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Course: DASC 501 **Assignment 1 - Population**

Discussion (Interpretation)

My output (table):

Initial population	**(a) 10 000**		**(c) 1 000 000**	
	Total no. of babies in generation 10	**time**	**Total no. of babies in generation 10**	**time**
Policy 1 – Case 1	1	5.79 sec	384	6.1 sec
Policy 1 – Case 2	2	5 sec	384	7.89 sec
Policy 1 – Case 3	0	14.9 sec	438	13.9 sec
Policy 2 – Case 3	4424	28.67 sec	463357	1.10 min

1. Yes, it can be seen that the Policy 1 achieved the desired outcome, the population decreases with a huge rate. Although the initial population of 10000 (a) became extinct within 10 generations, the numbers do not matter with such policy, 1000000 (c) of initial population eventually becomes extinct within few generations.

2. Since baby generating process in Case 3 is random, it depends on the luck. My output shows that for part (a) Case 3 of Policy 1 was a bit less lucky than the Case 1; however, for part (c) Case 3 of Policy 1 randomly comes to be luckier.

3. Since there is only one child rule in Policy 1, where population approximately halves each generation, it is apparently worse than the Policy 2. Therefore, in Case 3 of Policy 2 population decreases with a smaller rate than in Case 3 of Policy 1, as seen in the table above.

4. As seen in the table of my output, Case 1 and 2 are approximately same and take few seconds. But since in Case 3 the random function is used for each parent to calculate the number of children, it takes more time. It is more observable in Case 3 of Policy 2, where the population reduces more slowly and the number of children is more compared to the Policy 1. For the reason that sample size of part (c) is greater than in part (a), it took more than a minute to compute the outcome for the Case 3 of Policy 2.

5. Not always, things are more complex in real life. Although one child policy truly reduces the population of China, people might do abortions to have a baby boy in real life, worsening the demographics even more. Regarding the simulation results, the policy works as intended.

* From a mathematical point of view, both policies work in real life, reducing the population. But from the perspective of humanity, such policy adversely affects the culture of people and society might encounter many social problems.