

THE LAGRANGE MULTIPLIER F-TEST (LMF)

It has been shown by Kiviet (1986) that the standard LM test first described in Section 6.14 rejects true null hypotheses too often and that the F -test form of the LM test statistic has better statistical properties. The LMF statistic is defined as

$$\text{LMF} = \frac{n-k}{m} \frac{R^2}{1-R^2}$$

where n is the number of observations, k is the number of coefficients in the unrestricted model under consideration, R^2 is the unadjusted R^2 in the auxiliary regression, and m is the number of restrictions. Under the null hypothesis, LMF has the F -distribution with m d.f. for the numerator and $n-k$ d.f. for the denominator.

Reference: Kiviet, J.F. (1986), "On the rigour of some misspecification tests for modelling dynamic relationships", *Review of Economic Studies*, Vol. 53, PP. 241-261.