

Population Dynamic Model : PDM

Application to Low Carbon Society toward 2050 Project

Go Hibino of MHIR

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1. Background

- Population is the most important factor for future GHG emission.
- Japan's population decreases from 2006.
- National Institute estimate future national population by 2100, but future number of national household and province-wise population by 2025/2030.
- Distribution of population has much effect on structure of energy system in transportation and residential sectors.

2. Input/Output of PDM

<National>

<Province-wise>

Input

- 1) Population in base year [Sex, Age]
- 2) Birth rate [Sex, Age, Year]
- 3) Int. migration [Sex, Age, Year]
- 4) Headship rate [Sex, Age, Family, Year]

- 1) Population in base year [Sex, Age]
- 2) Birth rate [Sex, Age, Year]
- 3) Net migration [Sex, Age, Year]
- 4) Headship rate [Sex, Age, Family, Year]
- 5) Climate Div. share [Climate, Year]
- 6) Landuse Cls. share [Landuse, Year]

Population
Dynamic Model

Output

- Population [Sex, Age, Year]
- Household [Family, Year]

{ National
Province-wise
Landuse Cls.-wise } → Passenger
Trn. Model

{ National
Province-wise
Climate Div.-wise } → Buildings
Dyn. Model

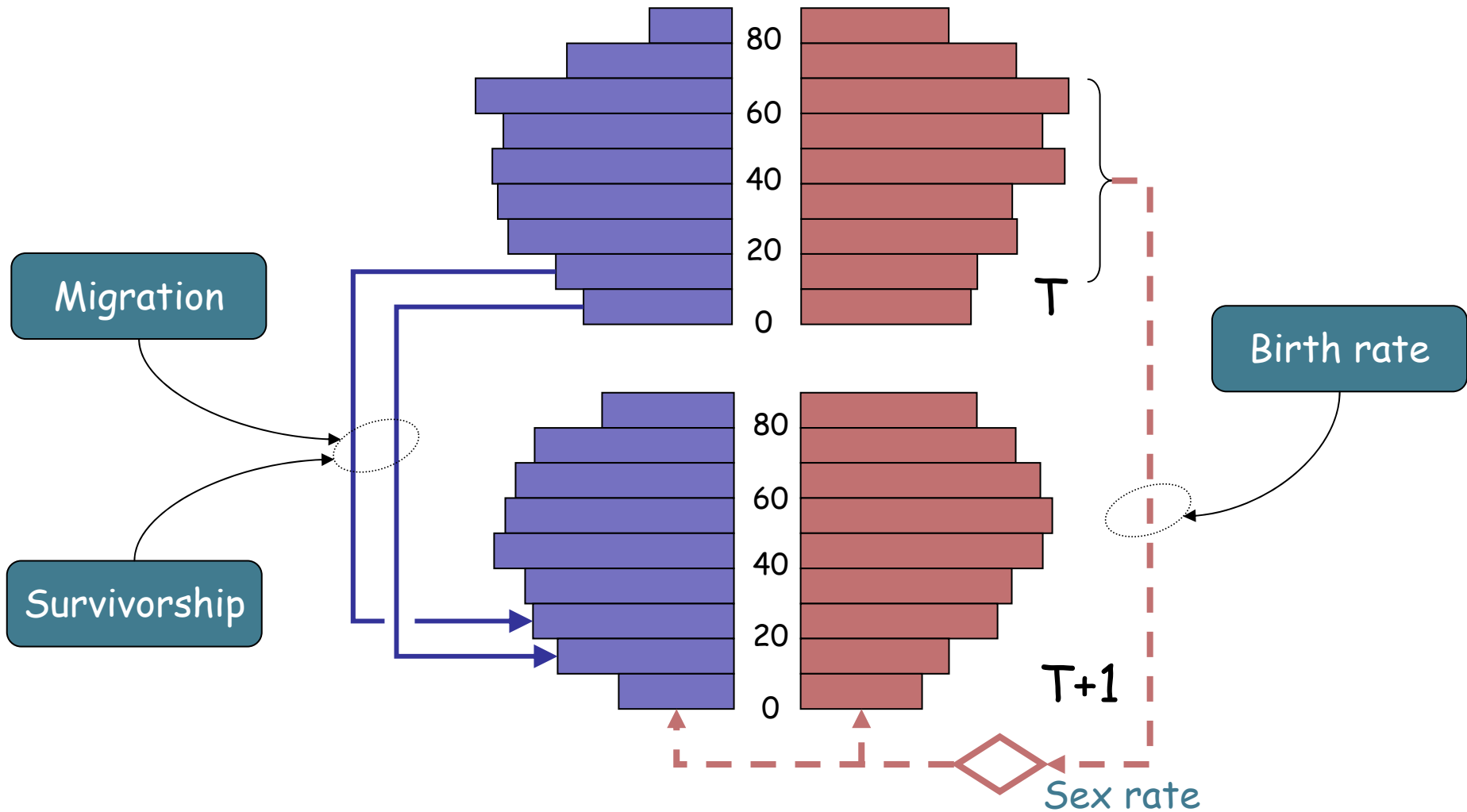
2. Input/Output of PDM

<Source of Input>

	Source
1) Population in 2000 (National, Province-wise)	Statistics by Ministry of Internal Affairs
2) Birth rate 3) Migration 4) Headship rate (National, Province-wise) 5) Climate Div. Share 6) Landuse Cls. Share	National Institute of Population and Social Security Research

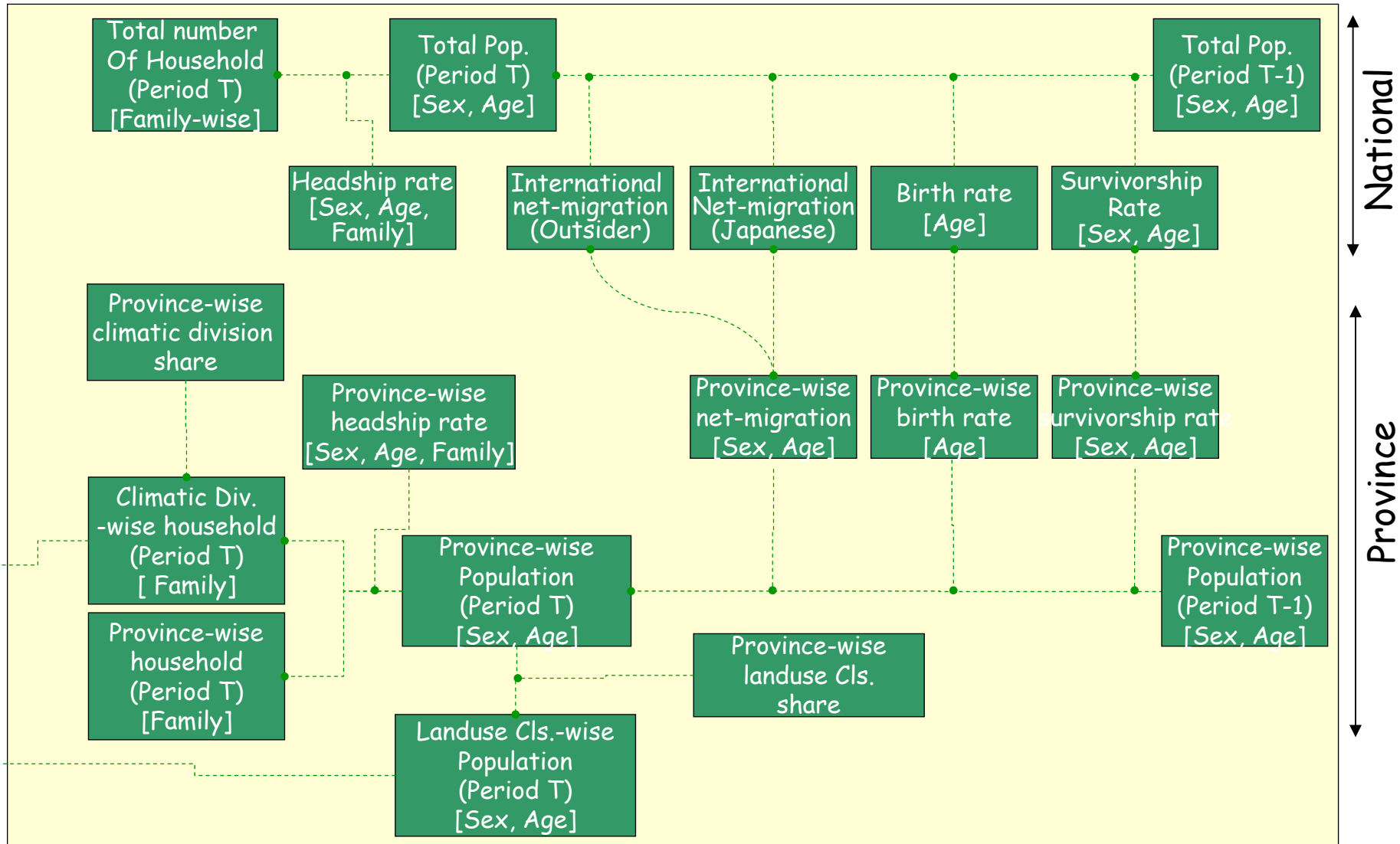
3. Logic of PDM

< Cohort Component Method >

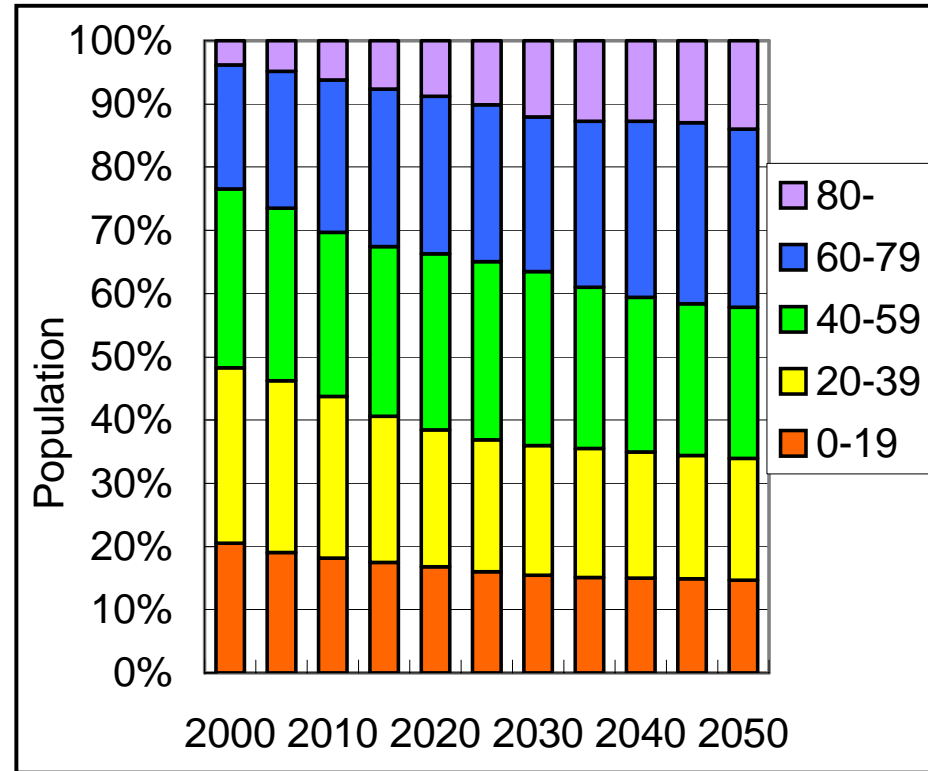
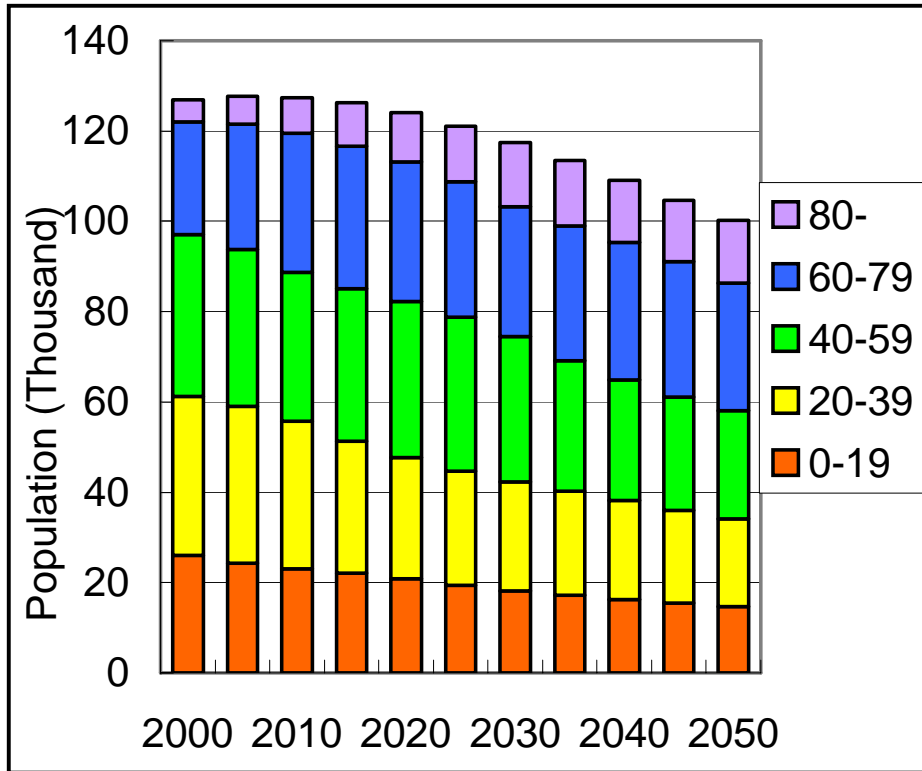


3. Logic of PDM

< Flow of PDM >

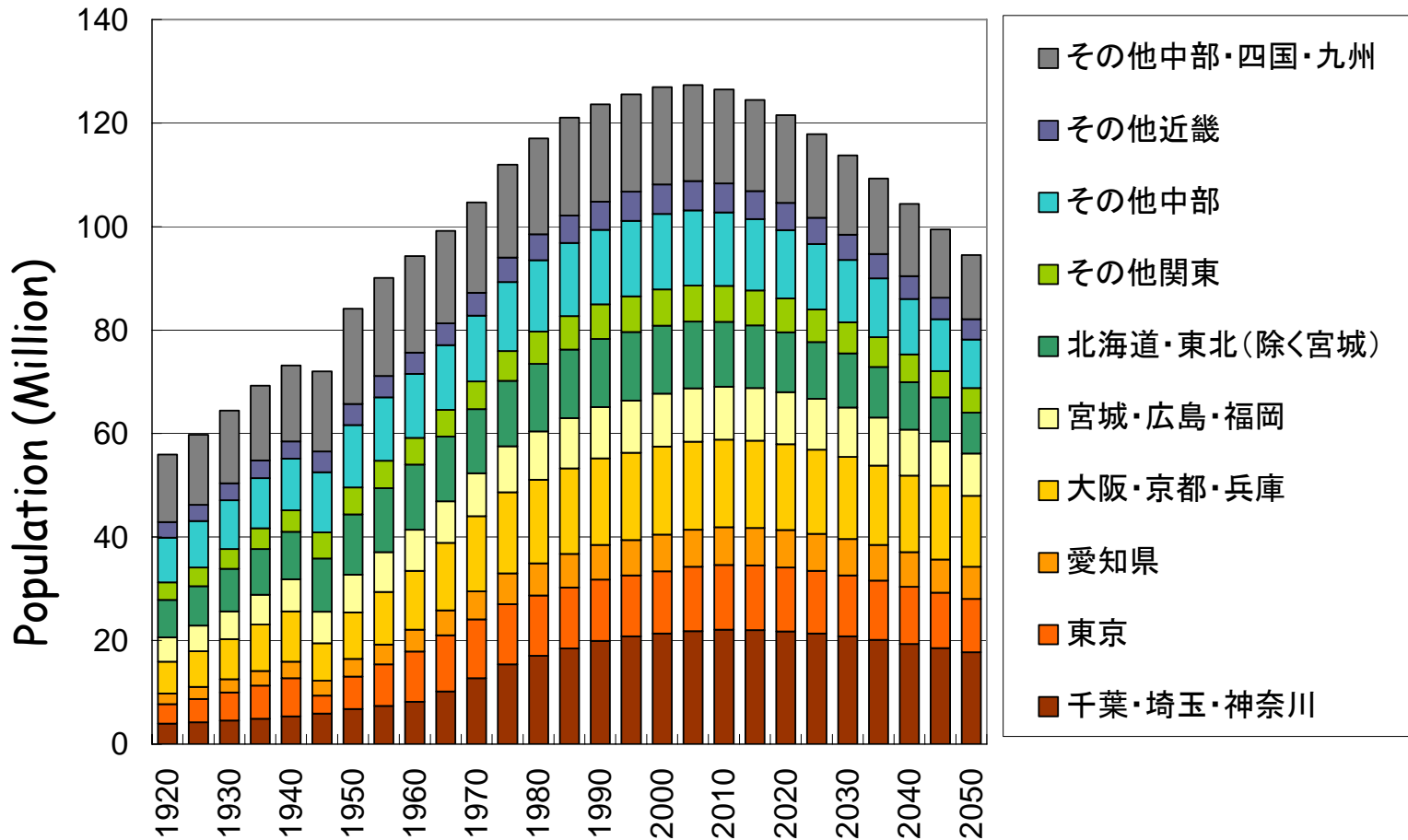


4. Output of PDM



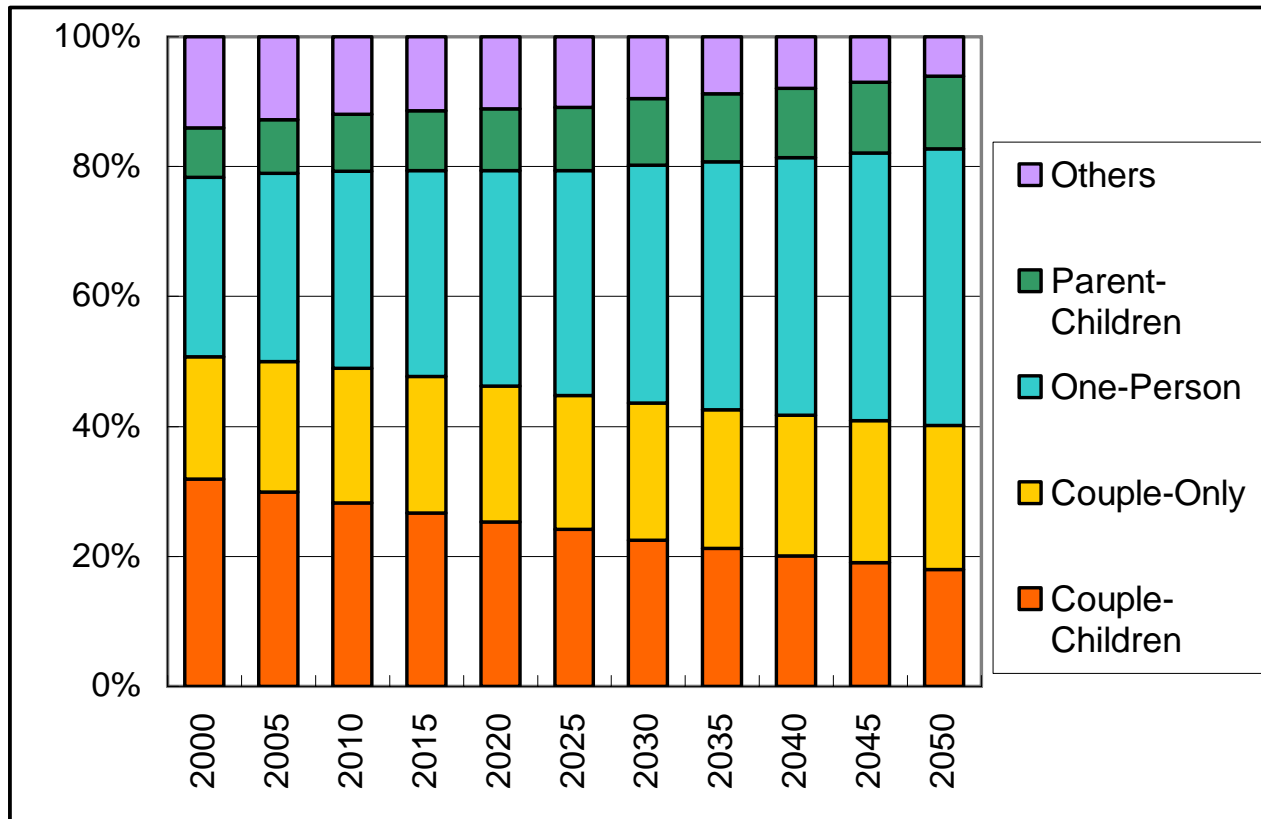
Japan's future population

4. Output of PDM



Japan's future population

4. Output of PDM



Japan's future number of household