

TWO-WAY CAUSATION IN LIFE SATISFACTION RESEARCH: STRUCTURAL EQUATION MODELS WITH GRANGER-CAUSATION

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Abstract

Two-way causation issues are the *bete noire* of life satisfaction research. As acknowledged in several landmark reviews, many variables routinely reported as causes or determinants of life satisfaction could equally well be consequences, or perhaps both causes and consequences (Diener, 1984; Diener, Suh, Lucas and Smith, 1999; Argyle, 2001; Frey and Stutzer, 2002). These variables include one's state of health, social support, exercise, job satisfaction and satisfaction with marriage and family life. In previous attempts to disentangle two-way causation issues, a wide variety of statistical models have been deployed. Conflicting empirical results have been reported, together with concerns about model 'goodness of fit' and model stability. In this paper we estimate five-wave structural equation models using data from the large, nationally representative German Socio-Economic Panel Survey (SOEP)(Frick, Schupp and Wagner, 2007). The models are based on a modified concept of *Granger-causation* (Granger, 1969). The intuition behind Granger-causation is that if lagged versions of time-series variable x have statistically significant effects on time-series variable y in equations in which multiple lagged versions of y are also included, then it can be inferred that x is one cause (or 'Granger-cause') of y . We adapt Granger's approach, extending it to encompass two-way causation and panel survey data. It transpires that our Granger-style models have satisfactory fits to the panel data and are stable. Alternative models fit the data much less well. Substantively, we find that two-way causation is pervasive: all of the x variables mentioned above appear to be both causes and consequences of life satisfaction. One implication is that researchers who have assumed one-way causation have seriously over-estimated the effects of x variables on LS. A second implication is that many people experience multi-year gains or losses of life satisfaction rather than just recording short term fluctuations around their own normal level or 'set-point'.

Keywords: *life satisfaction; two-way causation; Granger-causation; SOEP*