I will be doing the Jobs to Population modeling assignment first, then I will do Tree Planting Harvest model to ensure that I understand the process.

Model 1: Jobs to Populace model

Stocks: Jobs, Population

Variables: Annual Job Growth Rate, Jobs added annually, ideal population versus job availability as a ratio, ideal population, actual population versus job availability as a ratio, actual population, difference between ideal and actual population versus job availability as a ratio, difference between actual and ideal population, number of incoming migrants, Time delay, time difference in adjusting actual and ideal populations versus job availability, wage incentive packages, wage incentive package multiplier to (difference between ideal and actual population versus job availability as a ratio)

Rates: Jobs added, jobs lost to display a single large disruptive event, Migrants

Document notations:

Every number, as well as all rates and variables in this model are spurious.

Purpose of the model:

This model simulates a balance of local population versus job availabilities.

Environment:

Agent Behavior:

**Strategy and Expectations**

This model seems to be from the perspective of a “single economy township”. All economy is centered around a larger economic center. The town/business attracts population/employees by means of incentivizing wage packages. Time, of course, is a constant to year 50 in 3-month steps. This will model differences in “difference between ideal and actual population”, “actual population and jobs” and “ideal population and jobs “. It looks to me, like the control variable for the company is the “wage incentive package multiplier”.

**Model Development**

* 1 Time Unit is equal to 1 Year, and the steps are set to 3-month intervals ending at Year 50.
* Jobs will be created at a fixed rate of +3% per Year
* At year 10, there is a loss of 100,000 jobs.
* There are innate inequalities representing “difference between ideal and actual population”, “actual population and jobs” and “ideal population and jobs “.
* The inequalities are fed by a lag time between job growth and population growth.
* lag time is represented as a time constant of two years.
* Population is incentivized to growth by a wage incentive package. The wage incentive package is represented by 1 plus a multiplier times (“the ratio of ideal population and job availability” minus the actual population).
* Population starts at 500,000.

This model does not appear to take in to account, local residents who are employed elsewhere, unemployable, or are just unemployed. This model also assumes that people never die, retire, or leave the company’s employ for any reason. Since it takes two years to close the gap between people needed and people added but the count changes yearly, the job count and the resident count will never be equalized.

Playing with the multiplier in either positive or negative directions seemed to do little to change the population or job count.