1043-37-83 Massimiliano Ferrara* (massimiliano.ferrara@unirc.it), University Mediterranea - Faculty of Law, Via dei Bianchi, 2 - Palazzo Zani, 89127 Reggio Calabria, Italy, and Luca Guerrini (guerrini@rimini.unibo.it), University of Bologna - Faculty of Economics, Viale Quirico Filopanti 5, 40126, Italy. Economic development and sustainability in a two-sector model with variable population growth rate.

Long-run growth was first introduced by Solow and Swan into the traditional neoclassical macroeconomic model. Tran-Nam considered an infinite-horizon aggregative closed economy where the production function depends on physical capital, natural capital and labor, and showed that if human activities have a net zero or negative effect on the environment, then the economy is unsustainable in the long run, in the sense that physical and natural capital per worker will tend to zero as time grows indefinitely large. A natural question to be asked in Tran-Nam's model is what the impact of changes in the population growth rate would be. We consider a more realistic approach by assuming the labor growth rate to be variable over time and controllable subject to be between prescribed upper and lower limits. By modeling the natural capital stock as a renewable resource, we have that damages done to the environment production and consumption externalities are reversible. In this framework, we find out that the long run sustainability of the economy depends crucially on human activities and on the stock of the environment. (Received August 19, 2008)