Supporting information

Modelling rural return behaviour

Research on (internal) migrants usually applies utilitarian rational choice models (Czaika, 2015: 2; Kalter, 1997: 41). Sociological, psychological, and economic research increasingly favour so-called subjectively expected utility (SEU) models, which are based on the Expected Utility Theory. SEU models have several advantages.[[1]](#footnote-1) For instance, they easily integrate utility as well as disutility considerations of economic and non-economic nature. Furthermore, it is possible to not treat return migrants as a homogenous group of people (assumption is dropped), but focus on differences in, for instance, their economic and non-economic motivations (see e.g. Stark and Bloom (1985: 174) or Dustmann and Görlach (2016: 102)).[[2]](#footnote-2) In line with the method of decreasing abstraction (Lindenberg, 1985: 108), we assume that the individual, i.e., the student, accommodates his/her bounded rationality[[3]](#footnote-3) in our (return) migration model by a stepwise decision process. The student compares his/her expected future returns at the current residence with those arising when executing the rural return option and weighs the future returns with respect to his/her individual time horizon. Subsequently, the effects of intended rural return on the student’s utility or disutility do not materialize immediately but accumulate over time. Thus, the student compares the value of his/her individually weighed and discounted expected present value at the rural return location with the corresponding present value at the present location. The corresponding net present value (NPV) would determine the (rural return) migration decision from the point of view of a SEU behavioral model. A more formal version of the described (rural return) migration-decision problem may be summarized and described as follows (see e.g. Fischer et al. (1997: 60ff)):

 (1)

where the graduate’s goal is to maximize his/her NPV, which is made up by the difference over a time . The term indicates utility based on the various dimensions , of living in location , where 1 refers to the rural return location, in year . The analogous rationale is followed with regard to the various dimensions of economic and non-economic costs denoted in utility terms and given by . The symbol signifies the current information set of the potential return migrant, resulting in subjective beliefs about the payoffs () and costs (), represented by the term probability (). The subjectively expected probability, namely that the destination location is feasible, is given by , where .[[4]](#footnote-4) The finite time horizon () and the preference for the present, relative to the future is also taken into account. This time preference rate is introduced with a discount factor , where ; implies that the person is indifferent between receiving the payoff today or tomorrow. For simplicity, we assume that the approximated cost of moving incurs a one-time sunk cost for overcoming actual or perceived (e.g., cultural) agency barriers. We also propose including a bequest value () to consider the preference beyond period , following Larson and Bromley (1990: 253).

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1. Our SEU model is inspired by the works of many, particularly of Esser (1991: 66ff), Fischer, Martin and Straubhaar (1997: 57ff), Kalter (1997: 47, 56, 76ff), and McKenzie et al. (2013: 117, 119ff). Of course, the ‘classic’ micro-economic models of migration by renowned scholars such as Todaro (1969), Stark & Bloom (1985), etc. were also considered. [↑](#footnote-ref-1)
2. Other ‘classic’ assumptions are also dropped, such as that migration is cost-free and risk-free; that potential migrants form their intentions on the basis of perfect and costless information; and that potential migrants are autonomous agents. [↑](#footnote-ref-2)
3. We follow here Posner (1997: 1551ff) regarding bounded rationality, bounded willpower, and bounded self-interest. [↑](#footnote-ref-3)
4. One could hypothesize that the graduates associate a high probability to the feasibility of the rural destination location, simply because they originate from a rural area. However, due to their intimate knowledge of the region, the opposite may also be possible. This would reflect an understanding of the past, nevertheless, graduates will surely also look ahead and anticipate expectations for the future (Haartsen & Thissen, 2014: 89). [↑](#footnote-ref-4)