Elaboration on IS-LM-TB=0 model

What happens when there’s a devaluation in the IS-LM=TB=0 model? This statement is the same as a $\Delta q > 0$.

Upon devaluation, both the TB=0 and IS curves shift. For the TB=0 curve:

$$ Y = \left(\frac{1}{m}\right) [\text{EXP} - \text{IMP} + (v + n)q] $$

Note: The fact that $v$ and $n$ are considered positive means that the Marshall-Lerner conditions hold.

The horizontal shift in the TB=0 curve is given by:

$$ \Delta Y = \left(\frac{1}{m}\right) [\Delta \text{EXP} - \Delta \text{IMP} + (v + n)\Delta q] $$

since the autonomous components of exports and imports are constant:
What about the IS curve?

\[
\Delta Y = \left(\frac{1}{m}\right) [(v + n) \Delta q]
\]

Let \( \bar{\alpha} \equiv \left(\frac{1}{1 - c(1 - t) + m}\right) \) \(< IS >

This movement horizontally is given by thinking about a change in the right hand side objects, holding the interest rate constant so \( \Delta i = 0 \):

\[
\Delta Y = \bar{\alpha} [\Delta A + \Delta EXP - \Delta IMP + (n + v) \Delta q - bi]
\]

Notice that for a change in the real exchange rate, the TB=0 shift in (1) and the IS shift in (2) differ only by the terms in front of the square brackets, then how far each curve shifts is a function of those terms. Since

\[
\bar{\alpha} \equiv \left(\frac{1}{1 - c(1 - t) + m}\right) < \left(\frac{1}{m}\right)
\]

The TB=0 curve shifts further (in this case rightward) than does the IS curve.