

1067-90-641

Yuri Yatsenko* (yyatsenko@hbu.edu). *Modeling of the optimal economic response to environmental adaptation.*

The environmental adaptation is the adjustment of economic system in response to observed or expected changes in the environment. We develop an optimization model to study rational environmental adaptation policies that compensate negative consequences of certain environmental hazards. The model is described as the optimal control of nonlinear integral equations. It distinguishes three categories of adaptation measures that (a) compensate the decrease of the environmental amenity value, (b) compensate the decrease of total productivity, (c) develop and introduce new hazard-protected capital and technology. The steady-state optimal balance among investment, consumption, and different categories of adaptation investments is analyzed. It appears that the environmental hazard and subsequent adaptation do not lead in the long run to a higher level of capital modernization compared to the benchmark case with no hazard. A synergism between productivity-related and amenity-related adaptation activities arises because the productivity-related adaptation positively impacts the economy and creates better possibilities for the amenity adaptation. (Received September 12, 2010)