

The Dynamics of a Stochastic SEITRmodel for Tuberculosis with Incomplete Treatment

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Research

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Abstract

In this paper, a stochastic SEITR model is formulated to describe the transmission dynamics of tuberculosis with incompletely treated. Sufficient conditions for the existence of a stationary distribution and extinction are obtained. In addition, numerical simulations are given to illustrate these analytical results. Theoretical and numerical results show that large environmental perturbations can inhibit the spread of tuberculosis.

Full Text

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Figures

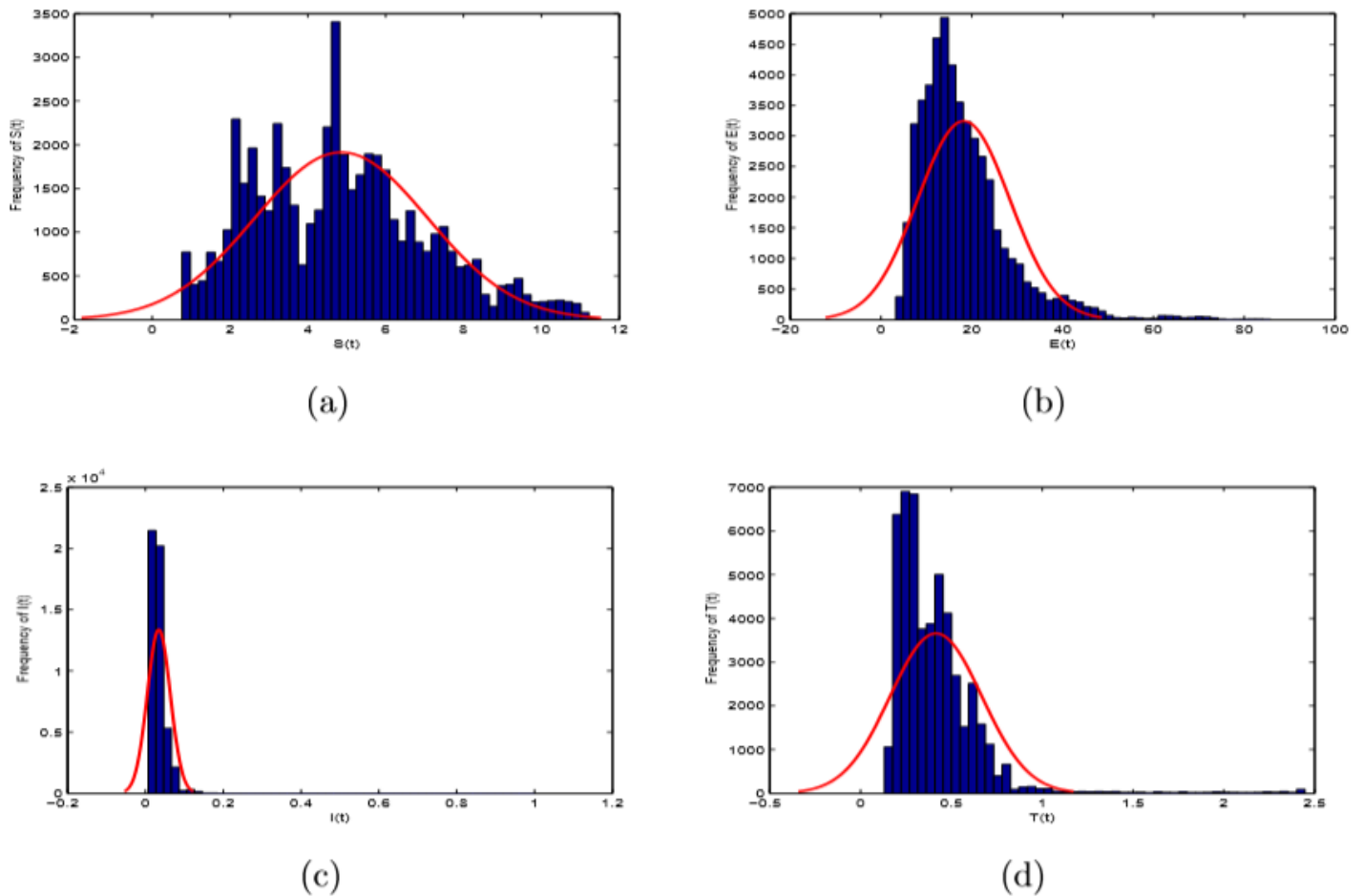
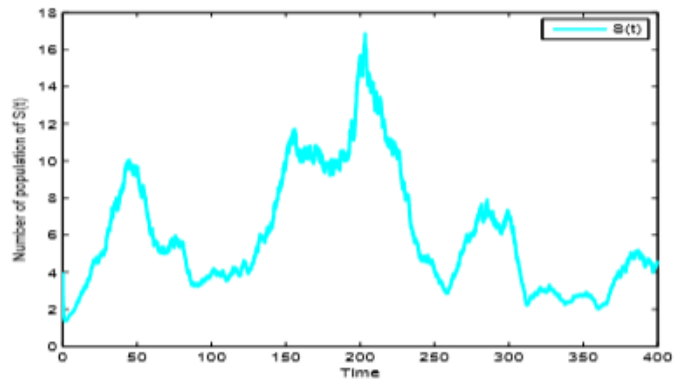
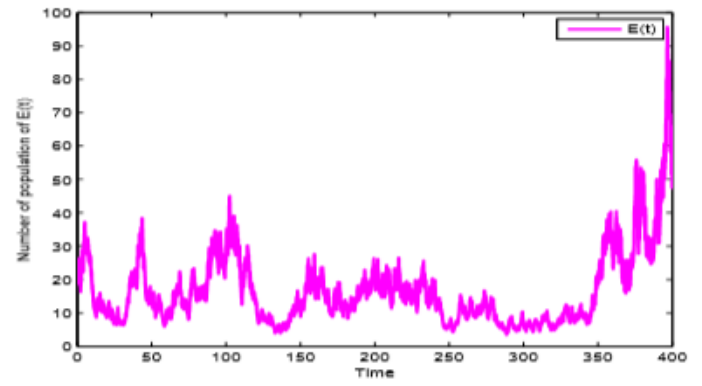


Figure 1

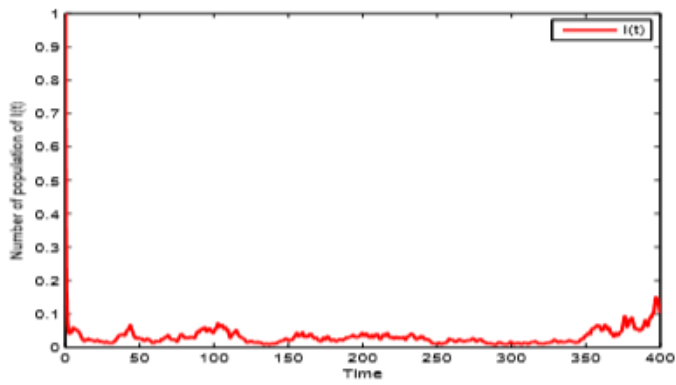
The path $S(t)$, $I(t)$, $C(t)$ and $A(t)$ for the model (??) and (??), when $R_1 = 0.3141 < 1$ and $R_0 = 1.1470 > 1$



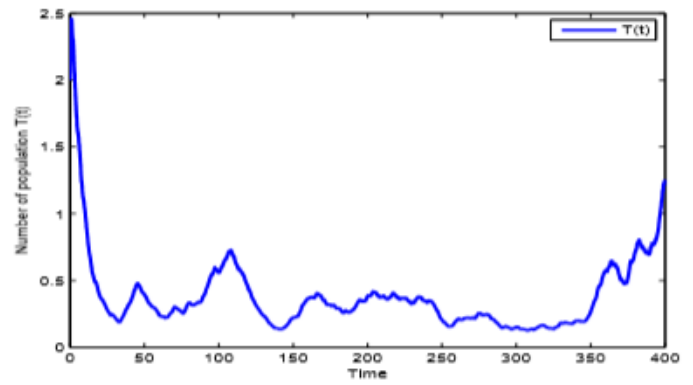
(a)



(b)



(c)



(d)

Figure 2

The path $S(t)$, $I(t)$, $C(t)$ and $A(t)$ for the model (??) and (??), when $R_1 = 0.3141 < 1$ and $R_0 = 1.1470 > 1$