Experiment tasks:

1. Basic experiments:
   1. The optimal subsidy amount

Setting the subsidy from the cut-off of normal and low-income residents to the 5 times of that amount. Comparing the objective function of the government and finding the optimal subsidy in this range. The range may vary.

* 1. The optimal percentage of house market value as the subsidy.

Setting the subsidy as the specific percentage of the resident’s total house market value. This percentage may vary from 50% to 100%. Comparing the government objective function and finding the optimal subsidy percentage.

* 1. Subsidy only for low-income people

1. Variant model experiments (Adding agent behavior rules)
   1. Hyperbolic discount rate

Instead of consistent discount rate, assuming people are hyperbolic and adding a hyperbolic index to the interest rate only at residents’ part. Comparing the model with the non-hyperbolic one. (Basic model)

* 1. Un-rational or randomized behavior of residents
     1. People may decide to remove randomly in any year  
        Totally un-rational behavior of residents that they may move in one year without any comparison of damage in the future. This could be done by setting a number generated function for each individual. If this function value beyond the threshold, they will move. The function and threshold can be tuned.
     2. People may decide to remove based on recent years cumulative damage

Partial un-rational behavior of residents that if cumulative damage in recent several years is large, people also move without considering the future. The length of past years and threshold can be tuned.

* 1. People may remove because their neighbor’s behavior.
     1. Distance-based

If the closest neighbor is beyond some miles, people will move.

* + 1. Number based

If the number of neighbors in some radius is less than some value, people will move.

* + 1. Class-based

If percentage of same class (normal and low-income) neighbors around residents in some radius is less than some values. People will move.

* 1. Not consistent subsidy plan

Instead of consistent subsidy policy, government varies the subsidy based on some rules.

* + 1. Gradient declining subsidy yearly

The amount of subsidy is declining according to time. Basically, the subsidy will decrease for some amount in the next year than before and resident know this rule.

* + 1. Come first get the most subsidy (game between residents)

The amount of subsidy is given by the order of people move. In other word, the sooner people move, the larger subsidy he/she will get.

* 1. Different cost for players

Recomposite the cost of government and residents. Now the government and the residents have same damage loss (resident’s damage will also be government loss for the past). We may rebuild or recomposite the cost for each player.

* 1. Propensity to relocate

Involving the age-based moving preference of people. Considering people moving preference according to their age and adding this influence on the model