

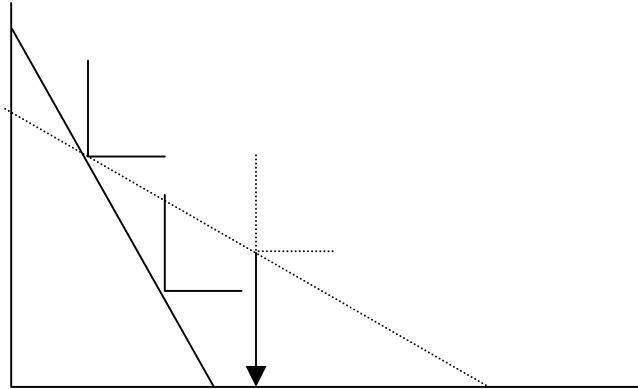
## Scrappage of Old Capital

Problem: Keeping in mind that the capital cost can be written as  $r p_M M$  where  $r$  is the rate of interest,  $M$  is the number of machines and  $p_M$  is the price of machines, consider the implication of a technological innovation in two and three-sector models.

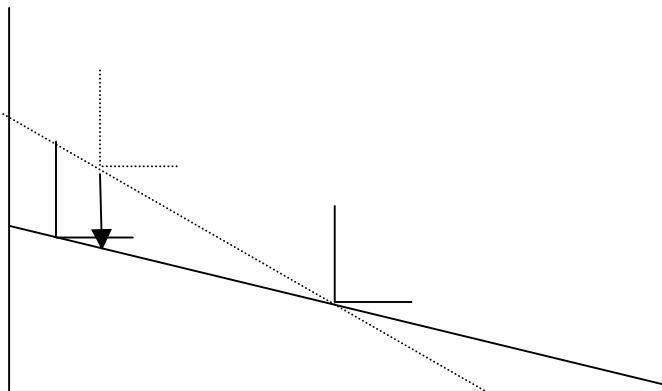
1. In a two sector model, illustrate in the Lerner-Pearce diagram conditions under which the old capital is scrapped, and write down any interesting theorem(s) with regard to the scrappage of old capital.
2. In a three sector model, with a high-wage cone and a low-wage cone, illustrate in the Lerner-Pearce diagram conditions under which the old capital is deployed in the high-wage cone and conditions under which the old capital is deployed in the low-wage country. Write down any interesting theorems with regard to the deployment of capital and the scrappage of capital.

**Theorem: Old Capital in the capital intensive sector in a two sector model is never scrapped. Old capital in the labor-intensive sector can be scrapped.**

Scrappage Case

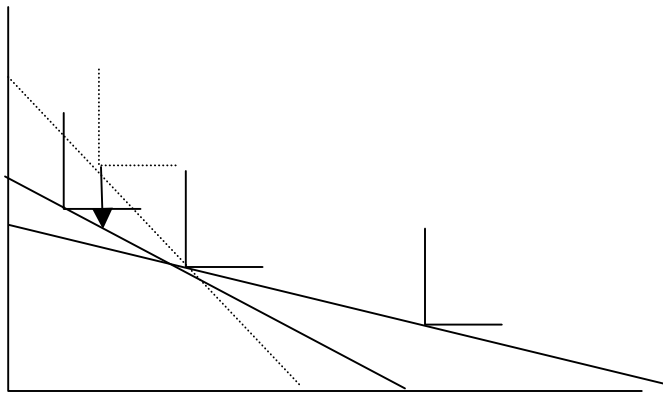


Innovation in the Capital Intensive Sector



***In a three sector model, old equipment suited to the capital intensive sector is kept in the high-wage country. Old equipment suited to the middle sector is operated in the low-wage country. Old equipment suited the labor-intensive sector is either used in the low-wage country or is scrapped.***

Innovation in the capital intensive sector



Innovation in the middle sector

