(when middle-aged) to generation $t-1$ (when retired) is given by $(1+n)^{t+1}\bar{C}^1$. This quantity, divided by the size of generation $t-1$, yields the per capita consumption of the retired, that is, $\bar{C}^3$. This is precisely what the foregoing equation says.

As an example, consider the utility function

$$U(C^1,C^2,C^3)=\sum_{i=1}^{\delta} \log C^i.$$

Maximizing it, subject to the budget constraint, leads to

$$(1+n)\bar{C}^1=\bar{C}^2=\frac{\bar{C}^3}{1+n}=1/3,$$

which is clearly competitively attainable.

Why is the decentralized economy in this example efficient? Surely, it is possible to attribute this result to "the social contrivance of binding contracts." It is clearly in the interest of the middle-aged to default and ignore the debt which they have incurred when young. Even if the rules are such that a person guilty of default is denied access to the capital market as a lender (and so must lose interest on his savings), it is still true in many cases that default will result in increased consumption in all periods. Here, once again, is an opportunity to appeal to the social contract and here, once again, it would seem to be beside the point, and for very much the same reasons as before: The assumption that contracts are not defaulted upon usually goes without saying in the theory of the competitive mechanism; it does not *explain* our result, it merely *permits* it.

But our example is a very lucky one. For it is not, in general, to be expected that the optimal solution of a consumer's lifetime allocation problem will satisfy as stringent a condition as $\bar{C}^3=(1+n)^2\bar{C}^1$. In fact, with most utility functions this condition will not hold. If $\bar{C}^3>(1+n)^2\bar{C}^1$ then we shall, once again, have too little borrowing in the economy and an additional agent with negative net worth would be needed in order to attain efficiency. However if $\bar{C}^3<(1+n)^2\bar{C}^1$ then we shall have *too much* borrowing in the economy, and it will be possible to introduce a financial intermediary with *positive* net worth which will guarantee efficiency. The balance sheet of this intermediary will show I.O.U.'s of young people on the asset side and nothing on the liabilities side. In order to see how this intermediary would operate, let us concentrate, once again, on period t. In this period, a member of generation t offers to sell a quantity $\bar{C}^1$ of I.O.U.'s. The total supply of I.O.U.'s by generation t is therefore given by $(1+n)^t\bar{C}^1$. However, a member of generation $t-1$ wishes to buy only $\bar{C}^3/(1+n)$ in I.O.U.'s, so that the total quantity of I.O.U.'s demanded is $(1+n)^{t-2}\bar{C}^3$, which falls short of the quantity supplied. The intermediary now steps in and buys the excess supply, using as payment the resources which generation $t-1$ pays in when it redeems its own I.O.U.'s, which it sold to the intermediary in the previous period. Stationarity insures that these resources will always be precisely adequate to buy the outstanding I.O.U.'s. The result will be that physical output will not be carried over from period to period, so that efficiency will be attained.