

Factor Intensity Reversals: Stopler-Samuelson & Rybczynski Theorems

1. MEANING OF FACTOR INTENSITY REVERSAL

The H.O. theorem assumes that production functions are different for two different commodities which are traded, but are the same for each commodity in the two countries. It means that the production function of commodity X is different from commodity Y . But the technique used to produce X in both the countries (A and B) is the same. So is the technique used to produce Y is the same in both A and B countries. If country A is capital-abundant and Y is a capital-intensive good, A will export Y commodity. Similarly, B being a labour abundant country will export its labour-intensive good X . According to factor intensity reversal the same good Y will be capital-intensive in country A and labour-intensive in B . In such a situation, according to H.O. theorem, both A and B countries would export the same commodity Y to each other. Since this is not possible, the H.O. theorem breaks down in the presence of factor intensity reversal because it fails to explain the pattern of trade between the two countries.

Factor intensity reversals may exist if one isoquant 'sits on the other' or if one isoquant intersects the other at multiple points. The former is known as single factor intensity reversal and the latter as multiple factor intensity reversal.

Single Factor Intensity Reversal

A single factor intensity reversal is illustrated in Fig. 1 where the isoquant FF sits on the isoquant CC at point R . It is only at R that a tangent representing the common price line representing equal international price ratios can be drawn. The ray shows the proportion in which the two factors are combined in different intensities for both commodities at one factor price ratio. Lerner calls the ray OR a "radiant

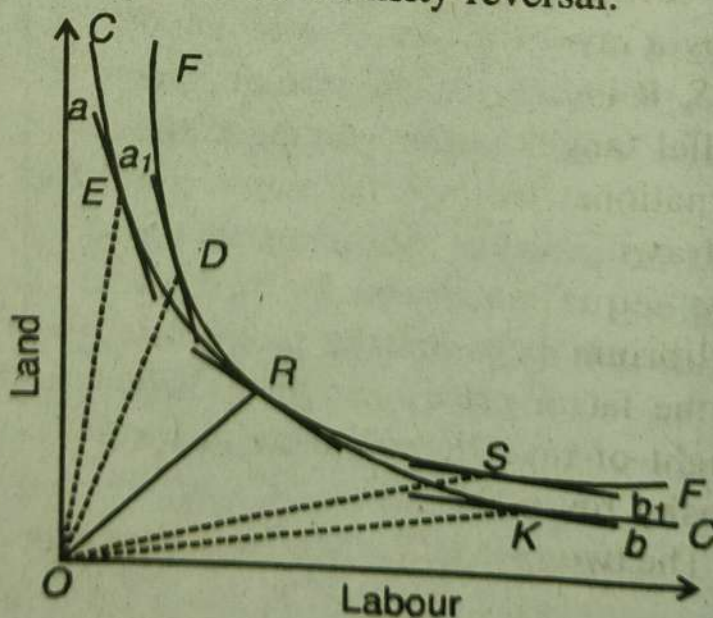


FIG. 1

ratios in the production of food and clothing in America. Rays OD_1 and OD_2 show similar ratios on the factor price line $P_B L_B$ in Britain. The figure reveals that clothing is land-intensive in America (point E_2) but labour-intensive in Britain (point D_2), while food is labour-intensive in America (point E_1) but land-intensive in Britain (point D_1). Thus the land-intensive commodity food is labour-intensive in the land-abundant country America, while it is land-intensive in the labour-abundant country Britain. This shows factor intensity reversals. Factor prices differ in the two countries as points E_1 and D_1 of the isoquant FF lie on two different factor price lines $P_A L_A$ and $P_B L_B$. Both will try to export food and import clothing by substituting their factors. Thus the factor-price equalisation theorem breaks down.