1035-39-1242 **Sukanya Basu*** (sukanya@math.uri.edu), Department of Mathematics, 9 Greenhouse Road, Suite 3, Kingston, RI 02881, and **Orlando Merino** (merino@math.uri.edu), Department of Mathematics, 9 Greenhouse Road, Suite 3, Kingston, RI 02881. *On the Global Behavior of Nonnegative Solutions to* $x_{n+1} = \frac{\alpha+\beta x_n+\gamma x_{n-1}}{A+B x_n+C x_{n-1}}$ *with positive parameters.*

We investigate behavior of solutions of the second order rational difference equation

$$x_{n+1} = \frac{\alpha + \beta x_n + \gamma x_{n-1}}{A + B x_n + C x_{n-1}}, \quad n = 0, 1, ... \tag{1}$$

where the parameters α, β, γ, A, B and C are positive and the initial conditions x_{-1}, x_0 are nonnegative. We prove that in the case when the positive equilibrium $\overline{x}$ is hyperbolic, it is locally asymptotically stable if and only if (1) does not possess prime period-two solutions. In addition, it is shown that when $\overline{x}$ is locally asymptotically stable, it is a global attractor in certain regions of parameter values. Finally, we prove that if $\overline{x}$ is a saddle then the square of the map associated with the equation is competitive, and that there exists a unique prime period-two solution of (1). In this case, solutions are shown to enter a certain region $\mathcal{R}$ where the global stable manifold of $(\overline{x}, \overline{x})$ is a smooth curve $\mathcal{C}$ which is the graph of a strictly increasing function of one variable. (Received September 19, 2007)