Pareto Optimality

It is obvious from above that the Pareto efficiency point in production must necessarily be a point of tangency between the IQs for the two goods. If we join all the points of tangency between the IQs for the two goods, by a curve, we would obtain what is called the Edge-worth contract curve for production which we would denote by CCP. The CCP would run from the point O to the point O' in Fig. 21.1.

We have obtained then that all the points on the CCP are Pareto-efficient points in production. That is, if we are at some point on the CCP, then we are no longer able to effect by a change in the allocation of the inputs, an increase in the output of one of the goods without reducing the quantity of the other.

On the other hand, any point like B in Fig. 21.1, which does not lie on the CCP and which does not satisfy condition (21.1), is Pareto-non-optimal. At the point B, we are on IQ2 for good Q1 and on IQ'2 for good Q2.
However, after a reallocation of the resources, if the economy reaches at some point on the CCP between R and S, then the quantities of both the goods would

be larger, and if the economy reaches just at the point R or S, then the quantity of one of the goods would be larger and that of the other good would remain the same.

This shows that any point B that does not lie on the CCP, is Pareto-non-optimal, and, by a reallocation of the resources, if the economy is brought on to some point on the segment RS of the CCP, then at least one of the goods would be produced in a larger quantity, that of the other remaining the same.

We have seen that all the points on the CCP are Pareto-optimal. However, we cannot compare any two points, e.g., R and S, on the CCP because if the economy moves from S to R, the output of Q1 would increase and that of Q2 would decrease resulting in advantage for some people and disadvantage for some others, and since interpersonal comparison of utility is ruled out, we cannot compare the points R and S.