The Implications of a Greying Japan for Public Policy.

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*The views presented here are ours and not those of the Federal Reserve System.

Motivation: demographic change

Japan is experiencing sudden and large demographic changes.

- Birthrates are low.
- Babyboomers are aging.
- 1990 share of the over 65 year old population was 12 percent. Lowest in Group of Six.
- 2004 share is 20 percent. Largest in Group of Six.
- Share will rise to above 40 percent by 2050.

Motivation: fiscal situation

- Large Public Debt/GDP ratio (2009: gross 216 percent (IMF), net 132 percent (our calculations))
- Greying of Japan means
    1. Dependency ratio will rise.
    2. Government expenditures on Social Security will rise.
    3. Government expenditures on healthcare will rise.

Questions we consider

What constraints will the greying of Japan place on future fiscal policy?

- How will government indebtedness evolve over time?
- How big are the funding gaps for public pensions and public health care?
- Can one reconcile current policy with medium and long-term commitments?
- What are the properties of a program that successfully stabilizes the debt-GDP ratio?

We use a model to answer these questions

- Rich demographic structure. Households with children and adult members. Adults are active from age 21 until age 114.
- Model reproduces IPSS population distribution projections through 2055.
- Households pay taxes on consumption, labor and asset income.
- Japan's public health program: medical expenditures, long term care.
- Public Pension reflects demographic (macroeconomic) adjustments legislated in 2004.
- Government debt.

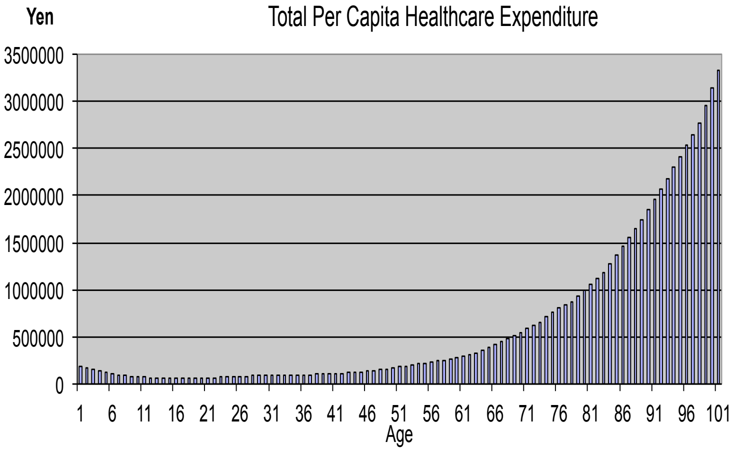
Employees public pension program

- Contributions increase at an annual rate of 0.354% to a peak of 18.3% of income in 2017.
- Benefits are linked to contributions using Japan's public pension formulas.
    1. real wage growth
    2. price growth (inflation)
    3. minus macroeconomic indexation adjustment for changes in number of contributors and life expectancy (average is -1.34% per annum, bet. 2008-2025)
- Benefits at age of retirement are not less than 50% of average wage.
- Funding gap covered out of general govt. revenue.

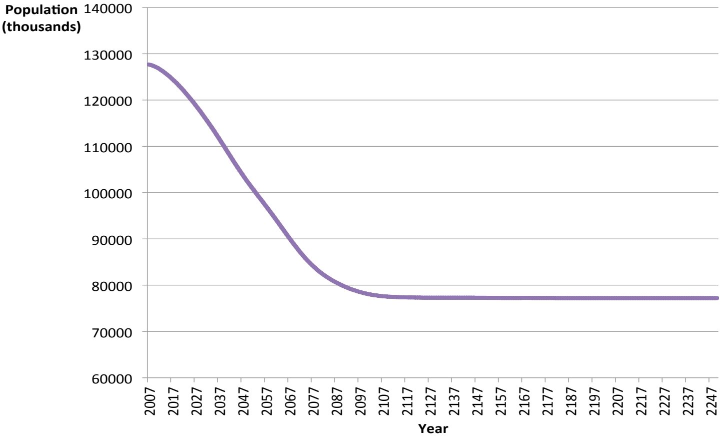
Health care program

- Medical care
- Long term care
- Copayment depends on age of individual.
- Expenditures vary with age of individual.
- Source of data is Fukui and Iwamoto (2006).

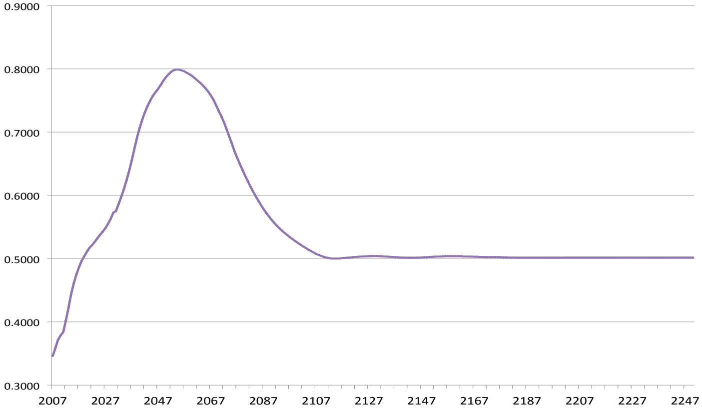
Per capita total health expenditures by age in 2004 including long-term care



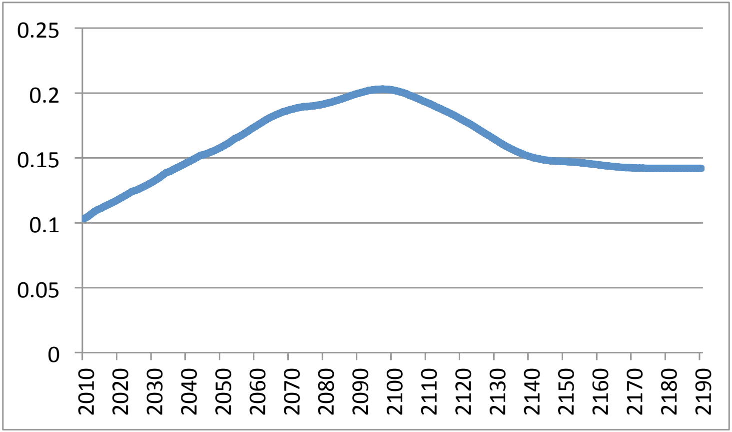
Japan's demographic transition: population



Japan's demographic transition: dependency ratio



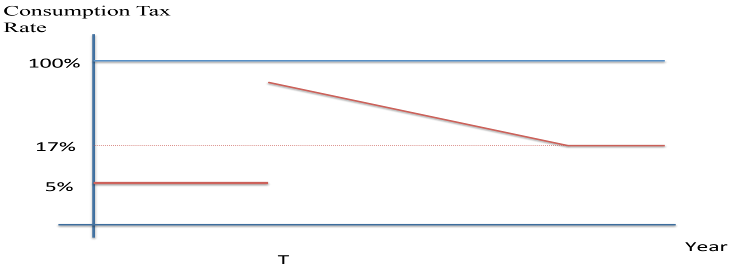
Total health expenditures/GDP



Can we kick the can down the road forever?

- Ozawa (leave the consumption tax at its current rate of 5%)
- Noda (increase the consumption tax to 8% in 2014 and to 10% in 2015).
- Neither policy is sustainable.
- Government must
    1. increase taxes more
    2. lower expenditures
    3. default

How far can we kick the can down the road? (Ozawa)

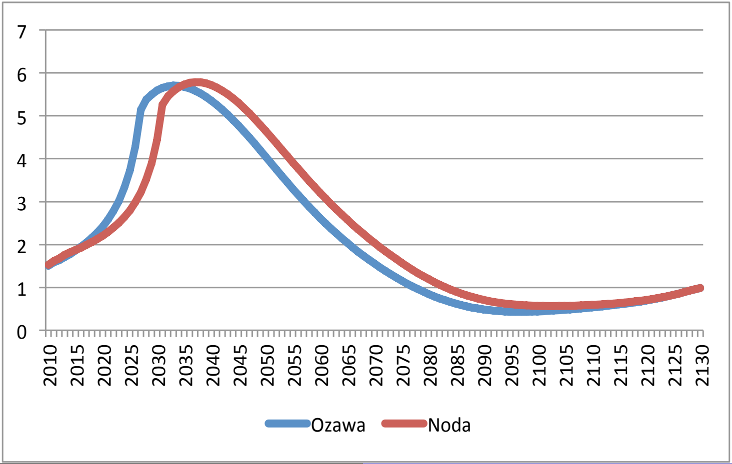


- Results
  1. Floor of 45% on public pension benefits
     - No feasible T. Government spending must be reduced.
  2. No floor on public pension benefits.
     - Consumption tax must increase no later than 2028.

How far can we kick the can cown the Road? (Noda)

- Same thought experiment for Noda plan.
- Results
  1. Floor of 45% on public pension benefits
     - No feasible T. Government spending must be reduced.
  2. No floor on public pension benefits.
     - Consumption tax must increase no later than 2032.
     - Noda plan buys an additional 4 years.

Evolution of debt/GDP under Ozawa and Noda Plans (No floor on public pension benefits)



Alternative policy instruments

- Neither plan is satisfactory.
  - Very high debt/GDP ratio (in excess of 5).
  - Very high future consumption tax rate (about 100%).
- Here are some alternative instruments we consider.
  - Remove floor on public pension benefits.
  - Increase medical copayment for individuals over 74 to 20%.
  - Lower government purchases by 1% of GDP.
  - Moderate inflation is also important due to partial indexation of public pension benefits.

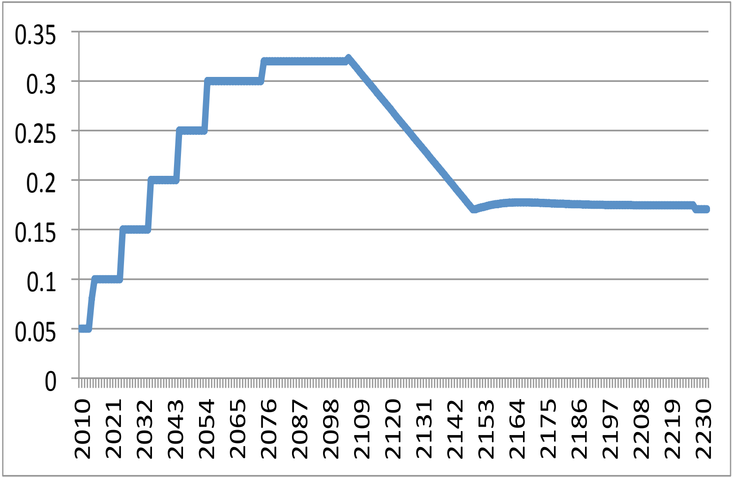
Summary of alternative policies

- The public pension benefit floor has a very large impact on the need for future taxation.
- Inflation is important. If there is no inflation spending has to fall by a lot more.
- A higher copayment for old is effective in stabilizing debt-GDP ratio and lowering future tax requirements.
- The maximum consumption tax rate continues to very large when we combine all of these policies
  1. 40% or higher with no floor
  2. 80% or higher with a floor.
- The maximum (net) debt-GDP ratio is 2 or higher.

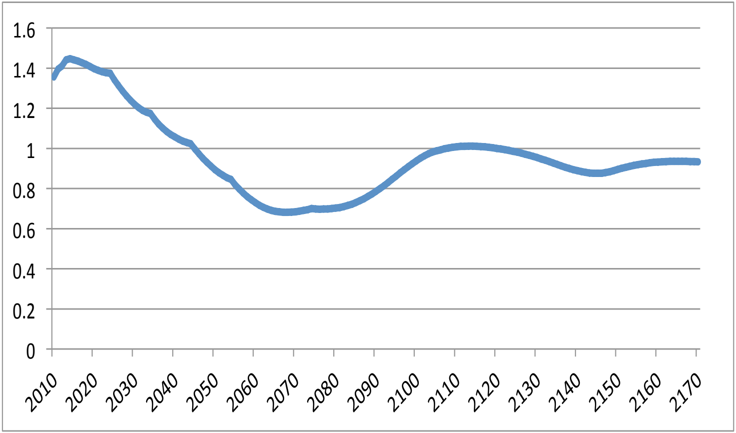
A comprehensive policy package

- Tax needs are highest in periods when dependency ratio is large.
- By adjusting taxes in a manner that is broadly consistent with variations in dependency ratio we
    1. reduce the size of jump in consumption tax
    2. stabilize debt/GDP ratio

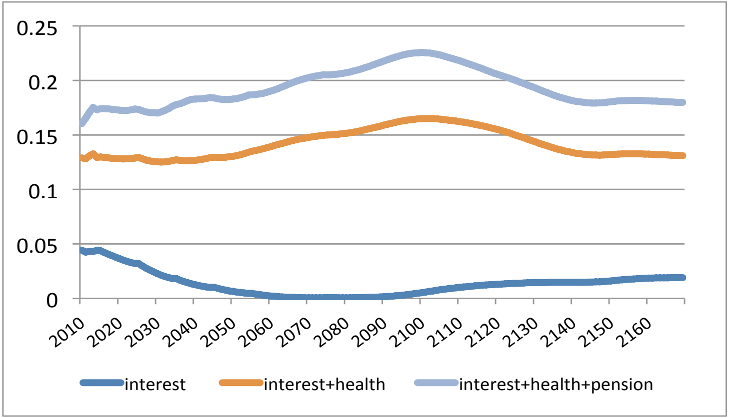
Consumption tax rate trajectory



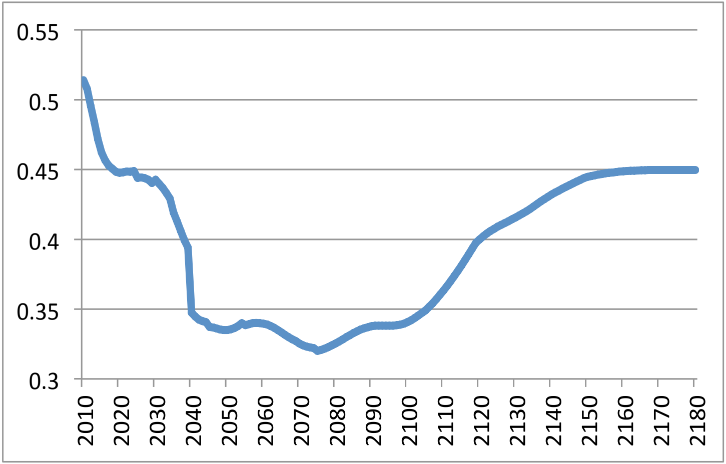
Debt-GDP ratio trajectory (no floor on public pension benefits)



Government expenditures on debt and social welfare



Public pension replacement rate

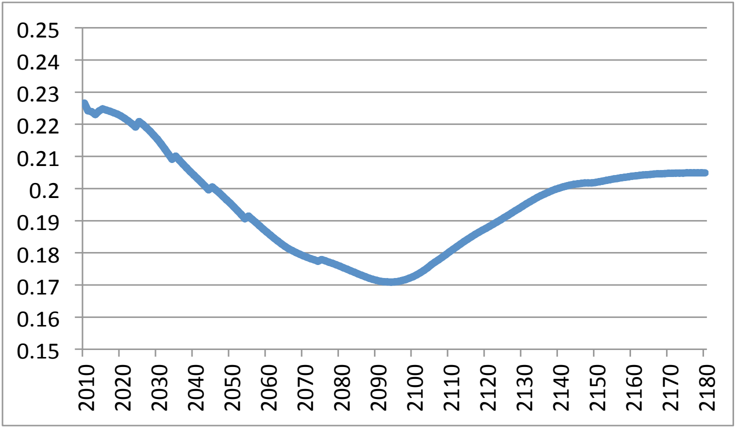


Primary surplus under alternative scenarios

	Minstry of Health, Labor and Welfare	Ozawa	Noda	Comprehensive
Year	Floor on SS Benefits	No floor on Social Security Benefits		
2011	-1.7	-3.1	-3.49	0.73
2015	-1.5	-4.1	-1.73	-1.43
2020	-0.6	-5.1	-2.11	-1.76

- Government projections assume medical and long-term care are fully funded. Where is the revenue coming from?

Labor


0.25
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2170
2180

Concluding remarks

- Japan has a very large funding gap.
- Even if
  - inflation rises to 2%
  - copayments for old are increased to 20%
  - benefit replacement rates are reduced
  - government purchases are reduced by 1%

  taxes will have to go up much more in future years to maintain current social welfare programs.