Figure 2.3. Approximation of a Continuous Random Variable by a Discrete Random Variable. The continuous random variable is $X(\omega) = \log[\omega/(1-\omega)]$. The discrete random variable is $X_N(\omega) = \sum_{i=1}^{N} x_i I_{F_i}(\omega)$. The horizontal axis is $\Omega = (0, 1)$ and the vertical axis is $\mathcal{X} = (-\infty, \infty)$.