

Outline and Purpose of the Japanese Study of Aging and Retirement (JSTAR)

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What Have We Learned from the Panel Data of the Elderly?

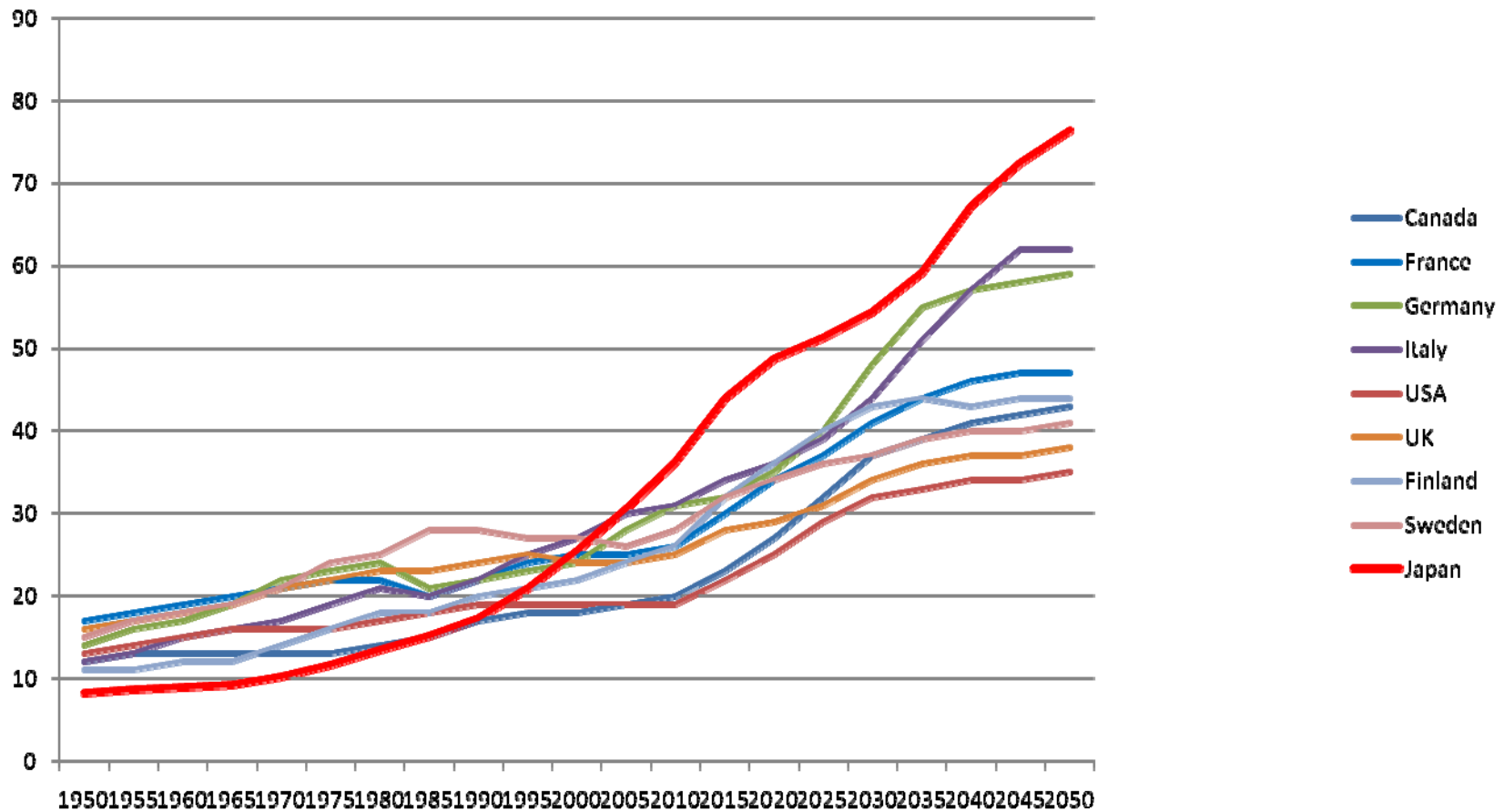
Outline

- Some facts of aging and their implications
- Panel studies around the world and the JSTAR
- Content of the JSTAR
- Why do we need this much?
- An example: Expected net lifetime wealth by cohort

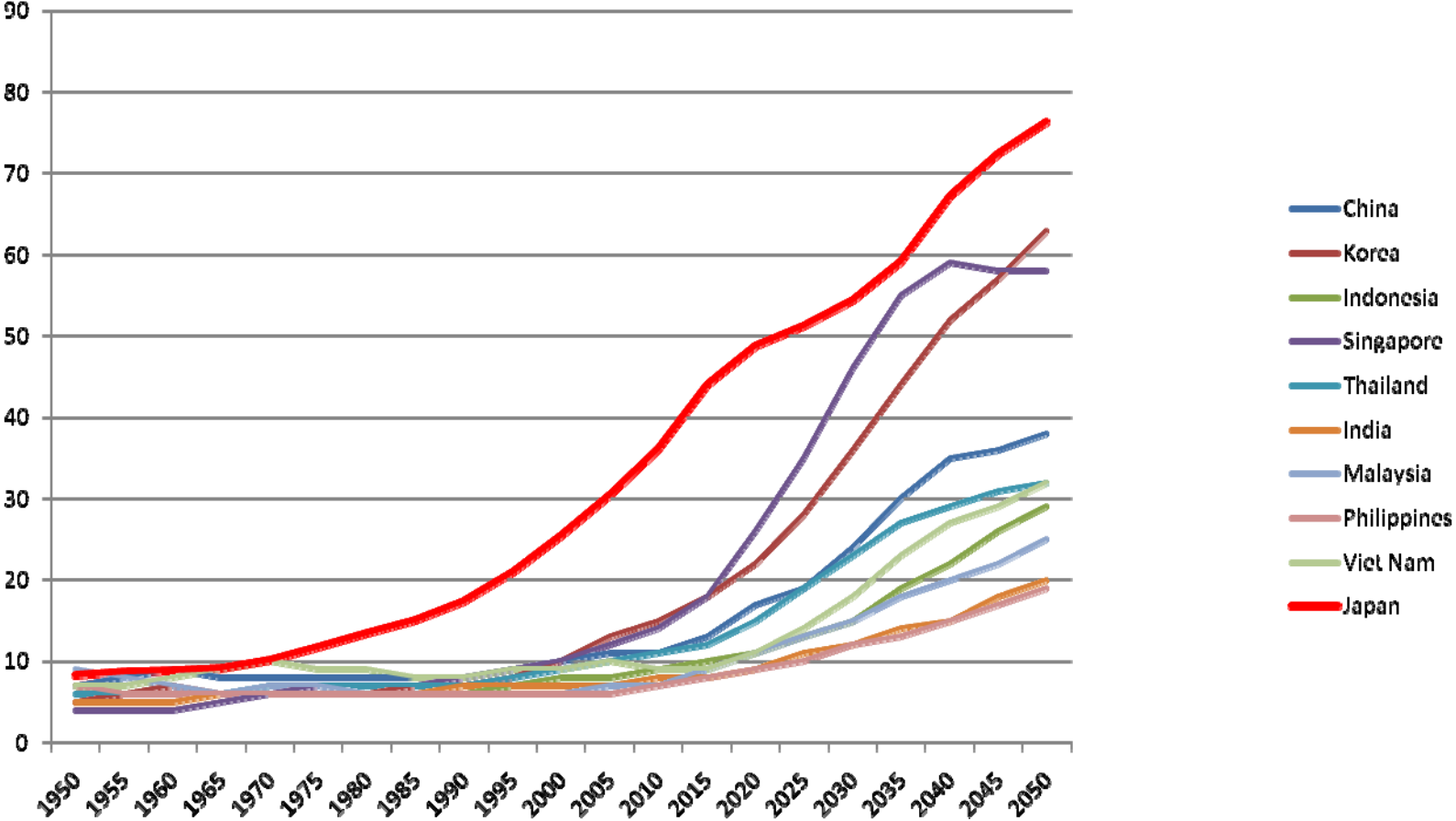
Some basic facts: 1

- Increasing Older population relative to the young is a serious common issue for many developed and developing countries alike.
- We first see this by examining the fraction of 65+ population over 15-64, i.e. the so called the old age dependency ratio.
- Japan is unfortunately the leader in this respect.

Old Age (65+) Dependency Ratios among some developed countries



Old Age (65+) Dependency Ratios in Asia

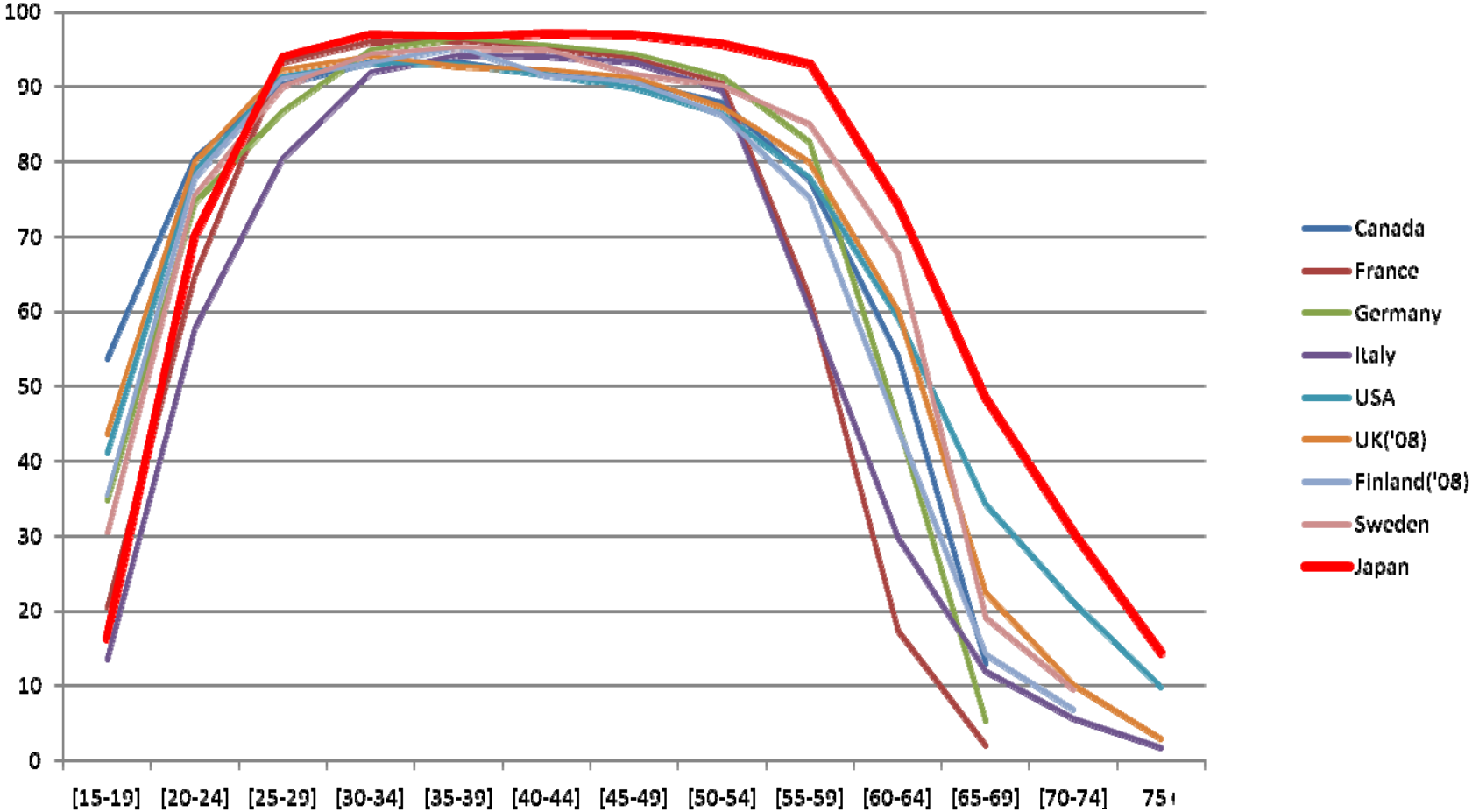


Some basic facts: 2

- The main concern of having the high dependency ratio is the shortage of labor supply.
- Another concern is the deterioration of the balance on the pay-as-you-go pension system.
- Among the developed countries, Japanese elderly men and women tend to remain in the labor market longer.
- Finding out how this is possible may be useful for other countries.

Labor force participation by age (Male)

G7+ in 2007



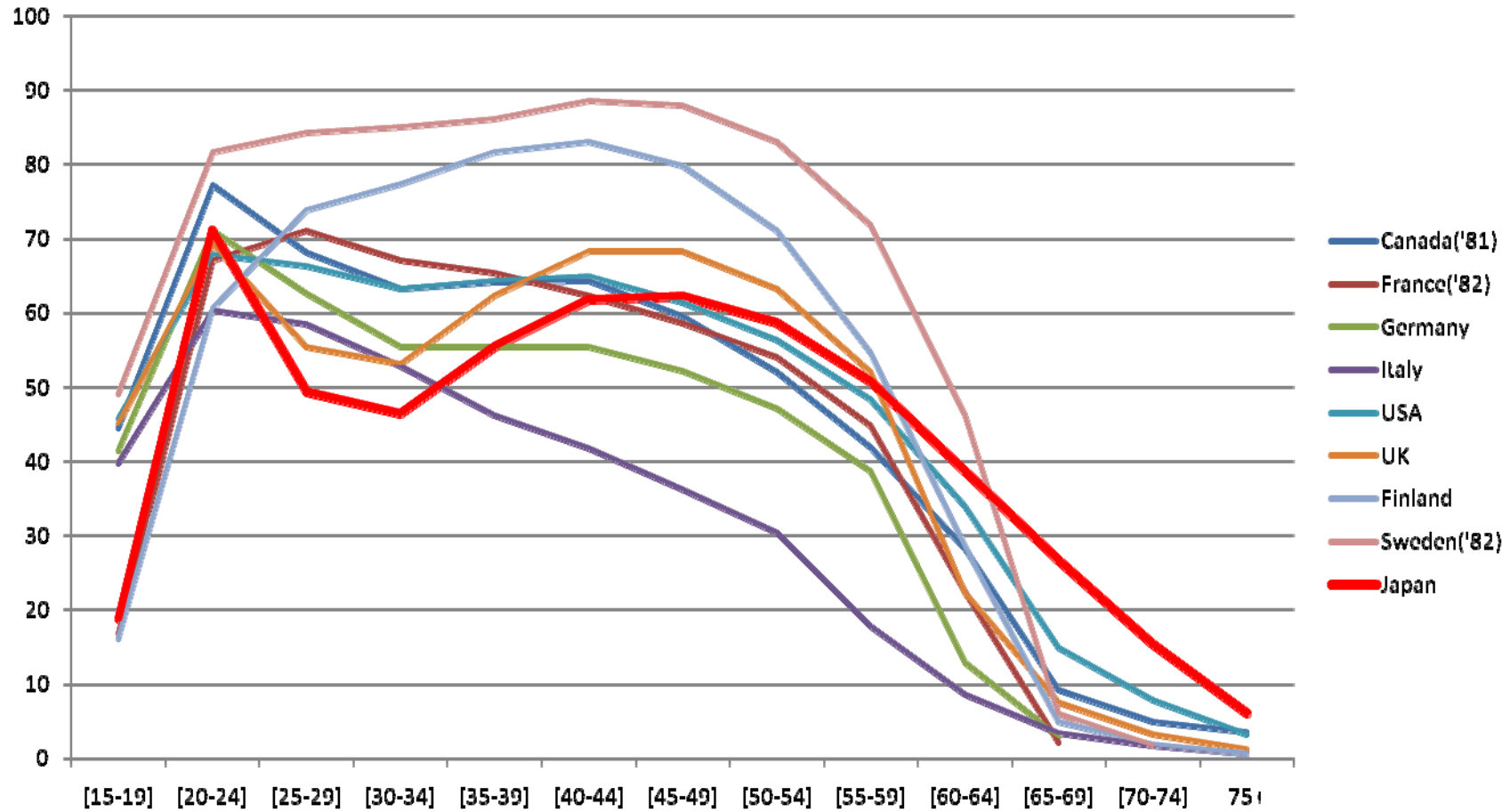
Labor force participation by age (Male)

G7+ 1980 vs 2007

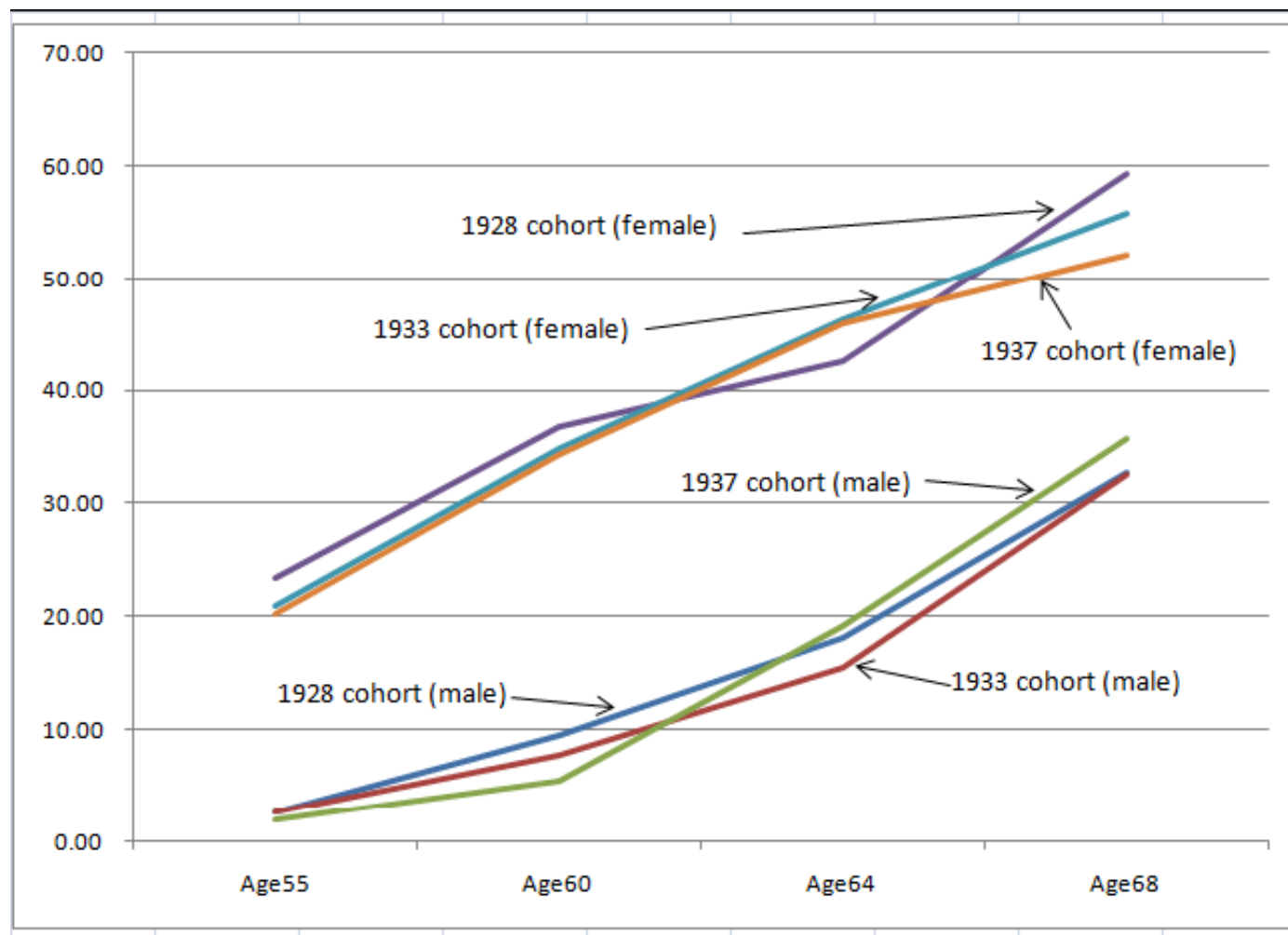
	Canada ('81)	France ('82)	Germany	Italy	USA	UK	Finland	Sweden ('82)	Japan
[50-54]	91 vs 88	91 vs 90	93 vs 91	86 vs 90	89 vs 86	96 vs 87	80 vs 86	93 vs 90	97 vs 96
[55-59]	84 vs 78	77 vs 62	82 vs 83	65 vs 61	81 vs 78	92 vs 80	65 vs 75	87 vs 85	94 vs 93
[60-64]	69 vs 54	39 vs 17	44 vs 45	29 vs 30	60 vs 59	75 vs 60	41 vs 45	68 vs 68	82 vs 74
[65-69]	26 vs 13	5 vs 2	7 vs 5	11 vs 12	29 vs 34	17 vs 22	11 vs 14	16 vs 19	65 vs 49
[70-74]	15			6 vs 6	18 vs 21	10 vs 10	6 vs 7	11 vs 10	45 vs 31
75+	8.1			2 vs 2	9 vs 10	4 vs 3	2 vs -		24 vs 14

Labor force participation by age (Female)

G7+ in 2007



Non-labor force participation by cohorts



from Shimizutani (2009)

Panel studies around the world

- Faced with an increasing fraction of the elderly population, in order to consider pension, employment, health and nursing care policies based on empirical evidences, comprehensive panel data collection effort started in the US and propagated across the world.
- JSTAR is a recent addition to the family.
- Now there is a harmonization effort lead by RAND across different surveys so that cross country comparison can be made.

Panel studies around the world

Health and Retirement Study (HRS)	1992-	51+
Indonesia Family Life Survey (IFLS)	1993-	
English Longitudinal Study of Ageing (ELSA)	1998-	50+
Mexican National Employment and Occupation Survey	2001-	50+
Survey of Health, Ageing and Retirement in Europe (SHARE) 12 original and now 19 European countries	2005-	50+
Korean Longitudinal Study of Ageing (KLoSA)	2006-	45+
Japanese Study of Aging and Retirement (JSTAR)	2007-	50+
China Health and Retirement Longitudinal Study (CHARLS)	2011-	45+
The Irish Longitudinal Study on Ageing (TILDA)	2011-	50+
Health, Aging, and Retirement in Thailand (HART)	Pilot in 2009/2011	
Longitudinal Aging Study in India (LASI)	Pilot in 2010	
Brazilian Longitudinal Study of Ageing (ELSI-Brazil)	Planning	

Panel studies around the world

- Now in the US, policy debates in social security system reform, including those made in the Whitehouse, are based on the evidence obtained by the HRS.
- The objective of JSTAR is to play that role in Japan.
- Upon the advice of Robert Willis in 2005, then the HRS director, we have used the SHARE questionnaire as the base.
- Left-over questionnaire + face-to-face CAPI based interview

Sampling Design of JSTAR

- First wave (2007) is based on stratified (by location) random sample of 5 municipalities (Takikawa, Sendai, Kanazawa, Adachi, Shirakawa) response rate was 59%.
- Second wave (2009) adds Naha and Tosu. response rate was 74% for the 2nd wave and 57% for the two new location.
- Third wave (2011) plans to add 3 more locations.
- Municipalities are selected based on whether we could get agreement on linking the health expenditure record when we receive signed agreement from individuals.

Sampling Design (2)

- This sampling has an advantage of having many individuals who face uniform socio-economic environment which can be identified without asking individuals.
- Many of the research questions relate to how individuals make decisions given the environment and how environment impact individual decisions.
- The sampling allows us to separate the two in a flexible way without resorting to regression based fixed effect model.

Sampling Design (3)

- A disadvantage of the design is that nationally representative sample cannot be constructed easily.
- We aim to obtain representativeness by increasing the number of municipalities.
- We are also investigating various weighting scheme to go back to nationally representative sample but this can be done only for a limited aspects.

Content of the JSTAR

- Questionnaire largely designed after SHARE so mostly common across HRS family surveys
- A: Individual Characteristic and Family
- B: Cognitive Ability and others
- C: Work
- D: Health
- E: Income and Consumption/Durables
- F: Grip Strength
- G: Housing and Asset
- H: Medical treatments and Care Service usage

A: Individual Characteristic and Family

- Age, gender, marital status,
- Education level (including spouse's)
- Family composition and age, education level, and economic dependency of children.
- Whether parents are alive and age and the need for caring if they are alive, frequency of contacts, whether they can share the care with others etc.

B: Cognitive Ability and others

- Word recall
- Repeated subtractions
- Percentage calculation
- Measurement of discount factor
- Measurement of risk aversion

C: Work

- Self and Spouse's work status, including hours worked and earning (including past works)
- Content of work
- Job satisfaction
- Existence of the retirement age, expected retirement age if not retired already, and if retired whether job was offered for rehiring upon retirement etc.

D: Health

- Self and spouse's self assessed health,
- Problems with eye-sight, hearing, chewing strength
- ADL (whether one can eat on his/her own, take a bath, change cloth etc) and IADL (whether one can go out using public transportation, make doctor appointments etc.)

E: Income and Asset

- Income from various sources including pension
- Expected pension amount and sources if not yet receiving pension
- Consumption, durable good expenditure and their replacement frequencies.

G: Housing and Asset

- Housing space and its value (including second house)
- Amount of debt
- Amount of different assets
- Economic value of business if self-employed
- Past and expected amount of inheritances and bequests
- Self assessed survival probability from 75 to 120

H: Medical and Care Service usage

- Diagnosis experience of 20 main diseases, timing, treatment status, types of treatments, expenditure
- Whether received health check-up
- Dentist usage
- Whether care needs are officially assessed, timing and its level, the reason for the care needs, care service usage, expenditure
- Care given by family and acquaintances
- Care given to family members

Different Aspects of JSTAR

- Food intake is measured using a questionnaire validated in Japan.
- For those who gave us a permission we can link the administrative record of their health/nursing care usage. (65+)
- Also, for those who gave us permission we can link the health examination (height, weight, eye sight, hearing, blood pressure, urianalysis, stool test, X-ray, and various blood tests record) with our data.

Why do we need this much?

- How can one think about making a reasonable social security policy without this type of data?
- Why do we need a public pension system?
- Some argue that it is because people are myopic and left on their own, would not save enough for the old age.
- Scholz, Seshadri, Khitatrakun (2006) shows, based on the HRS data, that 80% of the households whose head are between 51 and 61 has more asset than the optimal level and that the insufficiency of the remaining 20% is not so large.

Why do we need this much?

- Of course the result is based on many assumptions so we need to be careful in interpreting the results, but if this is close to the reality, then a different argument for the public pension system to be made.
- As an example to show the need for the level of detail we need, we will consider something like what they considered: an expected net lifetime wealth by cohort.

Expected net lifetime wealth by cohort

- Expected net lifetime wealth is defined as the difference between one's total lifetime wealth and his/her lifetime expenditure.
- The total lifetime wealth is the sum of his lifetime discounted earnings, asset value, and inheritance.
- The lifetime earnings is calculated as his/her annual income times working years until retirement plus the annual pension times the length of expected living years after his retirement.

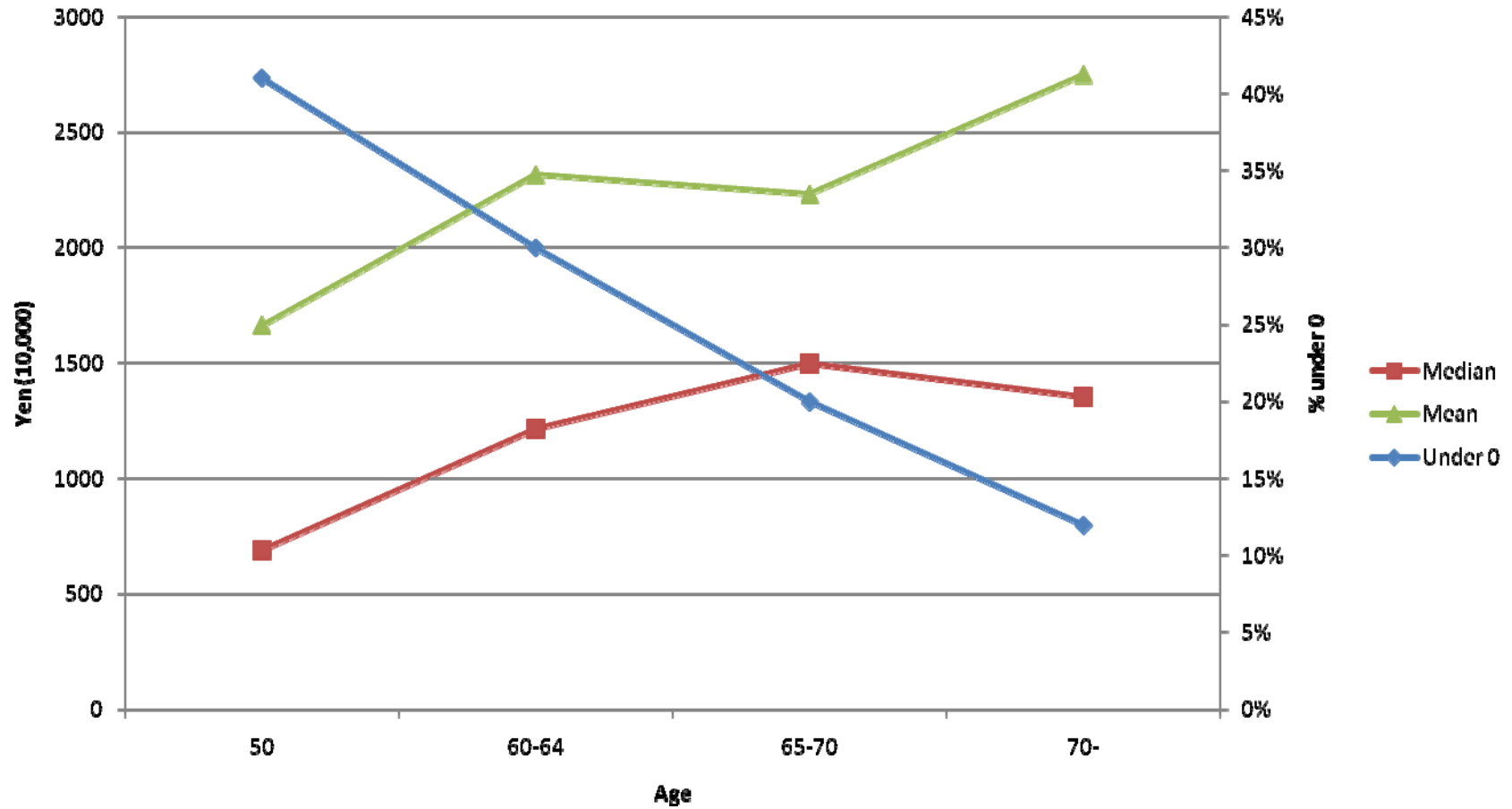
Expected net lifetime wealth by cohort

- Our data contain the planned date for retirement and the self-assessed survival probability.
- Our data also contain the planned start age for receiving pension as well as the amount of expected pension.
- These allow us to calculate the above formula.

Expected net lifetime wealth by cohort

- The asset value is calculated as: savings + stock + bond + housing + land - debt.
- The total lifetime expenditure is the discounted sum of his lifetime consumption, the expenditure of durable goods and rent.
- We assume the consumption level, the interval of durable goods replacement and the maintenance costs are constant over the lifetime.
- Dividing the difference by the root of the number of family members, we obtain the lifetime expected net wealth per capita.

Expected net lifetime wealth by cohort



Expected net lifetime wealth by cohort

	50–59	60–64	65–70	70+
Under 0	41%	30%	20%	12%
Median	690	1216	1500	1356
Mean	1665	2315	2231	2749

Expected net lifetime wealth by cohort

- The calculation has not accounted for the health risk for simplicity but we can incorporate it as well.
- As we accumulate longer panel data, we can replace the crude assumptions made with the actual data.
- Another important use of the HRS type data is to gain understanding about how people react to various policy changes.
- Panel data can be viewed as a set of records of how people reacted to historical policy changes so they are the key to gaining understanding about how people react to various policy changes.

Expected net lifetime wealth by cohort

- For example, in view of the result we just saw, suppose the government reduced the pension payment.
- Then the cohorts whose pension is reduced may simply reduce the bequest, offsetting the government's intention of across cohort equality.
- We need a deeper understanding of how people leave bequests along with their saving and retirement decision given the pension system.
- Without these understandings, it is simply impossible to design a sensible pension system or more generally a sensible social security system.
- HRS type panel data provides the key.