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"Effective Exchange Rates for Exports in Pakistan"--

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A Comment

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Summary

Walter Hecox in his article "Effective Exchange Rates for Exports in Pakistan" has incorrectly implied that the ranking of export sectors by their net foreign exchange earnings yield a measure of their export efficiency. This note argues that the proper measure for export ranking is the domestic resource cost criterion, and that rankings by the two measures differ substantially.

"Effective Exchange Rates for Exports in Pakistan"—**A Comment****By Charles P. Staelin***

In a recent issue of this Journal, Walter Hecox [1972] attempts to evaluate the rationality and efficacy of Pakistan's export incentive system through the calculation and comparison of the net foreign exchange earnings of various export sectors. It is argued in this comment that the net foreign exchange earnings criterion is an improper indicator of the relative efficiency of different export products in earning foreign exchange. Moreover, rankings based on this criterion may differ substantially from rankings based on the Domestic Resource Cost (DRC) criterion, the criterion most suitable for the efficiency ranking of exports.

Hecox defines the net foreign exchange earnings criterion as

$$V_j = E_j - M_j \quad (1)$$

where E_j equals "the export value (f.o.b.) in rupees (at the official exchange rate) of one rupee (at domestic market prices) worth of output from industry j ," and M_j equals "the total imports (direct and indirect) embodied in one unit of final demand for the output of industry j ..."

V_j is then the net foreign exchange earned per rupee of export (measured at domestic prices) of industry j .

Assuming perfectly elastic import supply and export demand curves¹, Hecox quite rightly argues that if foreign exchange earnings are to be maximized, those exports with the highest levels of V_j should be promoted.

Yet what kind of goal is the maximization of net foreign exchange earnings? The goal of exports, as of international trade in general, is

to save domestic resources by trading what can be produced efficiently for what can be produced less efficiently. Net foreign exchange earnings-- which may be translated as imports-- are the benefits of exports. But there are also costs, namely the domestic resources used to produce them, and to speak of maximizing benefits without considering costs is meaningless. As Hecox points out (p. 234), the maximization of net foreign exchange earnings implies the equality of all V_j . What he fails to point out is that the equality must come when all V_j are driven down to zero if a true maximum is to be achieved. Every product produced in the economy must be exported as long as its f.o.b. price exceeds its import content, no matter what the cost, no matter how inefficient. For foreign exchange is given an infinite shadow price by this criterion.

Clearly, net foreign exchange earnings should not be maximized, but rather optimized at a level where the benefits to society equal the costs. A measure of the price of the foreign exchange earned through the export of individual products is needed for such an exercise, and such a measure of price has been knocking about the literature for some time. Called-- with some confusion-- the Domestic Resource Cost (DRC) or the Effective Rate of Protection (ERP),² it measures the domestic resource cost per unit of net foreign exchange earned through the export of a given product and is therefore the opportunity cost (shadow price) of net foreign exchange earnings. It is the DRC, not as Hecox claims the V_j , which yield "... 'shadow prices' which can be used in planning resource allocation and investment." (p. 239) V_j is simply a measure of benefits per unit value of an export; since it ignores costs it can certainly not be regarded as a shadow price-- i.e. a measure of opportunity costs.

Although Hecox does worry about what he calls "domestic value added," his concern is with something quite different from resource costs. Rather he seems to equate "domestic value added" with V_j , net foreign exchange earnings, which can also be thought of as domestic value added measured at world prices. On page 236 he states, "if the goal is maximum net foreign exchange earnings then the export incentive structure must either be neutral in terms of domestic value added between industries or encourage those industries with relatively high levels of domestic value added." This statement is certainly true if net foreign exchange earnings is substituted for domestic value added; it makes no sense if a measure of resource costs is substituted instead.

The relationship between DRC_j and V_j can easily be seen when DRC_j is written as

$$DRC_j = \frac{A_j}{E_j - M_j} = \frac{A_j}{V_j} \quad (2)$$

where A_j is the domestic resource cost (direct plus indirect) of one rupee of final demand (measured at domestic prices) of industry j . Hecox's V_j is only the denominator of DRC_j and is thus an imperfect proxy for DRC_j . A large V_j will, ceteris paribus, lead to a small DRC_j . However, large V_j may also be associated with relatively larger A_j , while industries with high import contents and low V_j may still be efficient exporters if they process or combine those imports efficiently. Thus many countries, such as Japan, are efficient exporters of very high import content goods (goods with low per unit domestic value added) while their low import content goods, agricultural products in particular, are very inefficient exports.

Unfortunately, it was not possible to use Hecox's own data, as presented, to calculate the DRC_j for his industries and to compare the ranking by DRC_j with the ranking by V_j . However, a study by this author [Staelin, 1972]

of the Indian export sector yields a rather poor correspondence between DRC_j and V_j rankings at the sectoral level. Forty-two traditional and nontraditional Indian export sectors were ranked by each measure and a comparison of the two rankings yielded a Spearman's Rank Correlation Coefficient (s^2) of only 0.31. Assuming that the situations of India and Pakistan are somewhat similar, it would seem that Hecox's V_j measure is a poor proxy indicator of efficient exports.³

The investigation and determination of E_j , the ratio of the f.o.b. export price to the domestic price, is of course of more than passing interest in itself. If it is measured directly (i.e. through a direct comparison of f.o.b. and domestic prices) it yields an indication of the implicit subsidy given exports (although when the export or domestic markets are imperfectly competitive problems may arise from price discrimination). Alternatively, when it is constructed from various subsidies as Hecox does, E_j can afford an easy measure of their additive effect. Yet E_j alone has no value as an indicator of the economic efficiency of individual exports, neither does it when incorporated with M_j in measuring net foreign exchange earnings.

The "perfect" export incentive system then should not seek to equate the net foreign exchange earnings per unit of domestic resources expended (the inverse of the DRC_j) of all exports with the (inverse of the) shadow price of foreign exchange.⁴ Only then will society pursue its proper goal of export optimization rather than export maximization.

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1. Without such perfectly elastic supply and demand curves the relevant measure would be in terms of marginal net foreign exchange earnings.
2. These two measures are discussed at length by Balassa and Schydlofsky [1972], Krueger [1972] and Bruno [1972]. The concensus seems to be that DRC and ERP are variants of each other and for clarity we shall here use the DRC variant.
3. On the product level and within a group of similar products, V_j and DRC_j rankings may have a better correspondence. In ranking fifty-eight Indian engineering goods exports by both measures, this author [Staelin, 1972] found an s^2 of 0.87.
4. Of course society should not stop here. Imports too should be examined and the DRC of all imports and exports equated with each other and with the shadow price of foreign exchange.

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