Appendix C: List of Agent Variables.

'Charity' and 'beg' variables were not used in the simulation runs in this paper.

Age: This determines how many iterations the agent has existed.
Beg: Tracks whether an agent needs to 'beg' or not.
Buy-price-needs: This is the evolved maximum an agent will pay when trading for 'needs'.
Buy-price-wants: This is the evolved maximum an agent will pay when trading for 'needs'.
Charity: An evolutionary variable determining the amount of charity an agent will give if triggered into giving to a 'beggar'.
Child-need-buffer: An evolutionary variable controlling how much 'needs' an agent requires before reproducing. It is directly related to the need-birth-buffer.
Children: Tracks how many children an agent has had.
Class-ranking: This tracks the calculated wealth ranking for the purpose of graphing only.
Exploration: The evolutionary propensity for exploration (long range movement for no particular reason).
Fertile: The evolutionary variable controlling the likelihood of reproducing
Genetic-marker-kids: This ensures children can be linked to their parents for the purpose of inheritance. Only one child inherits.
Genetic-marker-parent: This is the parent's marker that tracks inheritance.
Income: Tracks the production of the agent for this iteration
Industrial-innovate: This variable is used to determine whether an agent can behave as a hunter/gather, trader, innovator (renewably derived 'wants'), industrialist (non-renewable 'wants').
Labour: This is the sum of the user-adjustable 'starting-labour' and any labour gains received from using non-renewable resources that it owns.
Last-income-needs: Tracks the previous iteration's income of 'needs'.
Last-income-wants: Tracks the previous iteration's income of 'wants'.
Market: Determines over how many patches an agent can seek a trade.
Migration: An evolutionary variable determining the propensity of an agent to use 'wants' for movement.
Money: Tracks how much money an agent has.
Money-available: Money held in trust for an underage agent.
Money-value: An evolutionary variable determining when an agent will begin adjusting its bids and offers in order to hold onto money.
Movement: The evolutionary propensity for movement if 'need' income levels drop.
Movement-wants: The evolutionary propensity for movement if 'want' income is zero.
Mutation: An evolutionary variable determining how likely a child will mutate its evolutionary variables.
Needs: Tracks the agent's store of 'needs'.
Needs-stock: An evolutionary variable determining how much 'needs' an agent requires before seeking to harvest non-renewable 'wants'.

Nurture-needs: see below

Nurture-wants: see below

Nurture-money: The three 'nurture' variables are evolutionary and determine how much an agent will set aside for their child at birth.

Needs-offered: Tracks the amount of 'needs' an agent is willing to trade.

Order-of-trade: An evolutionary variable determining the order in which an agent will conduct its trade and harvesting activities. The result is graphed under the title of 'Trading Culture'.

Peak-income: This tracks peak-income for as long as the agent has remained on a single patch.

Price-up: An evolutionary variable determining how much to an agent will raise its price for trading purposes when triggered to do so.

Price-down: An evolutionary variable determining how much to an agent will lower its price for trading purposes when triggered to do so.

Savings-rate-needs: An evolutionary variable determining how much 'needs' an agent will hold in reserve before trading.

Savings-wants: An evolutionary variable determining how much 'wants' an agent will hold in reserve before trading.

Sell-price-needs: This is the evolved minimum price an agent will accept when trading for 'needs'.

Sell-price-wants: This is the evolved minimum price an agent will accept when trading for 'needs'.

Price-factor-needs: This is a technical variable that determines whether an agent will be trading 'needs' or not.

Price-factor-wants: This is a technical variable that determines whether an agent will be trading 'wants' or not.

Propensity-labour: An evolutionary variable used to calculate of how 'wants' are to be utilised in empowering the agent in harvesting.

Propensity-health: An evolutionary variable used to calculate of how 'wants' are to be utilised in fighting disease.

Propensity-use-needs: An evolutionary variable used to calculate of how 'needs' are to be converted into 'wants'. In this version of the simulator, it is in use in only one kind of agent (industrial-innovate = 2).

Total-wealth: This tracks an agent's total wealth as proportionately set by the user. It is a graphing variable.

Vision: An evolutionary variable determining how many patches ahead an agent can sense their environment.

Wander: Determines if an agent is going to move, and under which rules it will move.

Wants: Tracks the agent's store of 'wants'.

Wants-offered: Tracks the amount of 'wants' an agent is willing to trade.