1023-60-239 **Aliakbar Montazer Haghighi*** (amhaghighi@pvamu.edu), Prairie View A&M University, Department of Mathematics, P. O. Box 519 - Mail Stop 2225, Prairie View, TX 77446, **Dimitar P Mishev** (dimichev@pvamu.edu), Department of Mathematics, Prairie View A&M University, P. O. Box 519 - Mail Stop 2225, Prairie View, TX 77446, and **Stefanka S Chukova** (schukova@mcs.vuw.ac.nz), Victoria University of Wellington, P. O. Box 600, Wellington, New Zealand. *A Single-server Poisson Queueing System with Delayed-Service.*

To set the tone for more complicated models that will appear later, in this paper we investigate busy period and steady-state and transient queue length of a single-server Poisson queue with delayed-service. We will analyze this model by considering M/G/1 as well as the use of differential difference equations approximating a non-Markovian system. We obtain the distribution of the length of a busy period, steady-state mean and distribution of the queue length, Laplace transform of the probability of the system being empty and Laplace transform of the generating function of the distribution of the transient queue length. (Received August 29, 2006)