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ANNOUNCEMENT

A Program to Solve an Econometric Model

BY RAY C. FAIR

A computer program is available that solves the U.S. econometric model in [1]. With this program one can either perform within-sample experiments (simulations) using the model or make actual outside-sample forecasts. The program also allows the model to be changed and adjusted in various ways. The program is a useful teaching device in that it allows students to examine various issues and questions in macroeconomics within the context of an actual econometric model. (See, for example, [2]for the use of the model to examine the sensitivity of fiscal-policy effects to assumptions about monetary policy. See also [3] and [4] for other applications.) The program is also a useful forecasting or policy tool in that it allows one to make forecasts of the future course of the U.S. economy under alternative assumptions about fiscal and monetary policies.

The program is written in FORTRAN-IV. Its minimum core requirement is about 150K. A tape of the program, coefficient estimates, and data, along with the appropriate documentation, is available from the author upon request. Write Ray C. Fair, Cowles Foundation, Box 2125, Yale Station, New Haven, CT 06520. The cost is $25.00, payable to Yale University.

Yale University

REFERENCES

[1] Fair Ray C.: *A Model of Macroeconomic Activity, Volume II: The Empirical Model.* Cambridge: Ballinger Publishing Co., 1976.

[2] ———: "The Sensitivity of Fiscal-Policy Effects to Assumptions About the Behavior of the Federal Reserve," *Econometrica*, forthcoming 1978.

[3] ———: "The Use of Optimal Control Techniques to Measure Economic Performance," *International Economic Review*, forthcoming 1978.

[4] ———: "An Analysis of a Macroeconomic Model with Rational Expectations in the Bond and Stock Markets," Cowles Foundation Paper No. 459, August 17, 1977.

CORRIGENDA

ALEXANDER H. SARRIS. "A Bayesian Approach to Estimation of Time-Varying Regression Coefficients." 2/4, 1973. 501–23.

There is an error in Theorem 5.2 of Sarris' (1973) otherwise fine article. The theorem and its proof should read as follows.

Theorem 5.2 The Bayesian estimator of β is equivalent to the following sequential estimator

(62)
$$\hat{\beta}_i/N = T\hat{\beta}_{i-1/N} + \theta R M_i P^{-1}(\theta)(y - X\mu)$$

where $\hat{\beta}_{0/N} = \hat{\beta}_0$.

(63)
$$M_i = [0\,0, \ldots, x_i', T'x_{i+1}', \ldots, T'^{N-i}x_N']$$

a $k \times N$ matrix, and $\beta_{i/N}$ denotes the i^{th} $(k \times 1)$ vector component of $\hat{\beta}$ (cf. (13)).

Proof The proof hinges on observing the structure of the matrix V. Denote by V_1 the first k rows of V, by V_2 the next k rows, etc. up to V_N. It is then easy to see, having in mind the definition of V by (50) that

(64)
$$V_i = TV_{i-1} + \sigma_u^2 F_i$$

where

(65)
$$F_i = [0\,0, \ldots, R, RT', \ldots, RT'^{N-i}]$$

then

(66)
$$V_iX' = Tv_{i-1}X' + \sigma_u^2 F_i X' = TV_{i-1}X' + \sigma_u^2 R M_i$$

Defining $\mu_i = T^i\beta_0$ and using (60)

$$\hat{\beta}_{i/N} = \mu_i + V_iX'\left(\frac{1}{\sigma_\epsilon^2}\left[P\left(\theta\right)\right]^{-1}\right)\left(y - X\mu\right)$$

$$= T\mu_{i-1} + \left[TV_{i-1}X' + \sigma_u^2 R M_i\right]\left(\frac{1}{\sigma_\epsilon^2}\left[P\left(\theta\right)\right]^{-1}\right)\left(y - X\mu\right)\Big]$$

$$= T\left[\mu_{i-1} + V_{i-1}X'\left(\frac{1}{\sigma_\epsilon^2}\left[P\left(\theta\right)\right]^{-1}\right)\left(y - X\mu\right)\right]$$

$$+ \sigma_u^2 R M_i\left(\frac{1}{\sigma_\epsilon^2}\left[P\left(\theta\right)\right]^{-1}\right)\left(y - X\mu\right)$$

$$= T\tilde{\beta}_{t-1/N} + \frac{\sigma_u^2}{\sigma_\epsilon^2} RM_t[P(\theta)]^{-1}(y - X\mu)$$

$$= T\tilde{\beta}_{t-1/N} + \theta RM_t[P(\theta)]^{-1}(y - X\mu)$$

by Gary M. Erickson
Ph.D. Student, Stanford University

CORRIGENDA

WM. CRAIG RIDDELL, "Recursive Estimation Algorithms for Economic Research," 4/3, 1975, 397–406

In the derivation of the two stage least squares recursive algorithm, the equation at the top of page 405 should read

$$e_1 = w\tilde{\delta}_1(T) = y - z\tilde{\delta}_1(T) + xc$$

where

$$c = (X'X)^{-1}X'Z_1\tilde{\delta}_1(T) - (X'X)^{-1}X'y_1(T)$$

The TSLS algorithm, equation (31), should be similarly amended as follows:

$$\tilde{\delta}_1(T+1) = \tilde{\delta}_1(T) + D_T^{-1}(\alpha_1 z + \alpha_2 w)'[y - z\tilde{\delta}_1(T)]$$
$$+ D_T^{-1}(j/\alpha z - n/\alpha w)'xc$$

Of course, $c = 0$ if the equation is just identified.