Bayesian Dedicated Factor Analysis: A Framework For Understanding the Social and Economic Determinants of Adult Health and Wages*

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Abstract

This paper develops a Bayesian dedicated factor approach to constructing maximum posterior probability indices that summarize high-dimensional data. We construct indices over a large number of measures of related, but distinct, constructs, all of which are measured with error. A Monte Carlo study confirms the validity of the approach. We apply our methods to the study of the early life determinants of adult health. We reexamine the evidence from previous analyses that fix the dimensions of the factors estimated in advance. Many analysts use indices that weight items equally. Our tests suggest that indices should not weight items equally. Our more robust approach produces a larger set of indices than used in previous studies of adult wages and health. Estimated treatment effects of education on health and wages are little affected by the choice of the number of factors or the construction of indices. However, controlling for unobserved factors through any method makes a substantial difference in the estimated treatment effects, compared to controlling for observable characteristics only.

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