Evento	Salão UFRGS 2021: SIC - XXXIII SALÃO DE INICIAÇÃO CIENTÍFICA DA UFRGS
Ano	2021
Local	Virtual
Título	Mas-Colell and Razin model of intersectoral migration and growth with distinct population growth rates
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Migratory movements towards cities have historically followed industrialization processes. The decrease of rural areas is an inevitable fate for most of the countries. As urban regions flourish, birth rates decrease. The relationship between urbanization and the reducing of birth rates is one of the main reasons for the decrease of population growth rates seen in many countries. Some works interested in investigating the impacts of decreasing population growth rates on migration have been on the radar lately, like Christiaans (2017)[1]. This work considers initially the neoclassical growth model of Mas-Collel and Razin (1973)[2], which is a two-sector model, an agricultural sector and an industrial one, that introduces migration from one sector to another, which is induced by a wage differential between the two sectors. In the present work it is proposed a generalization of the Mas-Colell and Razin model in order to consider two population growth rates, one for each sector. The analysis of the generalized model shows that migration depends on the differential of growth rates. In order to investigate the modified model computationally, numerical simulations are done in three scenarios. In all of them, initial conditions consider an incipient industrial sector. Also, all the conclusions regard a steady-state analysis. The first scenario shows that a bigger population growth in the industrial sector than in the agricultural sector leads to a bigger population living in the industrial region, causing the per capita capital in the industrial region to be smaller than in the agricultural region. The second scenario reveals that a bigger population growth in the agricultural sector than in the industrial sector makes the largest share of the population to live in the agricultural region; in this case, the per capita capital in the industrial region is bigger than the one in the agricultural region. Comparing both scenarios, the aggregate per capita capital is bigger in the one where there is a bigger population growth in the industrial sector. In any scenario with distinct population growth rates, sectoral wages do not converge, causing the rate of migration to not be null, which serves as a counterbalance for the population growth differential. The last scenario holds homogeneous population growth rates; the results are the same as in the original model that considers a unique population growth rate, showing the consistency of the generalized model. In the case with equal population growth in both regions, sectoral wages do converge, causing the rate of migration to be null.

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[1]CHRISTIAANS, T. *On the implications of declining population growth for regional migration*. Journal of Economics, v. 122, n. 2, p. 155–171, 2017.

[2]MAS-COLELL, A.; RAZIN, A. *A Model of Intersectoral Migration and Growth*. Oxford Economic Papers, v. 25, n. 1, p. 72-79, 1973.