Economics of Aging in Japan and other Societies

Presentation

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Does Retirement Makes You Happy?
A Simultaneous Equations Approach

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Outline

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Motivation

Traditional economic measures are necessary, but not sufficient, to measure societal progress (Stiglitz, Sen & Fitoussi, 2009)

◦ Accordingly, there has been rising interest in assessing subjective well-being to monitor societal progress and evaluate policy

Significant cross-country variations exist in financial and subjective well-being, especially among the elderly

◦ A country's rank in subjective well-being may not match its rank in financial well-being

◦ Getting old in one country carries higher risk of worsening well-being than getting old in another country

Motivation

Individuals are increasingly encouraged to extend their working life

◦ Yet the effect of such policies on individual subjective well-being is unknown

If retirement adversely affects subjective well-being, and in turn, health, then

◦ the fiscal savings created by delaying retirement might be offset by increased health expenditures caused by worse subjective well-being

Labor force participation may affect subjective well-being

- Unemployment can adversely affect subjective well-being; How about retirement?

- In the U.S. evidence is mixed, finding both positive (Charles, 2004) and negative (Dave, Rashad, & Spasojevic, 2008; Szinovacz & Davey, 2004) effects

- Consistently positive effects are found in England (Johnston & Lee, 2009; Mein et al., 2004) and Finland (Okasanen et al., 2011; Salokangas & Joukamaa, 1991)

- No effect is found in the Republic of Korea or continental Europe for depression measures (Lee & Smith, 2009; Coe & Zamarro, 2011)

Empirical strategy

- Examine longitudinal data on retirement, income, and subjective well-being from HRS and SHARE

- Estimate retirement effect on wellbeing, using an instrumental variables approach by exploiting variations in public pension eligibility due to country and cohort specific retirement age
  - to account for potential reverse causation of poor well-being on retirement

- Estimate a simultaneous model, explicitly modeling the interplay of retirement, income, and wellbeing
  - as financial consequences of retirement complicate the estimation of retirement effect on wellbeing

DATA

- We examine the effect of retirement on subjective well-being within 12 countries, using panel data for 50+ population from the U.S. Health and Retirement Study (HRS) and the Survey of Health, Ageing, and Retirement in Europe (SHARE)
- We pooled the data from these surveys together and focus our analysis on the waves 2004-2010 were both surveys are available (about 120,000 obs.)

	HRS	**SHARE**
Life satisfaction	Single-item life satisfaction (2008-2010 Core interview)	Single-item overall life satisfaction question (2006-2010 Core Interview)
Depressive symptoms	8 items CESD (1994-2010 Core interview)	12 items EURO-D (2004-2010 Core interview)

Life satisfaction by country (1=low; 5=high)
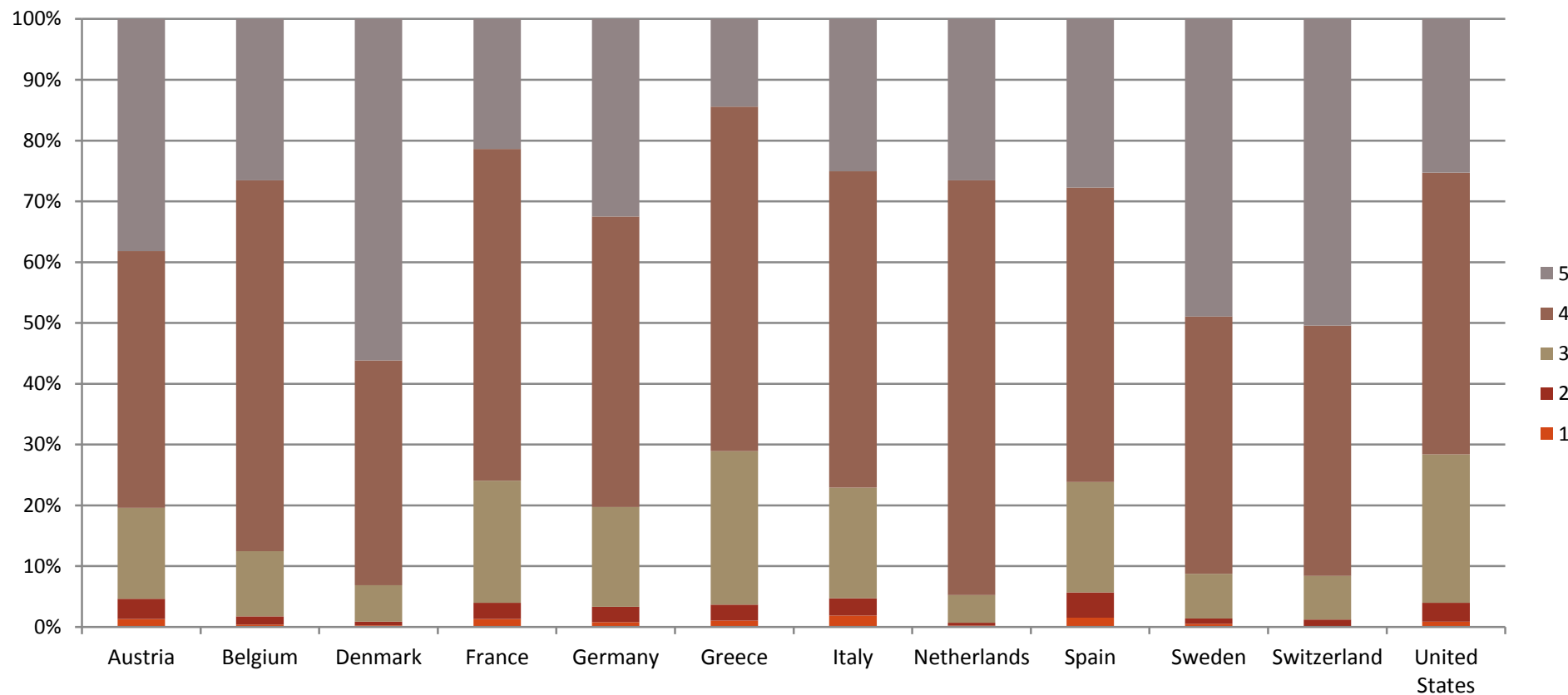
Depression by Country

Percent Depressed
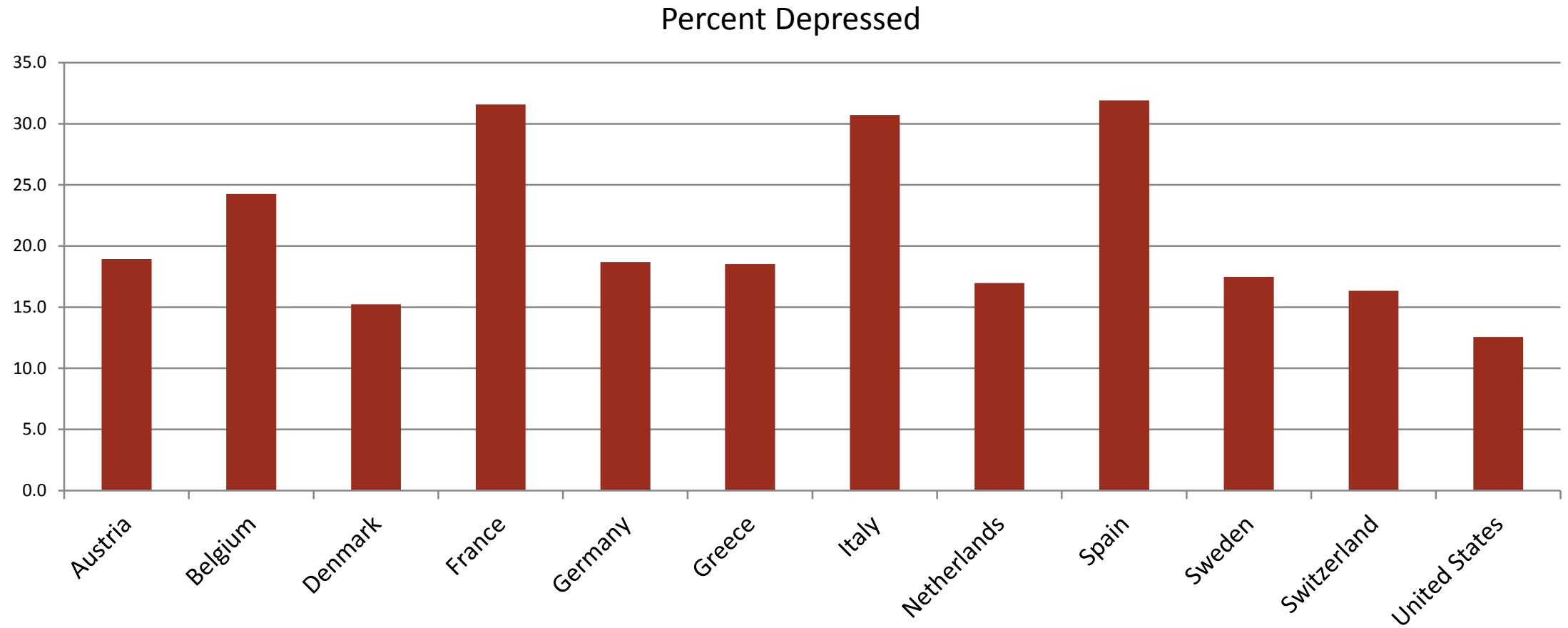
A simultaneous equation model with Four outcome variables: Retirement, Income, Depression, Life Satisfaction

All four equations include the following explanatory variables:

- Household wealth
- Year dummies
- Age
- Gender
- Marital Status
- Education
- Health (major condition; ADLs)
- Country dummies (and regional dummies for US)

Retirement Equation

Above full retirement age

Above early retirement age

Both variables interacted with replacement rates

Early (Full) retirement age for all workers

Country	2002 Males	2002 Females	2005 Males	2005 Females	2007 Males	2007 Females	2009 Males	2009 Females	2011 Males	2011 Females
Austria	60 (65)	57 (60)	65 (65)	60 (60)	65 (65)	65 (65)	65 (65)	65 (65)	62 (65)	60 (65)
Belgium	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)
Denmark	65 (65)	65 (65)	65 (65)	65 (65)	65 (65)	65 (65)	65 (65)	65 (65)	67 (67)	67 (67)
France	57 (60)	57 (60)	60 (60)	60 (60)	60 (60)	60 (60)	61 (61)	61 (61)	56-60 (65)	56-60 (65)
Germany	63 (65)	63 (65)	63 (65)	63 (65)	63 (65)	63 (65)	63 (67)	63 (67)	63 (67)	63 (67)
Greece	60 (65)	55 (60)	57 (65)	57 (65)	55 (65)	55 (65)	55 (65)	55 (65)	55 (65)	55 (65)
Italy	57 (65)	57 (65)	60 (65)	60 (65)	60 (65)	60 (60)	60 (65)	60 (60)	61 (65)	60 (60)
Netherlands	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	65 (65)	65 (65)
Spain	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	60 (65)	61 (65)	61 (65)
Sweden	61 (65)	61 (65)	61 (65)	61 (65)	61 (65)	61 (65)	61 (65)	61 (65)	61 (65)	61 (65)
Switzerland	63 (65)	62 (64)	63 (65)	62 (64)	63 (65)	62 (64)	63 (65)	62 (64)	63 (65)	62 (64)
Czech Republic	..	..	60 (63)	56-60 (59-63)*	60 (63)	56-60 (59-63)*	60 (65)	59-60 (62-65)*	60 (65)	59-60 (62-65)*

Source (2002): Natali (2004) but supplemented with information from OECD (2003), the Bartelsmann Foundation, Suden (2004), Preesman (2006) and OECD (2005). Slight differences can be found between this retirement ages and the ones from OECD publications (e.g. OECD, 2005) dute to the differenes between current law and the law that was in place when individuals were facing retirement decisions

Source (2005): OECD Pensions at a glance 2005

Source (2007): OECD Pensions at a glance 2007

Source (2009): OECD Pensions at a glance 2009

Source (2011): OECD Pensions at a glance 2011

*Retirement ages for women in the Czech Republic vary depending on the number of children

Replacement Rates at Full Retirement Age

Country	Male_2004	Female_2004	Male_2006	Female_2006	Male_2010	Female_2010
Austria	93.2	84.6	90.3	90.3	89.9	89.9
Belgium	63.1	63.1	63.7	63.7	63.8	63.8
Denmark	54.1	54.1	91.3	91.3	86.9	86.9
France	68.8	68.8	65.7	65.7	60.7	60.7
Germany	71.8	71.8	61.3	61.3	58.5	58.5
Greece	99.9	99.9	110.8	110.8	70.7	70.7
Italy	88.8	88.8	74.8	58.1	92.4	92.4
Netherlands	84.1	84.1	103.2	103.2	100.7	100.7
Spain	88.3	88.3	84.7	84.7	80.1	80.1
Sweden	68.2	68.2	64.1	64.1	53.6	53.6
Switzerland	67.3	68.0	64.5	65.3	65.4	64.4
United States	51	51	44.8	44.8	48.5	48.5

Sources: http://stats.oecd.org/Index.aspx?DataSetCode=ELSPENSIONS# ; Pensions at a Glance, 2005. The replacement rates are net replacement rates (after tax) at the nations' full retirement age for a median earner who entered the labor force at the age of 20 and experienced an uninterrupted career.

Income Equation

Retirement status

Interaction with replacement rate

Whether unemployed

Interaction with unemployment replacement rate

Both Depression and Life Satisfaction

Retirement status

Unemployed

Unemployed interacted with replacement rate

Log household income

Correlations Between Key Outcome Variables

	Retirement, Log-income	Retirement, Depression	Retirement, Life Satisfaction	Log-income, Depression	Log-income, Life Satisfaction	Depression, Life Satisfaction
Austria	-0.13	0.09	-0.05	-0.11	0.14	-0.41
Belgium	-0.11	0.04	-0.01	-0.07	0.11	-0.28
Denmark	-0.32	0.01	-0.04	-0.04	0.08	-0.29
France	-0.18	0.05	-0.08	-0.11	0.21	-0.30
Germany	-0.14	0.06	-0.07	-0.07	0.21	-0.32
Greece	-0.28	0.15	-0.15	-0.09	0.22	-0.26
Italy	-0.14	0.09	-0.09	-0.10	0.15	-0.35
Netherlands	-0.24	0.09	-0.04	-0.10	0.11	-0.26
Spain	-0.24	0.17	-0.07	-0.10	0.13	-0.38
Sweden	-0.22	0.08	-0.04	-0.08	0.04	-0.28
Switzerland	-0.16	0.07	-0.04	-0.11	0.13	-0.31
United States	-0.35	0.08	0.02	-0.16	0.13	-0.34
Total	-0.28	0.10	-0.03	-0.15	0.18	-0.31

Results

In the raw data (and across all countries) correlations are

◦ Positive between retirement and depression

◦ Negative between retirement and life satisfaction (with the exception of the U.S.; all correlations are small)

◦ Positive between income and life satisfaction

◦ Negative between income and depression

Estimation results

	Retirement	Log HH income	Depressed	Life satisfaction
Retired		-0.978***	-0.061*	0.179**
Pension RR x retirement		0.008***		
Unemployed		-0.881***	0.106	-0.596*
Unemployment RR x unemployed		1.073***	-0.167	0.893*
Log HH income			0.011	-0.016
Above full retirement age	0.103***			
Above early retirement age	0.154***			
Pension RR x above full ret age	0.000			
Pension RR x above early ret age	-0.001***			

According to the Model Estimates, there is

- A (marginally significant, 10%) negative effect of retirement on depression
- A significant positive effect of retirement on life satisfaction
- No effect of income on either depression or life satisfaction.
- A strong effect of unemployment replacement rates on the life satisfaction of the unemployed.
- Retirement does not respond very strongly to replacement rates, but it does respond to eligibility ages.

Simulations

Retirement replacement rates don't have strong effects on retirement and hence also not on depression or well-being

Higher eligibility ages imply later retirement and hence a modest fall in life satisfaction for ages 60-69 in countries where currently workers retire early.

Caveats/Extensions

Due to data limitations, we could not yet estimate a dynamic model; this will be done when the 2012 SHARE wave is available

The incentive measures by country need to be refined

The specification of the effect of retirement on depression or life satisfaction needs to be improved, e.g. by taking into account time since retirement.