where din g, is an abbreviated form of the term in (58) and, in practice, the differentials would be replaced by finite approximations, see Theil (1975b, Chapter 2) for details_ I shall omit the n th equation as a matter of course so that 2 stands for the (n — 1)x (n —1) variance—covariance matrix of the *u's.*

The u, vectors are assumed to be identically and independently distributed as *N(0,12).* I shall discuss the testing of two restrictions: *homogeneity* $E_i y$, $_j$ = 0, and symmetry, y_{ij} =

Equation (66) is in the classical multivariate regression form (49), so equation by equation OLS yields SURE and FIML estimates. Let be the stacked vector of OLS estimates and Q for the unrestricted estimate of the variance—covariance matrix (50). If the matrix of unrestricted residuals Y ***XB*** is denoted by *E,* (50) takes the form

$$b=r-lArik. \qquad (67)$$

Testing homogeneity is relatively straightforward since the restrictions are *within* equation restrictions. A simple way to proceed is to substitute y_{in}= — j into (66) to obtain the restricted model

$$\sum_{.i=1}^{n-1} y_{,j}(d\ln p_j - d\ln p_{,,}), \qquad (68)$$

and re-estimate. Once again OLS is SURE is FIML and the restriction can be tested equation by equation using standard text-book F-tests. These are *exact* tests and no problems of asymptotic approximation arise. For examples, see Deaton and Muellbauer's (1980b) rejections of homogeneity using AIDS. If an overall test is desired, a Hotelling T^2 test can be constructed for the system as a whole, see Anderson (1958 pp. 207-10) and Laitinen (1978). Laitinen also documents the divergence between Hatelling's T^2 and its limiting x^2 distribution when the sample size is small relative to the number of goods, see also Evans and Savin (1982). In consequence, homogeneity should *always* be tested using exact F or T^2 statistics and *never* using asymptotic test statistics such as uncorrected Wald, likelihood ratio, or Lagrange multiplier tests. However, my reading of the literature is that the rejection of homogeneity in practice tends to be confirmed using exact tests and is not a statistical illusion based on the use of inappropriate asymp tot ics.

Testing *symmetry* poses much more severe problems since the presence of the cross-equation restrictions makes estimation more difficult, separates SUR from FIML estimators and precludes exact tests. Almost certainly the simplest testing procedure is to use a Wald test based on the unrestricted (or homogeneous) estimates. Define ***R*** as the In(n —1)X (n — 1)(n + 2) matrix representing the