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Growth model with migration: structure of
optimal saving rates.

The migration of persons is one mechanism for change in an economy's population and labour supply. The migration process, which means labour mobility, is analogous to the capital mobility. Capital tends to move from places with low rate of return to those with high rates of return. Labour tends to move from regions with low wage rates, to regions with high wage rates.

Migration differs in some aspects from changes in natural population growth, that is, differences between births and deaths. First, migration increases population of the destination economy and represents corresponding losses for the source economy. Thus, we have to consider immigration and emigration as two sides of a single process. Second, unlike newly born persons, migrants come with accumulated human capital. Migrants typically do not carry much physical capital. Newborn children also differ from migrants in that the residents of the economy tend to care of their children but not about migrants. This difference in linkage with the existing population implies differences in the way that population growth interacts with saving behaviour and, hence with rates of economic growth.

A starting point of the study of migration and growth is the Mankiw-Romer-Weil¹ model, which assumes a closed economy and an exogenous, constant saving rate. The extension to incorporate migration means that economies are opened to some extent. The migration process implies some degree of mobility

¹ N. G. Mankiw, D. Romer, N. Weil, A contribution to the empirics of economic growth, *Quarterly Journal of Economics*, May 1992, s. 407-437

of physical and human capital. We extend the above model to incorporate the influences of migration. Modified equations of motion for physical and human capital are derived.

Every household is optimizing discounted consumption (by a time-preference factor) over infinite planning horizon, subject to the constraints given by the new equations of motion for the human and physical capital. Solution of this dynamic optimization gives us a structure of optimal saving rates for both types of capital. Then, we determine how migration process affects the optimal saving rates.