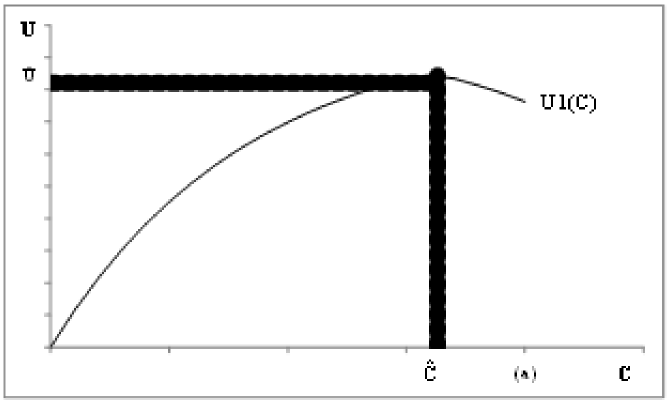
22. Correct. The answer is true. In Ramsey's model, output (Q) is a function of capital (K) and Labor (L). ($Q = F(K,L)$) Capital does not depreciate or wear out and there is no technological progress. Output can be consumed (C) or saved (S) to invest and increase the capital stock ($\dot{K} = \partial K / \partial t$). (A dot over a variable indicates a time derivative and two dots indicate the second order time derivative.) Thus, $Q = C + S = C + \dot{K}$. Solving for C and substituting in the production function gives $C = Q(K,L) - \dot{K}$. C creates happiness or utility ($U(C)$) up to the bliss point $\hat{C}$ shown in the figure below. Working or providing labor creates disutility $D(L)$. Marginal utility ($U'(C)$) indicates how much happiness an extra unit of consumption provides and is assumed to be non-increasing ($U''(C) \leq 0$).



Marginal disutility on the other hand is nondecreasing ($D''(L) \geq 0$). Your last hour of work never gets less irritating as you work longer hours. Net utility is $U(C)–D(L)$. Ramsey minimizes the cumulative disutility which is the distance from the bliss point plus the disutility of work from now to the end of time:

$$\int_0^\infty \left(B - U(C) - D(L)\right)dt \text{ with } C = Q(K,L) - \dot{K}$$

subject to $K(0) = K_0$

The Ramsey rule of capital accumulation is:

$$\dot{K}^*(t) = \frac{B - U(C(t)) + D(L(t))}{U_C(t)}$$

This rule suggests that we should save more the further we are from bliss. The larger is current marginal utility of consumption, the less we should invest. With actual functions and knowledge of the original capital stock, we could solve for the capital stock at each point of time.

$F_{KK} \leq 0$ insures a maximum