Interacting Fock space connects the study of quantum probability theory, classical random variables, and orthogonal polynomials. It is a pre-Hilbert space associated with creation, preservation, and annihilation processes. We prove that if three processes are asymptotically commutative, the arcsine law arises as the "large quantum number limits." As a corollary, it is shown that for many probability measures, asymptotic behavior of orthogonal polynomials is described by the arcsine function. A weaker form of asymptotic commutativity provides us a discretized arcsine law.