

Quiz #4 – Economic Development and the Environment

Name: Answer Key

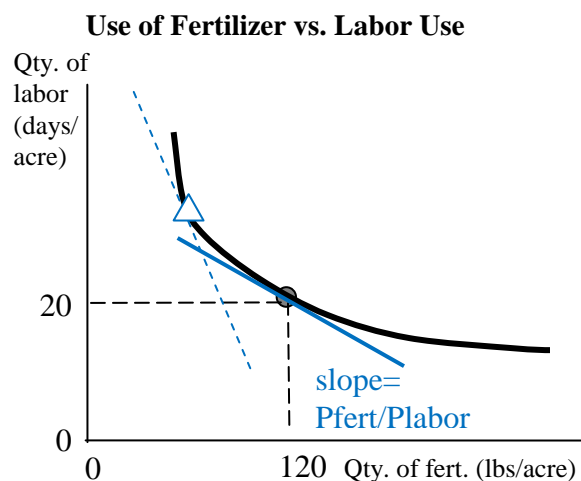
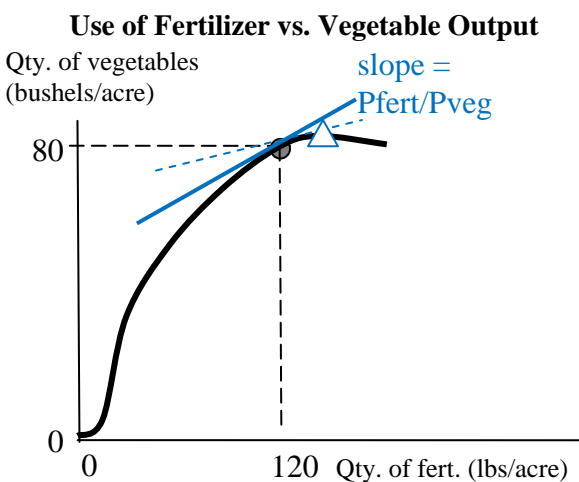
In your job for the Yara fertilizer company (remember Exercise #3?), you have been assigned to the fictional country of Riverland, where the Fisherman’s Party has just defeated the Farmer’s Party to gain a majority in the legislature. It seems likely that the Fisherman’s Party will try to restrict fertilizer use, to limit nitrogen runoff from farmers’ fields into the water supply.

The diagrams below shows how farmers’ production of vegetables depends on their level of fertilizer use (on the left diagram), and how their use of fertilizer is linked to labor use (on the right). Each relationship is shown holding all other things constant. Farmers’ current production is 80 bushels/acre, using 120 lbs/acre of fertilizer and 20 days/acre of labor.

(1) What explains this current production level? Please *draw a solid line* on each of the two diagrams to help explain why the dot is where it is, and then *write the formula for their slopes* next to those solid lines you just drew. Note that this is before any tax on fertilizer is imposed.

(2) Now, if the government imposes a tax on farmers’ purchase of fertilizers, *draw a dashed line* on each diagram that predicts how farmers would respond.

(3) To show farmers’ response, please *draw a triangle* on each diagram to show their new production of vegetables and use of fertilizer.



(4) Now, in the space below, please complete the sentence to explain how farmers are likely to adjust vegetable production and labor effort in response to this tax on fertilizer use.

In response to this tax, farmers are likely to reduce vegetable production and increase labor use.
