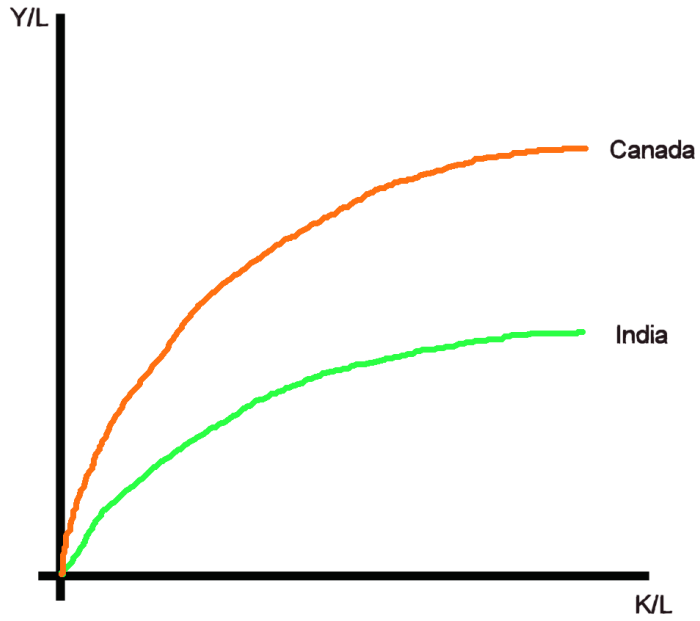
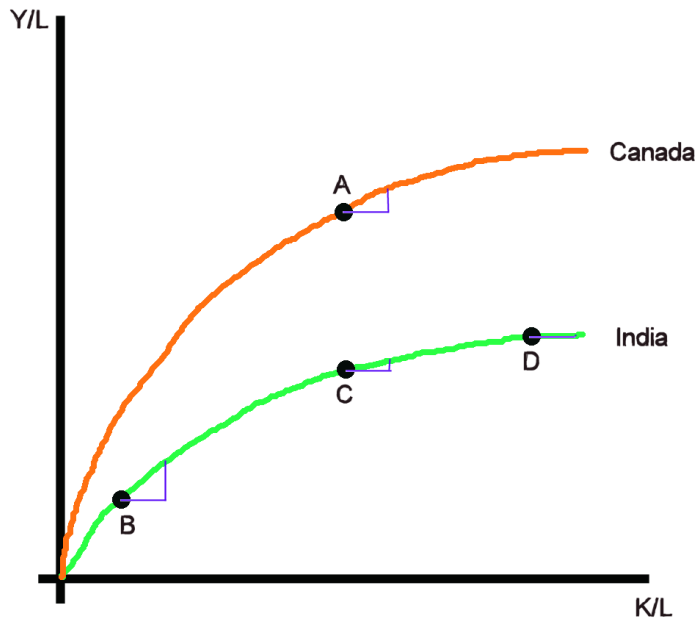
Suppose that Canada has access to more natural resources than India. How would this affect your production functions diagram? Will be observe a catch-up effect in this case? Why or why not?

If Canada has access to more natural resources than India, all else equal, then Canada's production function will be higher than India's.



Recall that the **catch-up effect** is the property whereby countries that start off poor tend to grow more rapidly than countries that start off rich. So based on the two production functions, is it true that India, the relatively poorer country, will grow more rapidly than Canada?



Suppose Canada is at point A. At points B, C, and D, India has less output per labor than does Canada at point A—and therefore the catch-up effect says that India should grow faster at all three points than Canada at point A. This is true at point B, since a marginal change in K/L causes a larger change in Y/L for India than Canada. However at points C and D, India is growing slower than Canada since marginal changes in K/L increase India's Y/L by less than it would Canada's; this flies in the face of the catch-up effect. So, in generality, we cannot say that the catch-up effect will take place. Indeed, the catch-up effect is predicated upon all else being equal in the two countries, i.e. having the same production function.