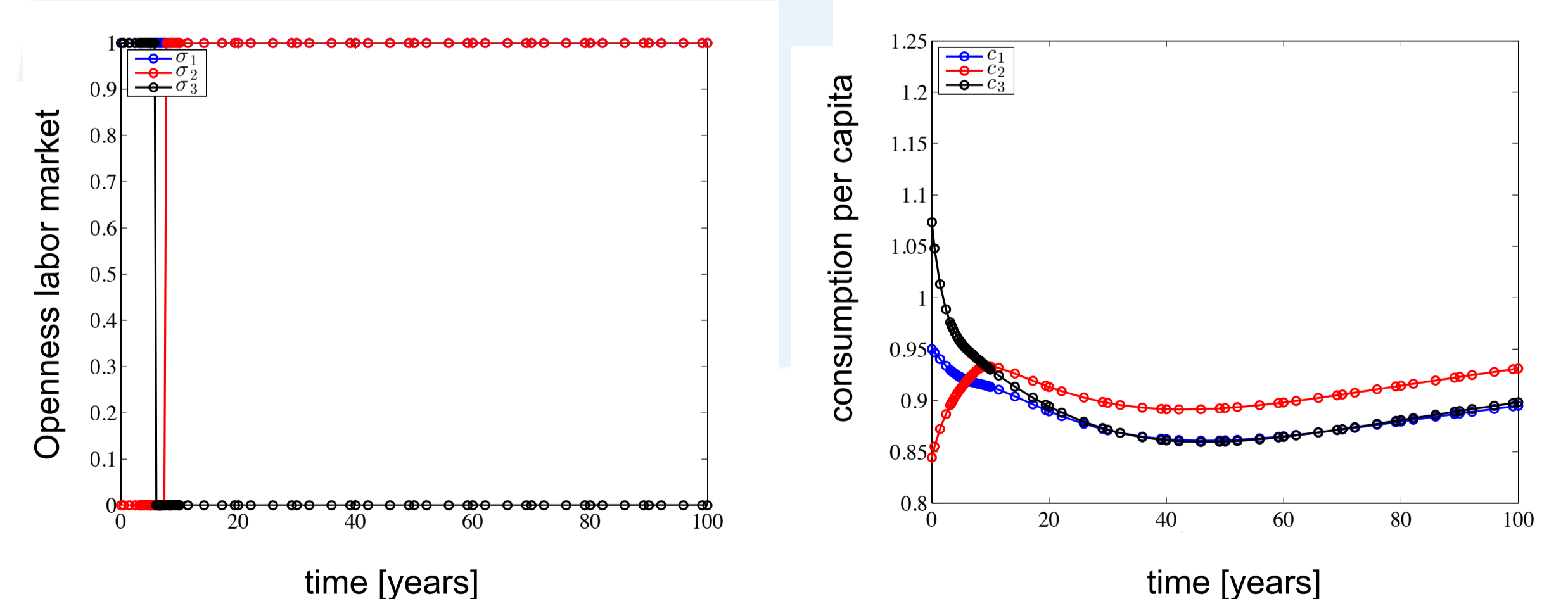
Conclusions

- In view of the public concern about the economic impact of migration, the proposed model can provide policy support and inform decision makers about the consequences of labor and capital market regulations on economic welfare and inequality.

- Welfare and inequality are very sensitive to changes in the parameter space. Therefore, policy design requires a precise knowledge of the relevant determinants related to population growth, saving rates, and regulatory limitations.

Outlook

The current modeling framework can further be applied to answer the following questions:

- The framework is valuable to study the process of market liberalization and enables us to make an informed assessment of the effects of economic integration processes.

- The scenario in which countries cooperate, addressed in the section on dynamic optimization, can be complemented with a scenario where decision-making is distributed across the countries of the network. Under the assumption of non-cooperative countries, it is important to understand the impact of national policies on the economic welfare and welfare distribution.

Contact Information

Matthias Wildemeersch (wildemee@iiasa.ac.at), Elena Rovenskaya (rovenska@iiasa.ac.at),
Alexia Fürnkranz-Prskawetz (afp@econ.tuwien.ac.at), Jesus Crespo Cuaresma (Jesus.Crespo.Cuaresma@wu.ac.at)