

utility by foregoing recreation and consuming  $m^0/p^0$  units of nonrecreation. The recreationist could achieve this higher level rather than the point  $(M^0 - T^0) \div p^0$  since any recreation involves a cost  $T^0$  that must be incurred before recreational activities can occur. If no recreation is consumed, then the potential recreationist has  $T^0$  more dollars of income to spend on nonrecreation units. This is a discontinuity in the budget constraint. A decrease in  $C$  from  $C^0$  to  $C'$  is represented by the iso-income line  $BC'$ . After the price decrease, the utility level of  $U_1$  is reached and can be obtained in two ways. First, the recreationist can consume no recreation and be at the point  $m^0 \div p^0$  or he can consume  $Y = Y^c$ ,  $q = q^c$ . The recreationist would be indifferent between these two choices since he would remain on the same utility level regardless of his decision.

Decreasing on-site costs further gives the iso-income line  $BC''$ . This will change the optimal budget to  $Y = Y^d$ ,  $q = q^d$ . Thus, as the price of recreation decreases, the quantity of recreation demanded increases. At any value of  $C$  where  $C < C'$ , the recreationist will prefer to consume a combination of recreation and nonrecreation commodities rather than solely nonrecreation commodities. For any value of  $C$  where  $C > C'$ , the consumption of recreation would be excluded from the budget, i.e., any iso-income line to the left of  $BC'$ . The price of a recreation unit at the point where a recreationist is indifferent between recreation and nonrecreation,  $C'$  in this case, is defined as the "critical" on-site cost ( $C^*$ ). The effect of a change in  $C$  on the amount of recreation will depend on the magnitude of the critical price. For a given utility function, the critical value of on-site recreation cost depends on the level of income, the price of other commodities, and the cost of travel.

### Travel Costs

A change in the cost of travel will be viewed in a different manner than a change in on-site recreation costs due to the fact that a travel cost must be incurred before any recreation is consumed. By varying the travel cost,  $T$ , a different budget constraint is imposed for each value of  $T$ . Referring to Equation (11), it can be ascertained that high levels of  $T$  will leave less income to be spent on recreation,  $Y$ , and all other commodities,  $q$ , whereas lower levels of  $T$  will make more income available.

It can be hypothesized that as travel costs decrease the amount of recreation (and nonrecreation goods) will increase within a certain range due to the effect of more income being