"A dynamic analysis of human welfare"
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ABSTRACT

We model a society which lasts for an infinite number of generations; in each generation there is an adult and a child. Adult welfare is a function of consumption of a produced commodity, leisure, the state of knowledge (art and science) and the quality of the biosphere. Production of the commodity reduces biospheric quality. Adult labor is partitioned into three industries – commodity production, knowledge production, and education of children – and leisure.

We are concerned with computing, first, the *sustainable solution,* which is the path of resource use and allocation that maximizes the level of welfare which can be sustained forever (for all generations). We also compute paths which allow for growth in welfare across generations.

This work differs from the extant economic literature primarily in two ways: welfare is a function of both stocks (knowledge and biospheric quality) and flows (consumption and leisure), and the planner's objective is not to maximize the discounted sum of utilities, but rather to find paths which are best subject to sustaining a given rate of growth of welfare (which may be zero).