Title: Weak exogeneity in a common trends causal model

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Abstract: We consider a simple causal model in the form of a cointegrated VAR(1), with some unobserved trends $T_t$ and observations $X_t$. The model for the observations, $X_t$, is a cointegrated VAR($\infty$) with cointegrating relations $\beta$ and adjustment coefficients $\alpha$.

We study the possibility of recovering the causal structure of the underlying model from observations of $X_t$, $t = 1, \ldots, T$. In the analysis we use the Kalman filter, and results from control theory, to find the prediction error representation of the unobserved components model. In a simple case, we find explicit formulas for $\alpha$ and $\beta$, and discuss the usefulness of weak exogeneity for $\beta$ as a tool recovering the causal structure.

Reference : Johansen, S. (2019) Cointegration and adjustment in the CVAR($\infty$) representation of some partially observed CVAR(1) models, *Econometrics* 7, 2.