$$\pi(\cdot \mid h_i^t, m_i^t; \phi_i) \longrightarrow a_i^t$$

$$h_i^t \longrightarrow f^e(h_i^t; \psi_i^e) \longrightarrow m_i^t \longrightarrow f^d(m_i^t; \psi_i^d) \longrightarrow \hat{\pi}_{-i}^{i,t}$$