This type of results about mixtures allows us to obtain interesting conclusions about the variability of data.

Thus, if $\gamma > \beta$ and $X \rightsquigarrow GHD\,\mathrm{I}\,(\alpha, \beta, \gamma, \lambda)$,

$$VarX = \alpha E_P\,[V] + \alpha E_P\left[V^2\right] + \alpha^2 Var_P\,(V)\,, \tag{3.1}$$

where $V = \lambda\,(1-P)\,/(1-\lambda\,(1-P))$ and $P \rightsquigarrow GBeta\,(\gamma-\alpha-\beta, \beta, \alpha, \lambda)$. The first of these addends is related to random factors, the second to the variability due to external factors that affect the population (liability), and the third to the differences in the internal conditions of the individuals (proneness). The result is an extension of that known in the case $\lambda = 1$, corresponding to the Waring distribution.