1 MODEL

1.1 MODEL ONE

Given $\mu_{R_{yv}}$, $\sigma_{R_{yv}}$, and price p^N_{yv}, each household solves the following maximization problem:

$$\max_{c,N} c + \rho \cdot c^2 + \left\{ \gamma \cdot H_{24} + \lambda \cdot \int_{R_{yv}} (H_{24} - R_{yv}) \, \mathbb{1}\{H_{24} \geqslant R_{yv}\} \, dF(R_{yv}) \right\} \tag{1}$$

where:

$$c = Y - p^N_{yv} \cdot N$$

$$H_{24}(N, X, \epsilon) = \exp(A + X \cdot \alpha + \epsilon) \cdot N^{\beta}$$

The realized household utility u_{yv} is a function of parameters and $Y, p^N_{yv}, X, F(R_{yv}), \epsilon$. Households make choices given $\Omega = (Y, p^N_{yv}, X)$, the i.i.d. productivity shock ϵ, and $F(R_{yv})$. At the birth of a child, a household chooses the optimal amount of nutrition for the child over the next 24 months given the joint relative distribution of the reference health outcome and their own child's helath given that child's productivity shock and nutritional intake. The parents choose knowing that more nutritional intake–at a decreasing rate of return–will increase the probability that their child will catch up to or exceed the reference health.

1.2 MODEL TWO

At the beginning of each period, for each household, the household productivity type $\mathcal{A}$, productivity shock ϵ, and physical capital k, which is chosen previously by the household based on expected productivity, jointly determine the income of the household in the current period:[1]

$$y = \exp(\mathcal{A} + \epsilon) \cdot k^{\alpha} \tag{2}$$

1.3 EDITING

1. ☒ comment one
2. ☒ comment two

1. The model focuses on financial (safe asset) and physical capital (risky asset) choices. Labor supply for the household firm is inelastic and captured by $\mathcal{A}$.