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Posterior consistency of nonparametric conditional moment restricted models

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This paper addresses the estimation of the nonparametric conditional moment restricted model that involves an infinite-dimensional parameter g_0. We estimate it in a quasi-Bayesian way, based on the limited information likelihood, and investigate the impact of three types of priors on the posterior consistency: (i) truncated prior (priors supported on a bounded set), (ii) thin-tail prior (a prior that has very thin tail outside a growing bounded set) and (iii) normal prior with nonshrinking variance. In addition, g_0 is allowed to be only partially identified in the frequentist sense, and the parameter space does not need to be compact. The posterior is regularized using a slowly growing sieve dimension, and it is shown that the posterior converges to any small neighborhood of the identified region. We then apply our results to the nonparametric instrumental regression model. Finally, the posterior consistency using a random sieve dimension parameter is studied.

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