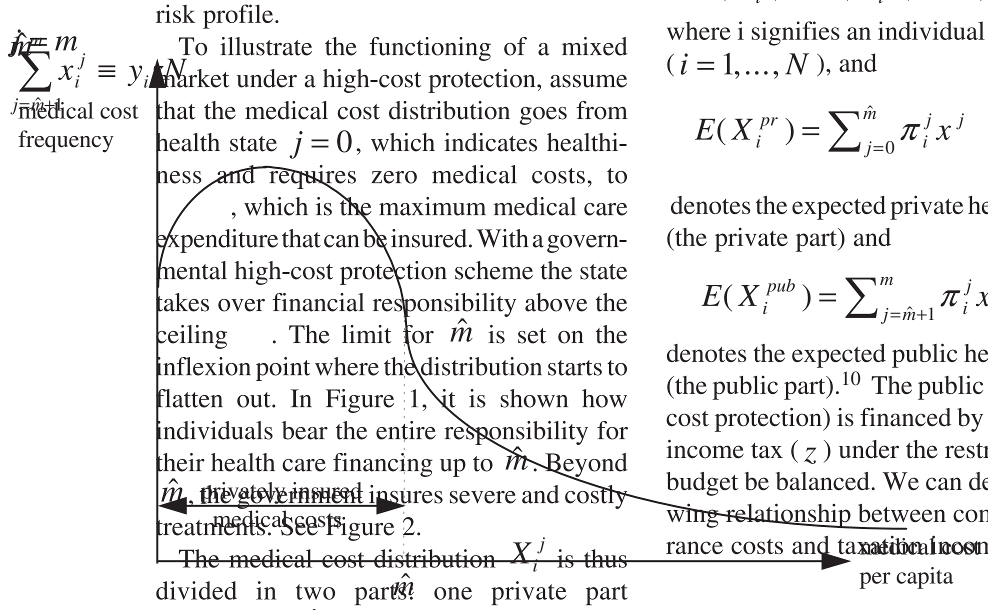
Figure 2. Split medical cost distribution



sure have to pay for individuals with a higher risk profile.

To illustrate the functioning of a mixed market under a high-cost protection, assume that the medical cost distribution goes from health state $j = 0$, which indicates healthiness and requires zero medical costs, to , which is the maximum medical care expenditure that can be insured. With a governmental high-cost protection scheme the state takes over financial responsibility above the ceiling . The limit for $\hat{m}$ is set on the inflexion point where the distribution starts to flatten out. In Figure 1, it is shown how individuals bear the entire responsibility for their health care financing up to $\hat{m}$. Beyond $\hat{m}$, the government insures severe and costly treatments. See Figure 2.

The medical cost distribution X_i^j is thus divided in two parts: one private part ($j = 0,1,\dots,\hat{m}$) and one high-cost part covered by public insurance ($j = \hat{m}+1,\dots,m$). Now we can define the following identity:

$$E(X_i^j) \equiv E(X_i^{pr}) + E(X_i^{pub}), \quad (1)$$

where i signifies an individual in the society, ($i = 1,\dots,N$), and

$$E(X_i^{pr}) = \sum_{j=0}^{\hat{m}} \pi_i^j x^j \quad (2)$$

denotes the expected private health care costs (the private part) and

$$E(X_i^{pub}) = \sum_{j=\hat{m}+1}^{m} \pi_i^j x^j \quad (3)$$

denotes the expected public health care costs (the public part).[10] The public part (the high-cost protection) is financed by a proportional income tax (z) under the restriction that the budget be balanced. We can define the following relationship between compulsory insurance costs and taxation income:

$$\sum_{j=\hat{m}+1}^{m} x_i^j \equiv y_i N, \quad (4)$$

where y_i is the individual income without insurance, z denotes the proportional income