(1) **Case of one input**: L (Labor)
- Assume 2 produced goods: M & F
- Fixed amount of labor: L (Needs to be allocated to the 2 sectors)
- Firms maximize profits taking prices ($P_M$ & $P_F$) and wages ($w$) as given.
  (i.e. we have perfect competition in output and input markets)

Assume that the production functions have decreasing Marginal Product of Labor (MPL)

Example:

If both sectors produce positive amounts of output, profit maximization will require:

\[
\begin{align*}
\text{(+) } & \quad MPL_F \cdot p_F = w \\
\text{\{ } & \quad MPL_F \cdot p_F = MPL_M \cdot P_M (*) \\
\text{(++) } & \quad MPL_M \cdot p_M = w
\end{align*}
\]
We can see now how labor is allocated. We get the MPL curves from the production functions and then use the profit maximizing conditions (+) & (++).

**OR**

Things to do:
- What happens if $P_F \uparrow$?
- What happens if $P_M \uparrow$?
- What happens if $MPL_F \downarrow$?