



Figure 4. Profile of lenders' cash flow from lending to a production chain of length  $n$  (light line) and to a chain of length  $n'$  (dark line)

From the lenders' perspective, the cash flow is negative until date  $n$ , but then they start receiving interest repayment on the outstanding stock of loans. Figure 4 compares the profile of lenders' cash flows conditional on survival of the chain. The light line gives the cash flow profile by lending to a production chain of length  $n$ , while the dark line gives the profile from lending to a chain of length  $n' > n$ .

Note that the outstanding loan amount is of the order of the *square* of the length of the production chain, since the initial set-up cost of the chain is the "triangle" until the final product is marketed. For the firms, the choice of the length of the production chain trades off the marginal increase in productivity from lengthening the chain against the increased cost of financing working capital.

There are  $L/n$  production chains, so that the aggregate working capital demand in the economy, denoted by  $K$ , is

$$\begin{aligned}
 K &= \frac{1}{2}n(n+1)w \times \frac{L}{n} \\
 &= \frac{n+1}{2}wL
 \end{aligned} \tag{3}$$