Moreover, f_r is the solution of the extended Pearson system

$$G(r) f_{r+1} - L(r) f_r = 0, \; r = 0, 1, 2, ..., \tag{2.1}$$

where functions L and G are second-degree polynomials

$$\begin{aligned} L(r) &= (\alpha + r)(\beta + r)\lambda \\ G(r) &= (\gamma + r)(r + 1). \end{aligned} \tag{2.2}$$

From (2.1) Fajardo (1986) proved that non-central moments verify the recurrence equation

$$\mu'_{h+2} + (\gamma - 1)\mu'_{h+1} - \lambda \sum_{m=0}^{h} \binom{h}{m} \left[\mu'_{m+2} + (\alpha + \beta)\mu'_{m+1} + \alpha\beta\mu'_m\right] = 0, \tag{2.3}$$

for $h = 0, 1, 2, ...$ if $\lambda < 1$ or the distribution is finite, and for $h = 0, 1, 2, ..., k - 2$ if $\lambda = 1$ and $\gamma > \alpha + \beta + k$ with $k \geq 2$. It is of note that this recurrence relation can not generally provide explicit expressions of moments from parameters, because n equations involve $n + 1$ moments; nevertheless, if $\lambda = 1$, n equations involve n moments which may be calculated as solutions of the corresponding linear system.