

### POPULATION EXERCISE

China has for many years officially allowed only one child per couple. However, the success of the policy has been somewhat limited. One challenge is the current overrepresentation of males in the population (families have favored sons to live up). An alternative policy is to allow each couple to continue getting children until they get a son. We can simulate both policies and see how a population will develop under the “one child” and the “one son” policies.

These are given:

- Initial population  $N=10,000$  individuals
- the Male/Female ratio (to be used for new born babies' gender) MFR
- the fertility rate (the % of parents that can have a baby) FR

Scenario 1 : One Child

Scenario 2 : One Son

In Scenario 2 we accept parents try at most 5 times and if they don't get a son they just give up having babies, that's stop at max 5 children (5 girls in a row) per parent, to make things easier for you.

Calculate the first 4 generation under each of the scenarios. Display the following for each generation:

No.of MALES :      No.of FEMALES:      No.of couples :      No.of Parents:

No.of babies Total:

No.of baby girls:      No.of Baby sons

Note that

1- Scenario 1 even though each couple will have 1 child, “No.of babies Total” will be effected by the changing number of couples in each generation wheras, in scenario 2 addition to that there will be the different no. of children per parent.

2- For each generation the no.of baby girls and no.of baby boys will be the next generations no. females and no.of males forming the couples respectively.