



Demographic Transition in Three Decades Ahead

Population will influence general economic growth and per capita economic growth, but the effect is different, and the corresponding mechanism is subtle and complex, respectively. Such researches with different arguments and conclusions all remind people to shift more and more emphasis onto demographic transition and structural dynamics in population instead of focusing solely on the overall population growth.

The stage of demographic transition in Mainland China, Taiwan, Hong Kong and Macau has all shown dramatic downturn in both fertility and mortality which will incur substantial impact on the social and economic development in the coming three decades. Mainland China has implemented the universal two-child policy since October 2015; earlier, the other Chinese societies such as Taiwan and Hong Kong began to tackle the population challenges through public policies encouraging more births and migration.

You who are now participating in International Mathematical Modeling Challenge represent the generation cohort with most exuberant and productive vitality in current demographic transition, but how about the whole picture of the overall population in the coming future?

As a team of citizen representatives of your generation, you are invited to analyze and forecast, through mathematical modeling, China's demographic transition in three decades ahead.

1: Your models need to take into account the following:

- i. Population growth, especially fertility rate;
- ii. Age distribution of population;
- iii. Evolution in gender ratio;
- v. Your models may cover other factors of importance relevant to population growth and its structural dynamics such as the development of fertility policy, trend in marriage, educational development and trend of urbanization, etc.

2: Based on your models, please analyze the advantages and disadvantages of current public policies related to population such as that on fertility, migration and urbanization etc. in addressing the population challenges and propose your team's policy solutions for the optimization of demographic transition.

Your submission should include a 1-page Summary Sheet and your solution cannot exceed 20 pages for a maximum of 21 pages. The appendices and references should appear at the end of the paper and do not count towards the 20 pages limit.