

$$0 = q r V_{max} \left( \frac{n}{k_m + n} \right) \left( \frac{c}{k_c + c} \right) - q y$$

$$0 = r(r u_c - r_n) V_{max} \left( \frac{n}{k_m + n} \right) \left( \frac{c}{k_c + c} \right) - q(r u_c - r_n)$$

$$q(r u_c - r_n) = r(r u_c - r_n) V_{max} \left( \frac{n}{k_m + n} \right) \left( \frac{c}{k_c + c} \right)$$

$$q = r V_{max} \left( \frac{n}{k_m + n} \right) \left( \frac{c}{k_c + c} \right)$$

thus  $y = r u_c - r_n$