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Parallel Session 7B: Economic Insecurity, Demography, and Well-Being

SHEEP FOR A LIFETIME OR LION FOR A DAY?

Optimal Length of Life and the Non-Monotonic Relation
between Life Expectancy and Individual Welfare†

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Abstract:

In the literature the length of life of the agents is generally assumed to be exogenous. However, there are many circumstances in which the length of life can be the (direct or indirect) object of the agents' actions. In this paper we analyse the effect of changes in life expectancy on agents' behaviour, studying the impact of wealth and life expectancy on agents' risk aversion and welfare.

Following the approach by Rosen (1988) we consider a standard neoclassical framework, where agent chooses her consumption path in order to optimize her lifetime utility, taken as given her own flows of incomes. Assuming a constant interest rate and growth rate of labour income we explicitly solve for the agent's lifetime utility. The latter positively depends on i) her initial wealth, ii) her initial labour income, iii) her (expected) growth rate of labour income, and iv) her length of the life.

The optimal length of life, i.e. the length of the life maximizing the lifetime utility of agent, is determined by two competing effects: i) the consumption level effect, which reflects the preference for a minimum level of consumption in any period, leads agent to prefer a shorter life and ii) the smoothing consumption effect, which reflects the preference for a smoothed consumption path, leads agents to prefer a longer life. The resulting preferences on the length of life can be convex, so that life expectancy can play a role in the agents' decision, jointly with wealth.

Our findings suggest that in the designing of public intervention both wealth and health (which, in turn, affects the life expectancy at birth) should be taken into account. For example, even though income support actions can have a positive effect on the agents' lifetime utility, they could be ineffective if not supported by manoeuvres aimed at enhancing public health.

Moreover, the analysis highlights the importance of capital markets. The possible moral hazard behaviour of agents determines a credit ration in the capital markets. This decreases the available wealth for consumption, and leads agents to prefer a shorter life.

In order to test our theoretical results, we discuss some empirical evidence on extreme behaviours as suicide, risky and criminal actions. Although there exists a large philosophical and sociological literature on this issue, it has often been neglected the role of the incentives produced by economic and social variables and the efficiency analysis that can govern even such deviant choices (see Marcotte, 2003). One of the first attempts to offer an economic background to the problem is the pioneer work by Hamermesh and Soss (1974). In particular, they developed a model of utility maximization decision to investigate suicidal behaviour, linking suicide mainly to income. A different approach was

then suggested by Yeh and Lester (1987), which frame the decision into a cost-benefit analysis. Suicide is not the only deviant behaviour that economic theory has considered. Indeed, following the early work of Becker (1968), crime has been explained as the consequence of a rational economic decision (see also Palmer, 1977, and Yeh, 1987). Among the economic factors of suicide we propose, more than a low income, a low life expectancy. However, income obviously plays a relevant role. A short life expectancy, indeed, can be compensated increasing the agent's wealth or labour income. We then consider two possible alternatives which represent a step in this direction. In criminal activity, the possibility of the agent to undertake an action which determines a positive probability to die (thus shortening her life expectancy), but also immediately increases her total wealth, leads to the intuitive conclusion that agent is more inclined to risky behaviours when she values her outside option. The expected length of life plays in fact a central role: the lower it is the higher are the incentives to risk because outside opportunities depend on the expected length of life. Similarly, the chance to be employed in a risky job (i.e. being a soldier in Iraq). Indeed, if on one hand it decreases the expected length of life, on the other it rises the amount of labour income. If this increase is sufficiently large, it can overcompensate for the reduction in the value function caused by the shortening of life expectancy. In particular, we present evidence that suicide rates in the transition economies depend on the change in life expectancy at birth, after controlling for the level of per capita GDP, growth rate of per capita GDP and unemployment rate. A second empirical evidence regards the diffusion of HIV, which results higher in countries with low life expectancy at birth. We argue that such evidence is the result of the higher propensity to risk of agents with low life expectancy at birth, another result of our theoretical model. Additional evidence on this point is given by a cross-section analysis of the number of homicides; we find that mortality rates have a strong explanatory power. Finally, we discuss how our model can provide a quantitative evaluation in term of lifetime utility of the change in the level of risk sustained by an agent, denoted in literature as the Value of Statistical Life.

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