

1. Formula – General

$$\frac{d}{dt} {}_tV = \delta_t {}_tV + G_t - e_t - (b_t + E_t - {}_tV)\mu_{[x]+t}$$

2. Formula – Numerical solution with Euler's method

$${}_{t+h}V - {}_tV \approx h[\delta_t {}_tV + G_t - e_t - (b_t + E_t - {}_tV)\mu_{[x]+t}]$$

$${}_tV = \frac{{}_{t+h}V - h[G_t - e_t - (b_t + E_t)\mu_{[x]+t}]}{1 + h(\mu_{[x]+t} + \delta)}$$

$${}_tV - {}_{t-h}V \approx h[\delta_t {}_tV + G_t - e_t - (b_t + E_t - {}_tV)\mu_{[x]+t}]$$

$${}_{t-h}V = {}_tV[1 - h(\mu_{[x]+t} + \delta)] + h[-G_t + e_t + (b_t + E_t)\mu_{[x]+t}]$$

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Page 2 of 2