We study firing rate propagation in a feedforward network with multiple layers. Neurons in the network are modeled by using stochastic Hodgkin-Huxley neuronal model, which considers stochastic behaviour of voltage-gated ion channels embedded in neuronal membranes. In the model, ion channel noise due to its stochastic behaviour is related to the cell size in such a way that the noise strength increases with decreasing the cell size, mimicking the actual biophysical conditions. An external additive current noise is also injected into the first layer of the network. Therefore, neurons in the first layer are subject to both internal and external noise while neurons in the subsequent layers are subject to only internal noise. It is shown that the efficient transmission of firing rates requires an appropriate intrinsic noise level in the network if the input firing rate or the external noise strength is higher than a critical value.