maximizes $E(\pi|m)-d\ m$. The marginal condition is $E(\pi|m^*)-E[\pi|(m^*-1)]\geq d$ and $E[\pi|(m^*+1)]-E(\pi|m^*) < d$. For simplicity, we treat m as a continuous variable and write the marginal condition as $\partial E(\pi)/\partial m = d$. In Figure 1 we depict the graph of the "smoothed" marginal valuation function along with the marginal cost of information. The level of information m* maximizes expected profit net of the cost of information. At m* the residual demand mean square forecast error is $Var(e) + \sum_{i=m^*+1}^{n} a_i^2\ Var(X_i)$. The greater is the quantity of information the smaller is the forecast error. Minimum mean square forecast error is Var(e), since e is unobservable.

Optimal Information and Firm Size

The optimal level of information, m*, depends on the size of the dominant firm. We now consider how m* changes as the dominant firm's share grows. Specifically,

$$(8)\quad \partial\{E(\pi|m)-E[\pi|(m-1)]\}/\partial t = -\ c(bc-r)^2[(bc-r)^2 - 3t^2]/2t^2[(bc-r)^2-t^2]^2.$$

The sign of (8) depends on the sign of $[(bc-r)^2-3t^2]$.[8] If the dominant firm's share is sufficiently large, $[(bc-r)^2-3t^2]<0$, and (8) would be positive. Intuitively, when t is small most of the marginal gain from information acquisition accrues to the fringe, which free rides in a price leadership model. We presume that for a single firm to achieve the status of dominant firm or price leader it must have substantial market share. Thus, focus-