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## The Vienna Yearbook of Population Research 2008 online



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## Food Security, Fertility Differentials and Land Degradation in Sub-Saharan Africa: A Dynamic Framework

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### Abstract

We study the impact of differential fertility levels for the food-insecure and food-secure population on the long-run values of the population distribution and resources in a descriptive model where the food security states are determined by a historically given food distribution and the endogenous food production with resources and labour as inputs. Furthermore, we assume that the resource stock is reduced by poverty-driven environmental degradation. Moreover, we incorporate nutritional effects on labour productivity and mortality. By applying local bifurcation theory, we show that the model may exhibit multiple equilibria. Furthermore, the orbits of resources and the population distribution may be characterised by quasi-periodic behaviour. Sustainable development in terms of approaching a steady state with positive values of resources and food-secure population is only promoted by low fertility levels of the food-insecure and food-secure population.

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