

This paper is concerned with the statistical inference of seemingly unrelated (SU) varying-coefficient nonparametric regression models. We propose an estimation for the unknown coefficient functions, which is an extension of the two-stage procedure proposed by Linton al. [19] in the longitudinal data framework where they focused on purely nonparametric regression. We show the resulted estimators are asymptotically normal and more efficient than those based on only the individual regression equation even when the error covariance matrix is homogeneous. Another focus of this paper is to extend the generalized likelihood ratio technique developed by Fan, Zhang and Zhang [7] for testing the goodness of fit of models to the setting of SU regression. A wild block bootstrap based method is used to compute p-value of the test. Some simulation studies are given in support of the asymptotics. A real data set from an ongoing environmental epidemiologic study is used to illustrate the proposed procedures.