962-39-1066 **Ilpo Laine*** (`Ilpo.Laine@joensuu.fi`), University of Joensuu, Department of Mathematics, P.O. Box 111, FIN-80101 Joensuu, Finland, EUROPE. *Some remarks on complex difference equations.* Preliminary report.

In a recent paper, Ablowitz, Halburd and Herbst considered some difference equations in the complex plane related to Painlevé differential equations. An example of such difference equations is $y(z+1)+y(z-1)=R(z,y(z))$, where R is rational in z and y. Actually, in the frame of my research seminar, results due to Ablowitz, Halburd and Herbst have been extended to more general difference equations of type $\sum_{j=1}^{n} y(z+c_j)=R(z,y(z))$, $c_j \in \mathbf{C}$. Considering

$$\sum_{j=1}^{n} a_j(z)y(z+c_j)=\sum_{j=0}^{m} b_j(z)y(z)^j,$$

where $m \geq 2$ and $c_j \neq 0$, we also observe that, for some $K>0$, $\log M(r,y) \geq Km^{r/C}$, $C=\max\{|c_1|,\ldots,|c_n|\}$, for all r sufficiently large, whenever y has finitely many poles. If y has infinitely many poles, then $n(r,y) \geq Km^{r/C}$. (Received October 02, 2000)