

Tests for the Macroeconomic Effects of Large-scale Migration Based on the Irish Experience, 1948-87: A Rejoinder

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These two Comments use similar methodologies and the dataset that was employed in my paper to explore the nature of the relationship between migration and economic growth in Ireland. Intensive investigation of this important issue is welcome. I would like to take up briefly some of the points raised in the Comments.

The most important substantive difference between the original paper and the Comments is Fell's (1989) conclusion that "the evidence that NMR causes GNP is stronger than the evidence that GNP causes NMR". Examination of the responses of GNP to NMR found by Fell reveals, however, that the long-run effect of a change in NMR on GNP is virtually zero. A rise in the emigration rate of 0.1 leads to a fall of 0.7 in the rate of growth of GNP over the first five years, followed by a rise of 0.6 over the next five years. Over a ten year period the net effect is negligible.

Fell's conclusion regarding the relative strength of the evidence for GNP-NMR causation is based on VAR results. Using the original unfiltered series, GNP was regressed on its own lagged values and lagged values of NMR. The F-value for the inclusion of lagged NMR had a Marginal Significance Level (MSL) of 0.023. This compares with a MSL of 0.06 for lagged GNP in the VAR of NMR on GNP. Hence the conclusion that the evidence of NMR's influence on GNP is stronger than *vice versa*. However, if these VARs are repeated using the filtered series I employed in the Sims' tests, the results obtained are:

MSL for lagged GNP (NMR as dependent variable) = 0.063,
MSL for lagged NMR (GNP as dependent variable) = 0.17.

While the MSL of lagged GNP is virtually identical for the filtered and unfiltered series, that for lagged NMR rises dramatically when the filtered series are used. This suggests that the role attributed by Fell to the lagged NMR in the VAR for GNP is in fact due to a time dependent component common to the two original series. The VAR results for the filtered series are consistent with those of the Sims' tests using the same series.

Lucey (1989) uses co-integration tests to explore whether an equilibrium relationship can be said to exist between NMR and GNP (growth rate or level). He concludes that no long-run equilibrium relationship exists between these variables. In as much as the main conclusion of the original paper was that there is no evidence that emigration impairs economic performance, it is not contradicted by this finding. None the less, the idea that there is *no* relationship between migration and economic growth is counter-intuitive and in fact is not supported by the tests Lucey uses. His tests for co-integration are based on the regression of GNP on NMR. The same tests can be performed using the regression of NMR on GNP. This yields the following statistics (see Lucey for these tests and their critical values):

| <i>System</i> | <i>CRDW</i> | <i>DF</i> | <i>ADF</i> |
|---------------|-------------|-----------|------------|
| GNP-NMR | 1.28 | -4.19 | -4.32 |

All three of these values lead to the rejection of the null hypothesis at the 5 per cent level (i.e., the hypothesis of co-integration is accepted). Thus, the co-integration tests are sensitive to the choice of model and Lucey's complete scepticism is not well founded.

When account is taken of the points made in this Rejoinder, the conclusions in the original paper need not be altered in the light of the additional tests suggested in the Comments. There is some evidence that economic performance affects the rate of migration, but evidence of feedback from migration to economic growth is missing.

REFERENCES

- FELL, JOHN, P.C. 1989. "Growth, Migration and Causality: A Comment on Tests for the Macroeconomic Effects of Large-scale Migration Based on the Irish Experience, 1948-87", *The Economic and Social Review*, this issue.
- LUCEY, BRIAN M., 1989. "Tests for the Macroeconomic Effects of Large-scale Migration Based on the Irish Experience, 1948-87: A Comment", *The Economic and Social Review*, this issue.