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## Ability of the IMF-CFF to Stabilize Export Earnings

David LIM\*

Finger and Dceosa (1980)<sup>1</sup> have shown that the International Monetary Fund's Compensatory Financing Facility (IMF-CFF) did not succeed in reducing the export earnings instability of 71 participating countries over the period 1963-1977. In fact, the IMF-CFF increased, rather than decreased, the export instability of 35 of the 62 participating developing countries, and of 5 of the 9 participating developed countries.

Finger and Derosa identified four features of the IMF-CFF which could have reduced its effectiveness in stabilizing export earnings. The first is the repayment schedule. A member can draw funds only when there is an export shortfall and a balance-of-payments need. However, it does not have to repay whenever it has an export surplus and a favourable balance-of-payments or reserves position, as there is a two-year period of grace covering the second and the third year after drawing funds, and as long as repayment is completed within five years. Export instability can be reduced if symmetry is imposed on the conditions for drawing and repayment, and the latter begins the year after funds are drawn if export earnings are good. A country's foreign exchange can be increased by IMF-CFF purchases in a bad export year and decreased by the IMF-CFF repayments in a good one.

As there is no symmetry requirement, and the interest charged on outstanding withdrawals is below the market rate, the participating developing countries which have only limited access to private capital markets have every incentive to delay repayment as long as possible. For these countries, the availability, rather than the stability, of foreign exchange may be more important, and the IMF-CFF is a convenient and cheap source of funds for general development purposes.

The second reason is the formula used for determining, *ex ante*, when a country has an export shortfall, and the size of it. The formula permits the use of provisional data for the shortfall year and, whenever these are not available, the use of estimates for up to twelve months. It also uses forecasts for the export earnings of the two post- shortfall years. It is not easy to obtain accurate forecasts at the best of times and it becomes even more difficult when the exercise is carried out for countries whose export earnings are very unstable to begin with. Most of these would not, *prima facie*, have participated in the scheme if their export earnings were stable. If an export shortfall is determined for a year of export surplus, and a withdrawal is made, the whole exercise increases rather than decreases export instability. Even if the direction of change is predicted accurately, the size of the export shortfall might be grossly understated. This then produces a drawing of funds whose stabilizing effect is minimal.

The third is the administrative time-lag between the export shortfall occurring and the receipt of the borrowing from the facility. If the funds are received a year after the shortfall, they can come at a time when export earnings are on the increase again and produce a de-stabilizing effect instead.

The fourth reason is that the size of a country's quota in the IMF and the quota limits imposed on IMF-CFF purchases do not allow enough fund drawing to match the estimated

export shortfalls in every case. This severely limits the ability of the facility, even if it does not suffer from the other deficiencies, to cope adequately with reducing the fluctuations.

Finger and Derosa found that the inability to forecast export shortfalls accurately was an important reason for the IMF-CFF failing to reduce export instability. Delays in receiving funds and an inadequate supply of them were found not to be important. They did not test for the influence of asymmetry on the conditions for drawing and repayment.

#### Need for Further Empirical Work

Finger and Derosa have contributed significantly to the debate on the ability of the IMF-CFF to reduce export instability. However, there is a need for further empirical work on this issue. Finger and Derosa's analysis covered the first 15 years of operation of the IMF-CFF. The results for a more recent period may be different, especially as the method for measuring the trend was changed in 1979 from an arithmetic estimate to a geometric one. Moreover, the terminal years of the period examined by them may well be exceptional ones. The very sharp increase in fund drawing from the IMF-CFF by developing countries in 1976 (SDR 1,520 million, compared to the previous maximum of SDR 300 million in 1972) and the equally sharp increase in the export earnings of non-OPEC developing countries in 1976 and 1977 might have unduly affected the results.

At the same time, there may be technical errors in Finger and Derosa's work. First, their use of the standard estimating error, obtained by regressing the natural logarithm of export earnings against time, as the instability index may not be illuminating. Some scaling is needed, for example, using the mean of the relevant series, to avoid the problem that differences in the estimate may arise purely from arbitrary differences in the denomination of the data used. Second, they obtained the trend value for export earnings for all countries by regressing the natural logarithm of export earnings against time. No explanation was given for the use of a non-linear function for all the countries in the sample. It is possible that the trend values for the export earnings of some countries could be estimated more accurately using a linear function, in which case the estimated trend value and the subsequent instability index would give a false picture of the real situation.

A further analysis of the impact of the IMF-CFF on export instability was therefore carried out, because of possible weaknesses in the Finger and Derosa study. The period covered was 1963-84. The analysis also deals with two sub-periods, 1963-77 and 1978-84, the first of which coincides with the Finger and Derosa period for comparison.

The instability index of export earnings adjusted by the IMF-CFF purchases was compared with that of export earnings alone. The index used is the standard estimating error from regressing the variable concerned against time, normalized by the mean. Both the linear and the logarithmic functions were used. The results are presented in Table 1.

When the linear formulation was used for the period 1963-77, the analysis showed that IMF-CFF purchases had reduced the export instability of 15 of the 35 countries. However, the reduction was very small, averaging only 0.4 per cent. At the same time, the export earnings of 10 countries were actually made more unstable, while those of another 10 were not affected at all. For the 35 countries overall, export instability was reduced by an average

of only 0.1 per cent. For the period 1978-84, and the entire period 1963-84, a much larger percentage of the countries examined had their export instability reduced. However, the average decrease was hardly significant: 0.6 and 0.4 per cent respectively.

TABLE 1: EFFECT OF IMF-CFF PURCHASES ON EXPORT INSTABILITY OF PARTICIPATING COUNTRIES, 1963-1984

	No. of countries where IMF-CFF purchases			Total no. of countries	Unweighted average decrease (-) and increase (+) in export instability (%)	
	Reduced export instability	Increased export instability	No difference		Countries experiencing decrease	All countries
<i>Linear analysis</i>						
1963-77	15	10	10	35	-0.4	-0.1
1978-84	28	5	9	42	-0.6	-0.4
1963-84	27	0	5	32	-0.4	-0.3
<i>Non-linear analysis</i>						
1963-77	18	13	4	35	-0.9	-0.3
1978-84	25	17	0	42	-0.3	-0.1
1963-84	26	6	0	32	-0.2	-0.2

More or less the same results were produced when the non-linear formulation was used. The majority of the countries drawing funds on the IMF-CFF had their export instability decreased, but the actual decline was minimal.

The results suggest that the IMF-CFF was not effective in moderating export earnings fluctuations in the participating countries over the period 1963-84. While the analysis shows more countries to have had their export instability reduced, when compared to the findings of the Finger and Derosa study, the reduction is insignificant. Thus, in spite of a number of weaknesses in their study, Finger and Derosa's main conclusion for the period 1963-77 still holds for the longer and more recent period 1963-84, i.e. that the IMF-CFF does not significantly reduce export earnings fluctuations of the participating countries, notwithstanding the change in forecasting method in 1979.

## Conclusions

The analysis suggests that the so-called "judgmental" approach used to estimate the export shortfall, in which forecasting for export proceeds in the two post-shortfall years is required, may have to be changed. There is already an element of forecasting involved in arriving at export earnings for the shortfall year: when hard data are not available, provisional figures are used or, failing these, estimates for up to twelve months. The whole exercise makes the calculation of the export shortfall extremely sensitive to inaccurate data and forecasting errors.

Given the difficulties and inaccuracies of forecasting, there may be a case for not basing the trend value for estimating the export shortfall on forecasts. If a medium-term trend is required, then an exponential or linear trend value can be obtained by regression analysis

using data for, say, the last 5 years. A longer-term trend may require the use of data for the last 7 to 10 years. The functional form which gives the better fit should be used.

There is every chance that the value obtained this way will be more accurate than the one obtained by the current method. Even if the results are not better, the use of a known, rather than an "unknown", formula for calculating the trend value enables the potential participating member to be more sure, in advance, of the amount it can purchase from the facility. This would be an incentive to make greater use of the facility.

Another criticism of the existing system that can be raised in this context is the inappropriateness of using nominal values to estimate the shortfall in export earnings. A country with a shortfall in nominal export earnings, but no shortfall in real terms because of a larger proportionate drop in import prices, requires no compensation. On the other hand, a country with no shortfall in nominal terms, but a shortfall in real terms because of an increase in import prices, requires help.

By providing compensation on the basis of nominal terms, the present system may therefore lead to help being given when not needed, but denied when it is. This is a more serious weakness than the one observed earlier, i.e. that the facility cannot stabilize export earnings in nominal terms. Even if nominal export earnings were stabilized, real export earnings might not have been stabilized at the right time. Thus the "real" assistance provided is not what is required and therefore wasteful.

The failure to stabilize the nominal or real export earnings of primary producers would therefore imply that the IMF-CFF has not been able to neutralize the harmful effects of export instability on economic growth. There is also a direct cost to the primary producers concerned. In a recent, and very important, contribution to the literature on the microeconomic analysis of commodity price stabilization and the economics of risk, Newbery and Stiglitz (1981)? show that a high level of income risk can be very costly to primary producers. These producers' elasticity of marginal utility with respect to income, i.e. the way in which increases in their utility respond to changes in their income, was found to vary between 1.0 and 2.0. If the variation coefficient of their net income is between a third and a half, the risk premium can cost between 5 and 25 per cent of their income.

[Footnote]

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1. Finger, M. and Derosa, D. A. The Compensatory Finance Facility and Export Instability. 14 J.W.T.L. 1 (1980) p. 14.

2. Newbery, D. M. G. and Stiglitz, The Theory of Commodity Price Stabilization: A Study in the Economics of Risk. Oxford: Clarendon Press, 1981.