1035-39-1027 **Orlando Merino*** (merino@math.uri.edu), Department of Mathematics, 9 Greenhouse Road, Suite 3, Kingston, RI 02881, and **Mustafa Kulenovic** (kulenm@math.uri.edu), Department of Mathematics, 9 Greenhouse Road, Suite 3, Kinston, RI 02881. *Global Bifurcation for Competitive Systems in the Plane.*

A global bifurcation result is obtained for families of competitive systems of difference equations

$$\begin{cases} x_{n+1} &= f_\alpha(x_n, y_n) \\ y_{n+1} &= g_\alpha(x_n, y_n) \end{cases}$$

where α is a parameter, f_α and g_α are continuous real valued functions on a rectangular domain $\mathcal{R}_\alpha \subset \mathbb{R}^2$ such that $f_\alpha(x, y)$ is non-decreasing in x and non-increasing in y, and $g_\alpha(x, y)$ is non-increasing in x and non-decreasing in y. A unique interior fixed point is assumed for all values of the parameter α.

As an application of the main result for competitive systems a global period-doubling bifurcation result is obtained for families of second order difference equations of the type

$$x_{n+1} = F_\alpha(x_n, x_{n-1}), \quad n = 0, 1, \ldots$$

where α is a parameter, $F_\alpha : \mathcal{I}_\alpha \times \mathcal{I}_\alpha \to \mathcal{I}_\alpha$ is a decreasing function in the first variable and increasing in the second variable, and $\mathcal{I}_\alpha$ is a interval in $\mathbb{R}$, and there is a unique interior equilibrium point. Examples of application of the main results are also given. (Received September 18, 2007)