How the disaggregated NTAs combine for a richer picture of the economy

Ronald Lee

University of California at Berkeley

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Session 4. Population, Society, and Wellbeing

Introduction

- Global network – 70+ countries with member teams, same method, comparable accounts.

- Generous support from UN and others but a shoe-string operation.

- Consistent with SNA; survey estimates adjusted to match.

- Adds private transfers.

- Provides a wealth of new detail.

Background

- 2002 Andrew Mason and I started NTA with seven countries.
- Researchers in other countries learned of it and asked to join so grew naturally.
- Methods codified by Mason and Donehower in UN manual
- Scope broadened to address wide range of policy issues.

Why disaggregate by age?

- Era of rapid change in population age distribution
  - Demographic dividends
  - Population aging
  - Baby boom ripples
- Age is important
  - Economic behavior varies strongly
  - Population can be projected deep into future
  - A year of age = a year of time so…
  - Powerful dynamic insights
- Core of OLG

Why individuals (vs households)?

- Natural interface with population for dynamics and macro-aggregates
- Household dissolution and changing membership
  - E.g. in Great Recession young adults moved into parents' households

Proportion living with parents before and after Great Recession
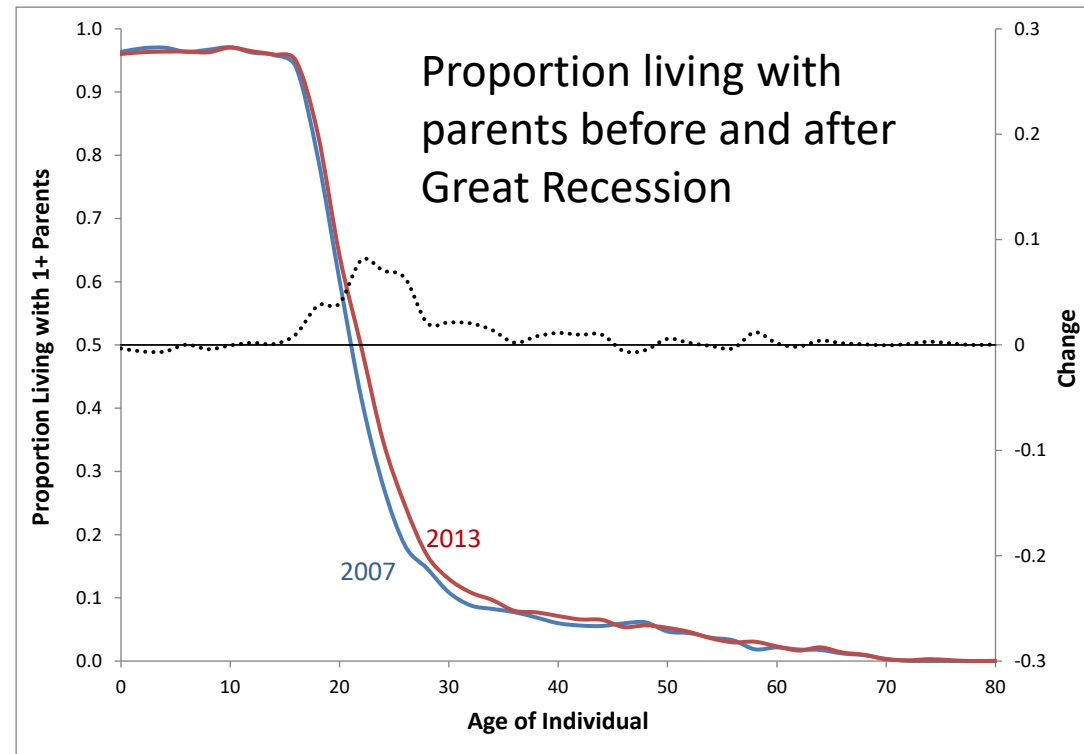
Other dimensions

- Gender (Donehower presentation)
  - Misleading without home production/care time
  - Requires time use data
  - Gretchen Donehower lead this work (NTTA)
- SES (Cassio Turra and Alexia Fürnkranz-Prskawetz presentations)
  - Income reflects public and private transfers so problematic
  - Education of adult self or household head perhaps better

Some new directions in process

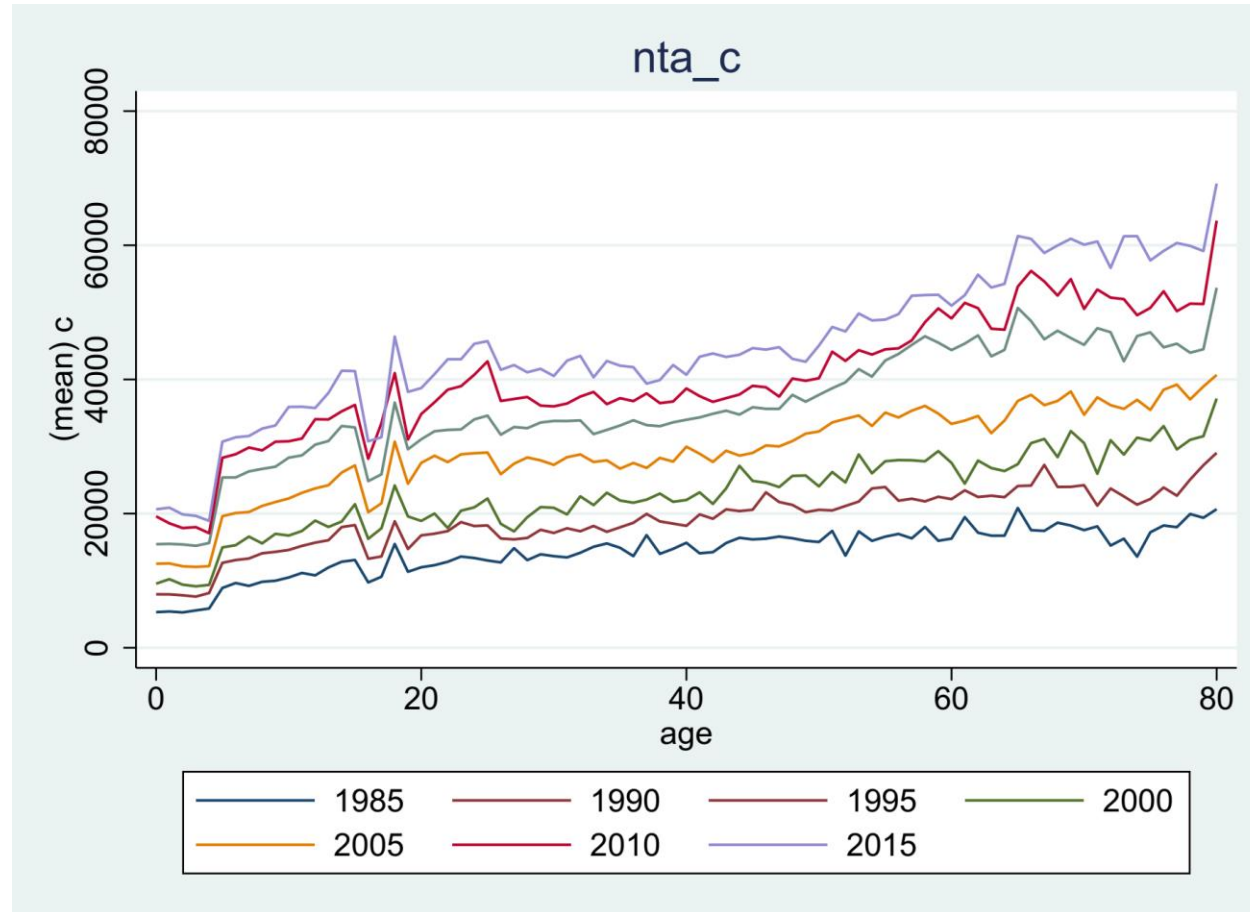# 1. Change over time: Longitudinal NTA and comparative cross-sections

Changing age profile of consumption in the US over 55 years (cross-sectional NTA)
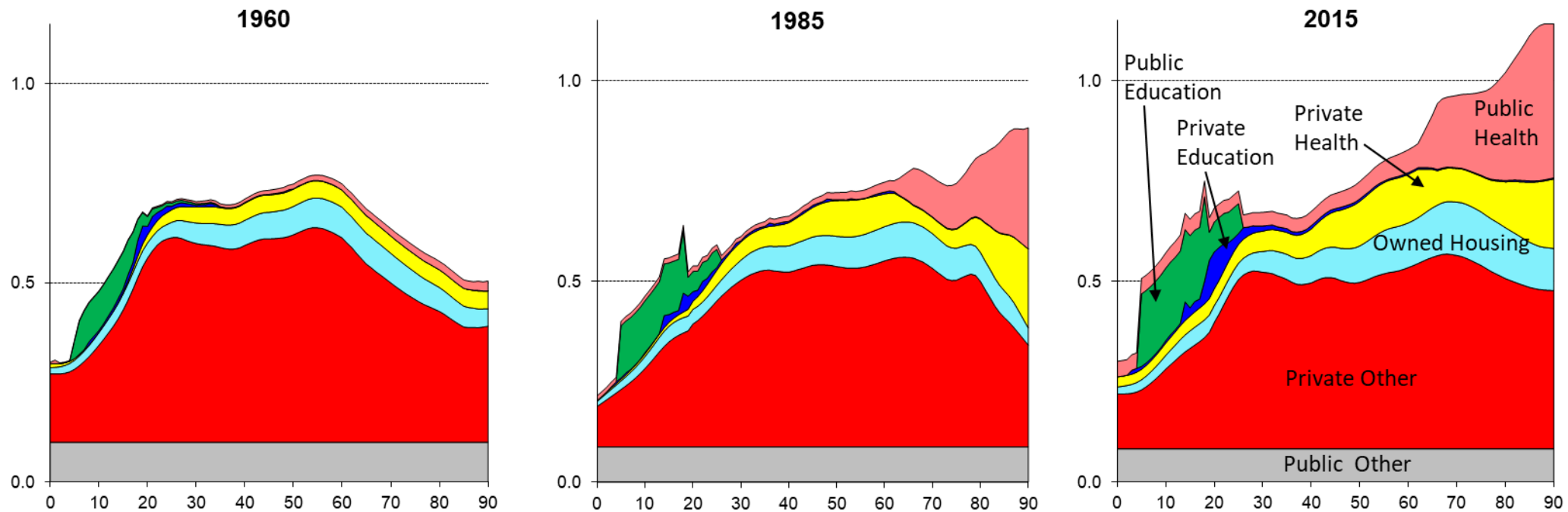
Y-axis scale: Relative to the (unweighted) profile average of labor income (YL) value for ages 30-49 for that year.
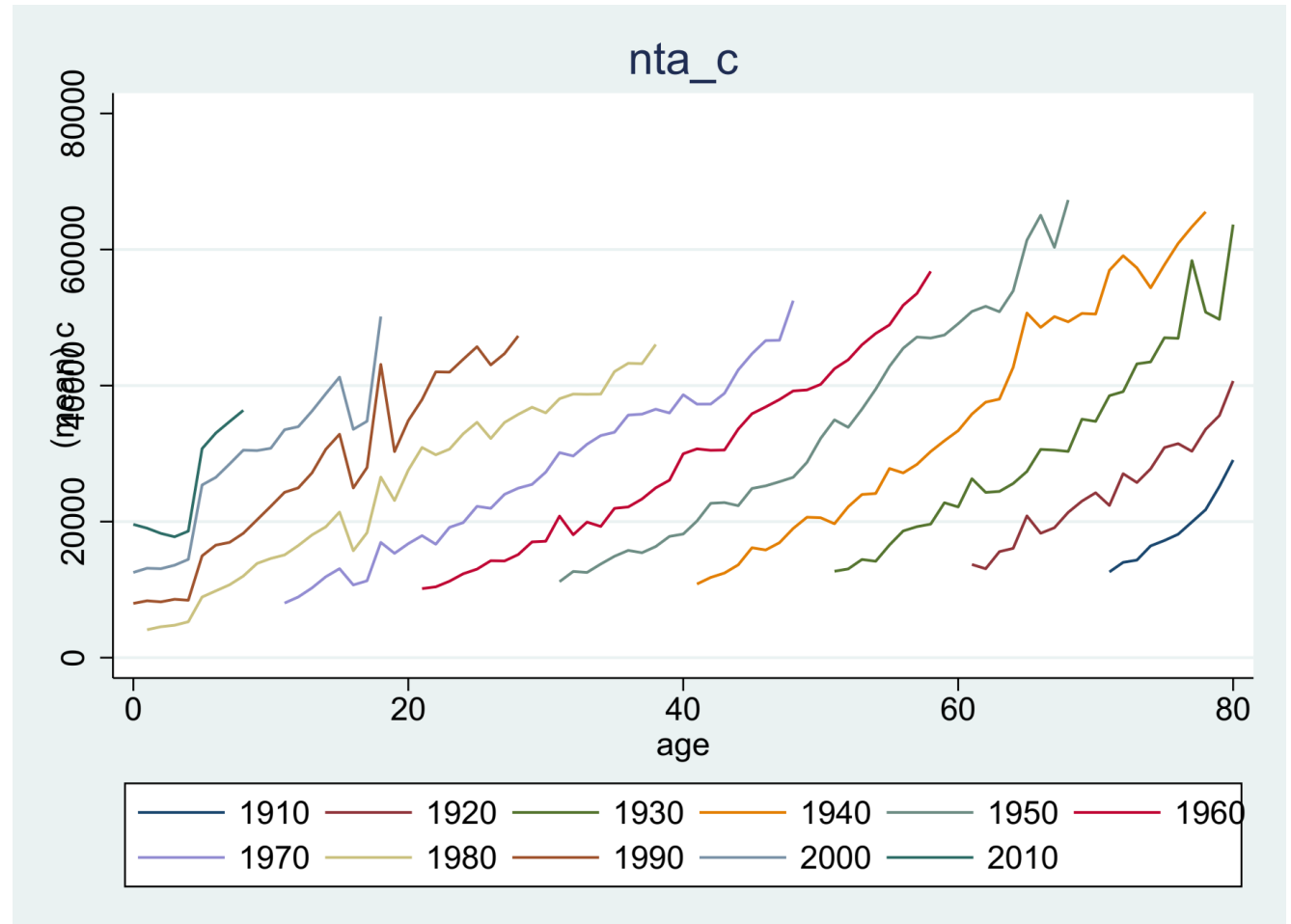
Source: Lee, Donehower&Miller (2011), updated

US Consumption at ages 0-80, 1985-2015

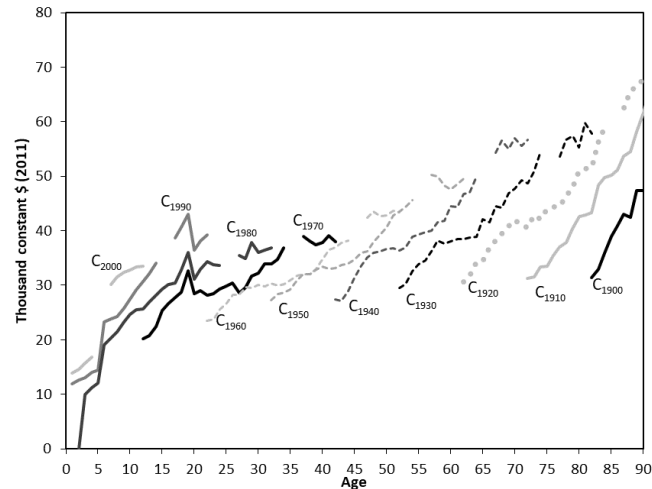# Rearrange by birth cohorts born 1910 to 2010

- Younger cohorts always consume more than earlier born cohorts, when they overlap.

- So far, younger generations are doing better than their parents.

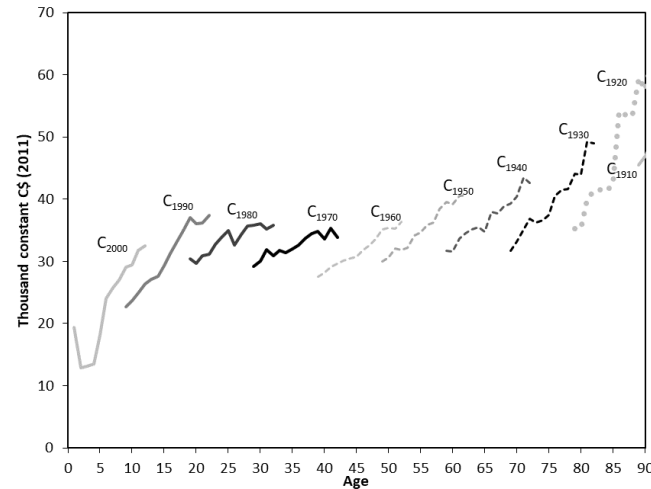# Longitudinal consumption in US, Canada and France

- Each cohort does better than the previous.
- Consumption of elderly rises very rapidly
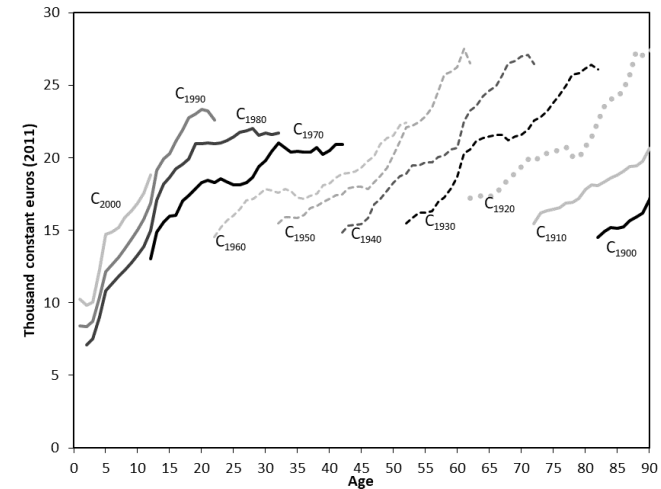
US

Canada

France

Longitudinal labor income in US, Canada and France

- Little or no growth before age 30 for cohorts born after 1970 or 1980.
- So how have they consumed more?

US
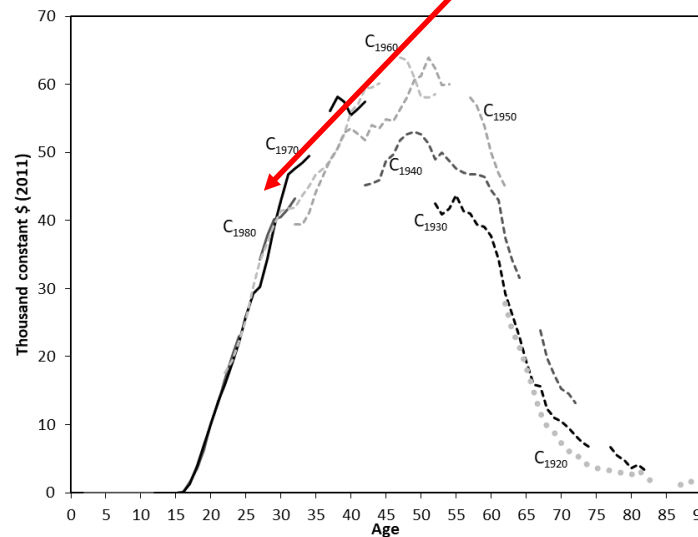
Canada
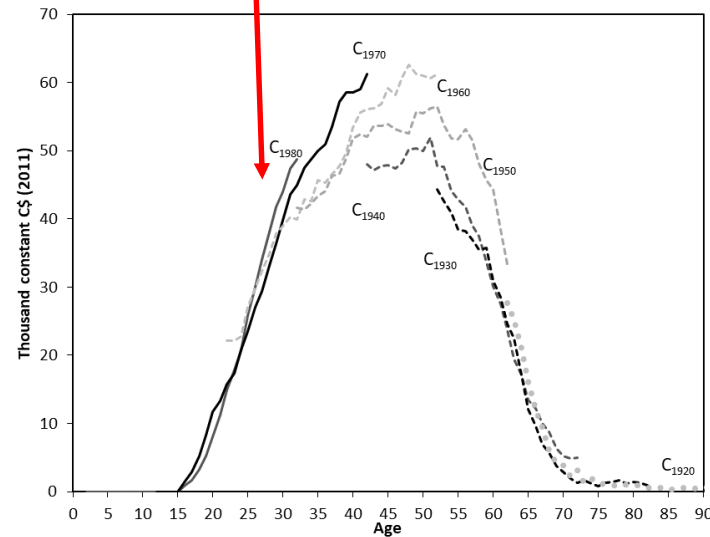
France
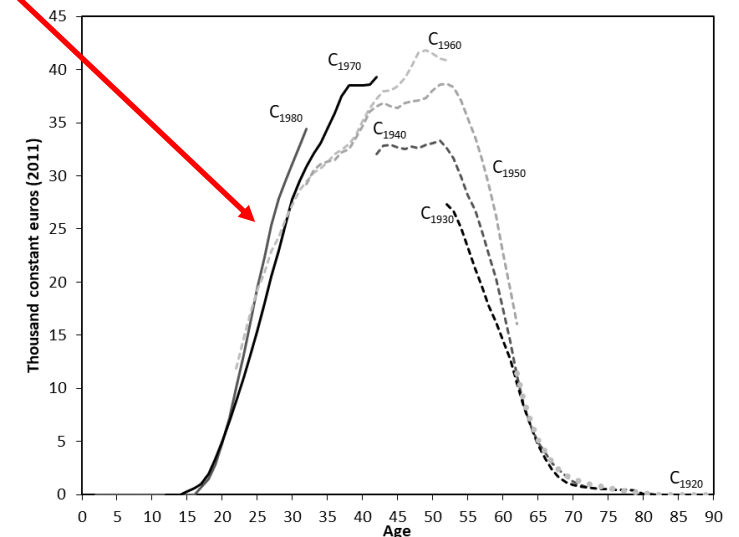
2. Wealth from flows and intergenerational equity

- NTA focuses on flows, not stocks.

- Can augment flow data with net worth from other surveys and bequest data.

- Can calculate net present values of survival-weighted transfers (benefits – taxes) received or expected (NPV).
  - Transfer wealth by age and generation, public or private.

- NTA public transfer NPVs for generations are similar to "Generational Accounts" of Auerbach, Kotlikoff and Gokhale, and NTA has been used for this.

TABLE 1 Full Generational Accounts for the US and Taiwan as a percent of present value of lifetime labor income for newborns in 2010

	US	Taiwan
Gross public received	60.1	64.2
Gross public paid	57.7	65.9
Net public received	2.4	−1.7
Gross private received	55.7	86.2
Gross private paid	49.5	69.2
Net private received	6.2	17.0
Bequests received	7.5	7.5
FGA-N (net received)	8.6	15.2
FGA-G (gross received)	123.3	157.9
FGA-H (net public + gross private received)	65.6	92.0

NOTE: Net bequests are assumed to be zero for the net private FGA measures, but bequests received are added to the gross private in FGA.
SOURCE: Constructed from calculations described in the text and United Nations 2012a.

Lee, McCarthy, Sefton and Sambt (2017)

TABLE 1 Full Generational Accounts for the US and Taiwan as a percent of present value of lifetime labor income for newborns in 2010

		US	Taiwan
Gross public received		60.1	64.2
Gross public paid	Net govt transfers are similar % of lifetime labor inc	57.7	65.9
Net public received		2.4	−1.7
Gross private received		55.7	86.2
Gross private paid	Taiwan net private transfers are bigger % lifetime labor inc	49.5	69.2
Net private received		6.2	17.0
Bequests received	Bequests are identical share	7.5	7.5
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Taiwan net private transfers are bigger % lifetime labor inc

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Total received is greater in Taiwan

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2010 newborns in US and Taiwan receive large gross and net transfers from earlier generations.

Private and public Generational Wealth Accounts (GWA) for UK (2015) GPB '000): McCarthy, Sefton, Lee and Sambt 2022, *Economic Journal*

PANEL A: Private generational account and savings gap	Year of birth										
	before 1926	1926-1935	1936-1945	1946-1955	1956-1965	1966-1975	1976-1985	1986-1995	1996-2005	2006-2015	after 2015
Age in 2015	90+	80-89	70-79	60-69	50-59	40-49	30-39	20-29	10-19	0-9	Unborn
A. PV(Public consumption)	45	76	109	132	141	141	137	135	148	160	154
B. PV(Private non-housing consumption)	32	65	124	193	253	293	305	339	364	322	302
C. PV(Private housing consumption)	25	45	70	91	106	112	118	128	126	108	99
D. Human capital	0	0	2	39	230	444	609	667	583	422	369
E. Life-cycle demand for assets (A+B+C-D)	103	185	300	377	268	103	(49)	(65)	56	168	187
F. Public transfer wealth	56	90	122	122	52	(17)	(52)	(59)	(33)	12	20
G. Private transfer wealth	(3)	(7)	(10)	(7)	(25)	(64)	(123)	(104)	(7)	74	92
H. Total transfer wealth (F+G)	54	83	111	115	27	(81)	(175)	(164)	(40)	86	112
I. Private generational account (E-H)	49	102	189	262	241	184	126	98	96	82	74
J. Non-housing wealth*	117	118	191	288	215	79	4	(3)	(0)	0	0
K. Housing wealth*	160	160	164	178	163	132	79	15	0	0	0
L. Savings gap (I-J-K)	(228)	(176)	(167)	(204)	(136)	(27)	42	86	96	82	74

A negative gap indicates that wealth, including public and private transfer wealth and private assets, exceeds the PV of consumption needs after 2015 for this cohort.
Above age 40 gaps are negative, meaning these older generations will leave capital bequests to younger generations.
While generations below age 40 in 2015 have insufficient wealth to cover their needs, these capital bequests will more than cover the gaps, so living generations are more than in balance.

"…GWA-derived measures of sustainability take account of population ageing, public and private sector assets and liabilities, and current and capital transfers within the public and private sectors." (McCarthy et al 2022)
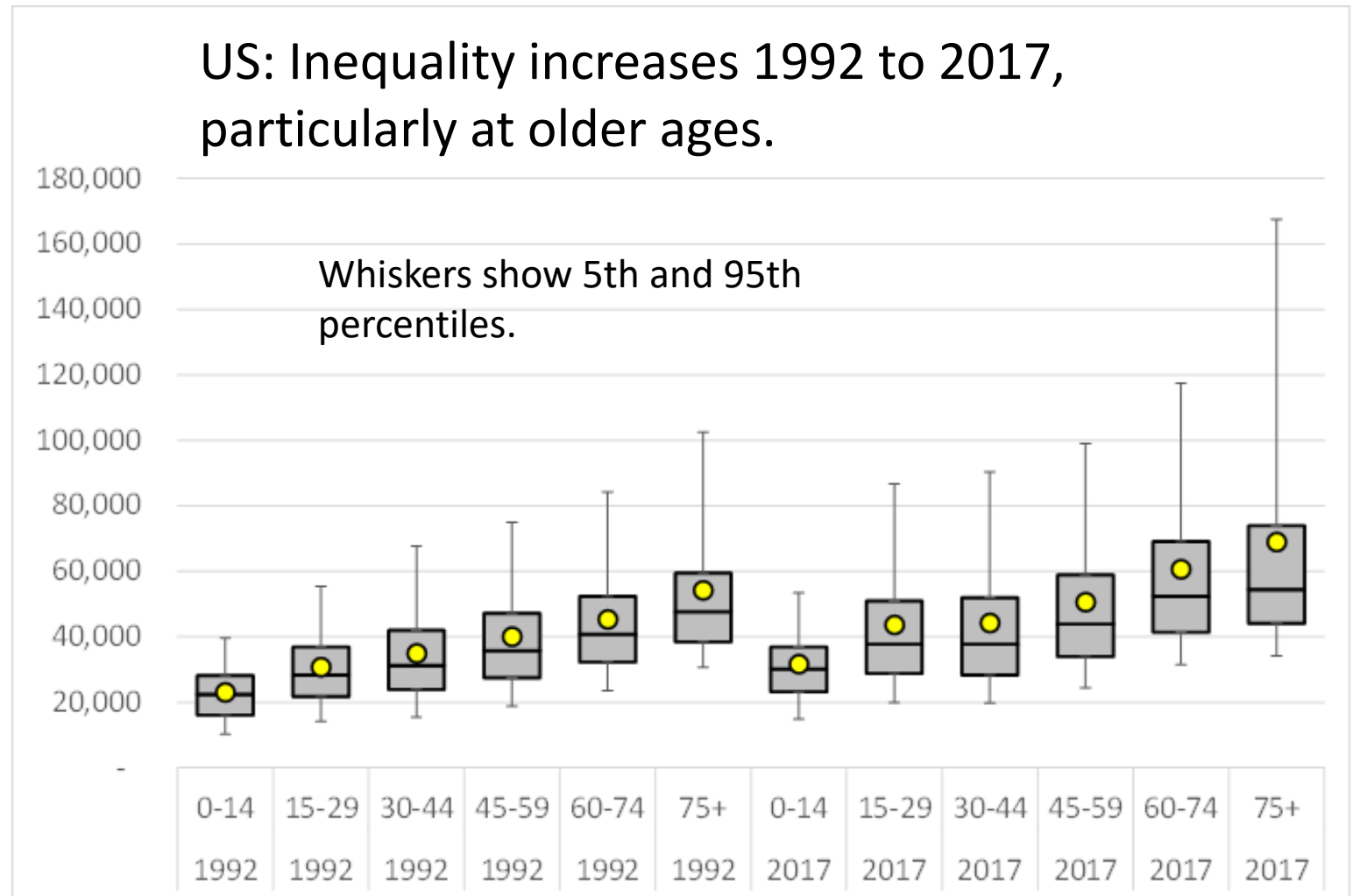
3. Distributional NTA

- NTA by SES gives between group variance (Cassio).
- Also within group variance.
- Total variance is sum.

Total consumption in constant 2017 dollars.

* Median consumption increases at every age from 1992 to 2017, but the mean rises much more.

* Inequality (height of boxes and upper tail) increases a lot with age and time.

US: Inequality increases 1992 to 2017, particularly at older ages.

Whiskers show 5th and 95th percentiles.

	0-14	15-29	30-44	45-59	60-74	75+	0-14	15-29	30-44	45-59	60-74	75+
	1992	1992	1992	1992	1992	1992	2017	2017	2017	2017	2017	2017

Labor Income Distribution by Age Group, 1992 and 2017

Total labor income distribution in 1992 and 2017 (constant 2017 dollars).

Means are higher in 2017, but medians are same.
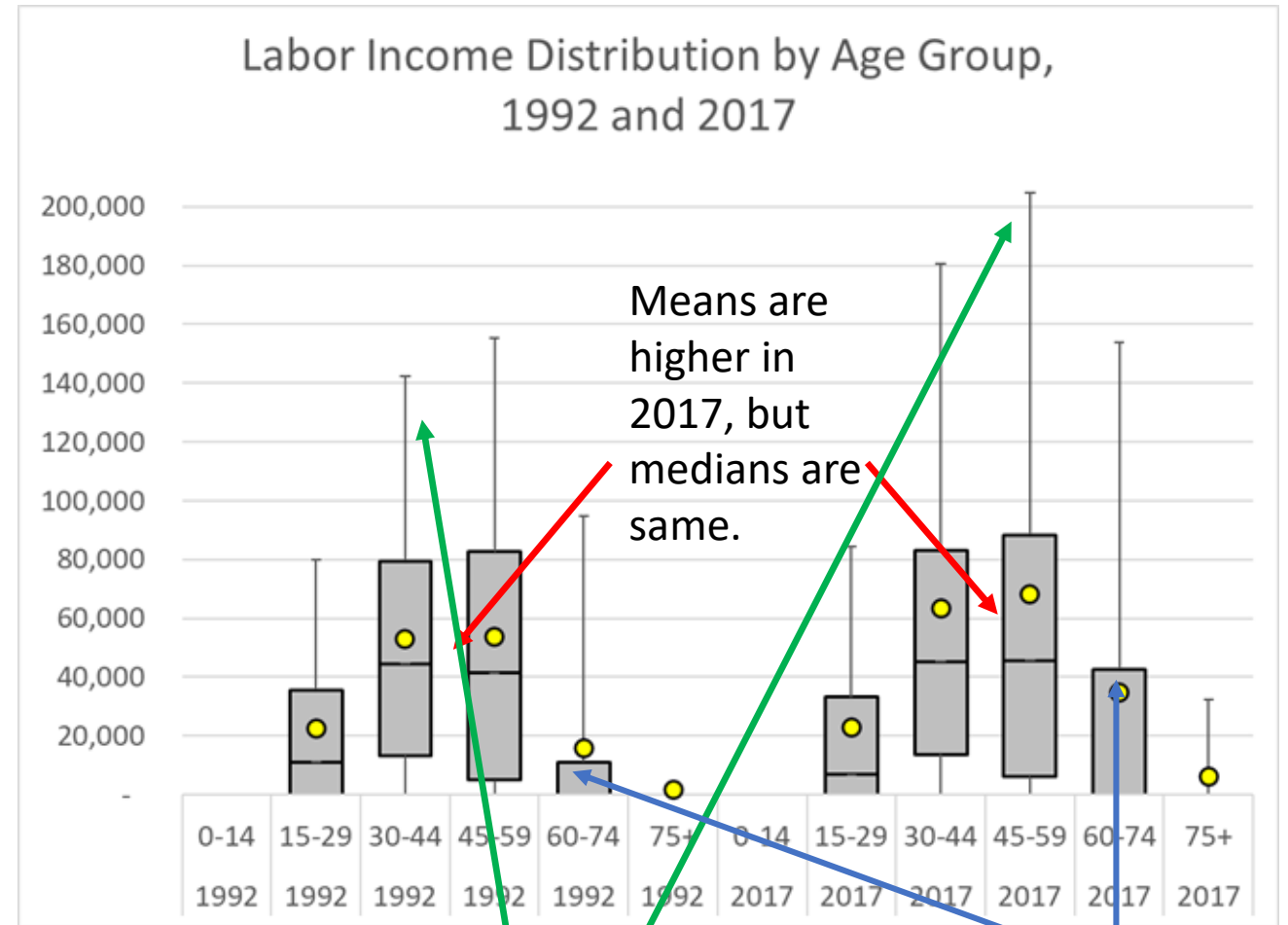
Inequality is greater in 2017 with the 95th percentile much higher.

Labor inc is much higher at 60-74 in 2017; age at retirement rose.

# Labor income by age and education of household head (HHH) (ratio to labor inc 30-49).

As educ rises over time--
- Increasing adverse selection in low educ groups
- decreasing positive selection in high educ groups
- To reduce bias, use educ quintiles

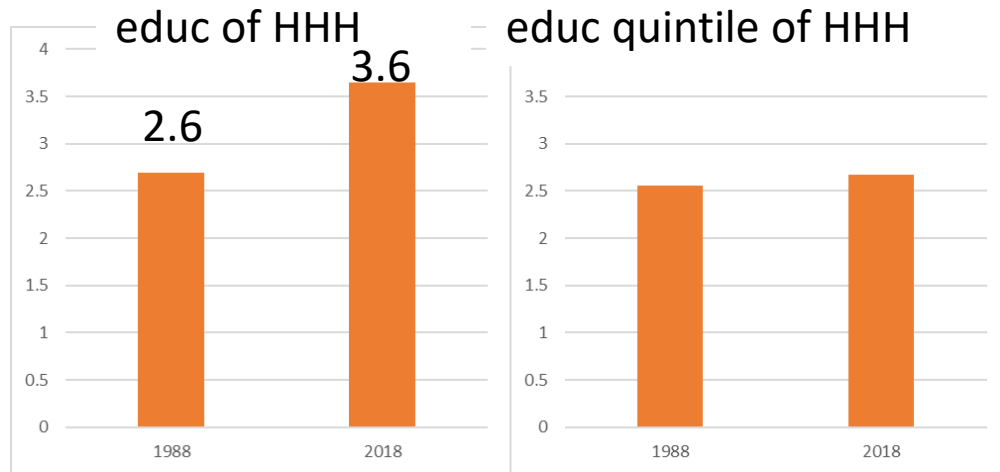How to summarize this so we can interpret it more easily?
Calculate ratio at each age of inc for BA+ to <HS.
Find the median of these ratios for each date.

By *absolute* **educ of HHH** 1988

By **educ** *quintile* **of HHH**, 1988
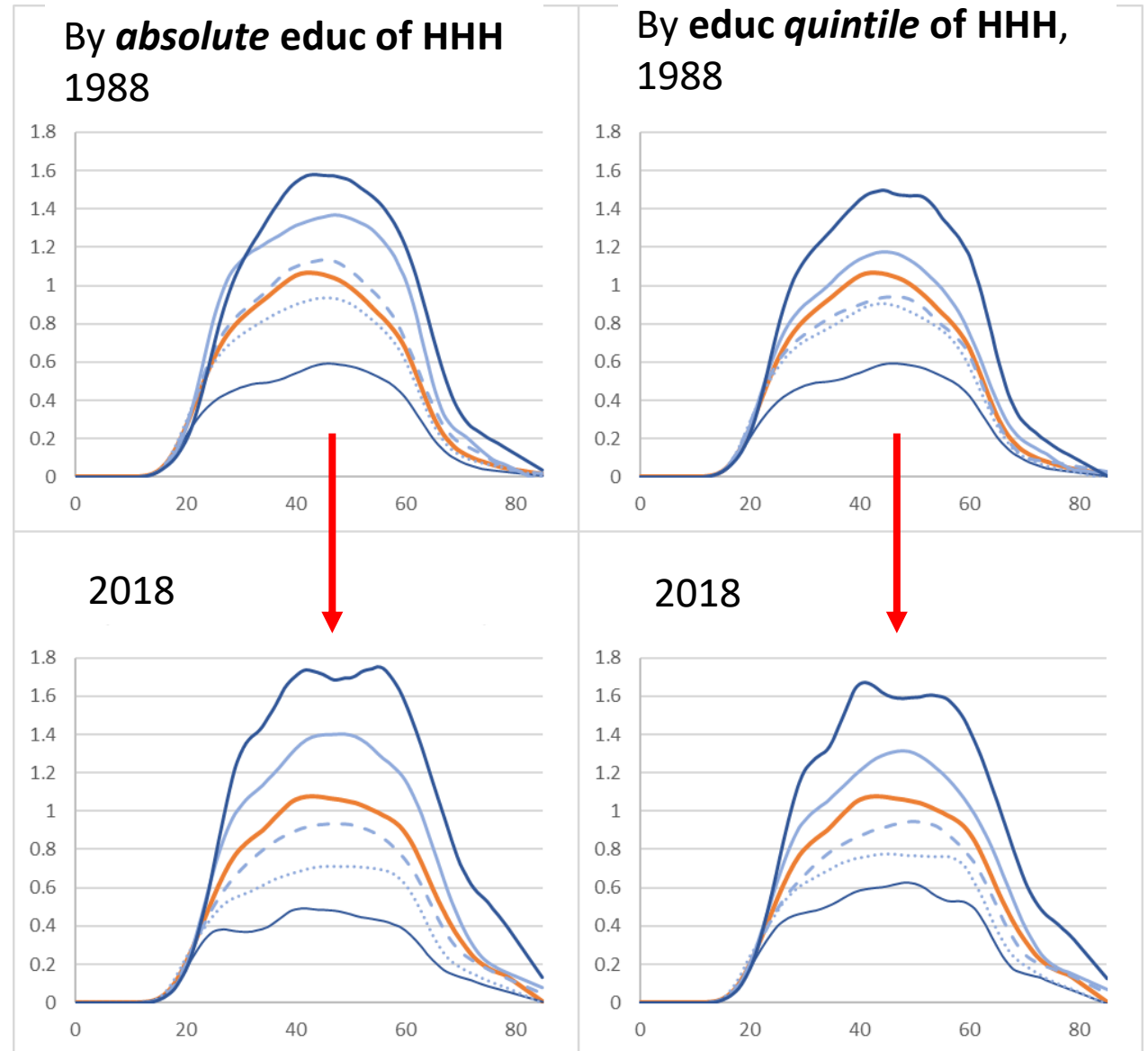
2018

2018

Median ratio of BA+ to <HS labor inc
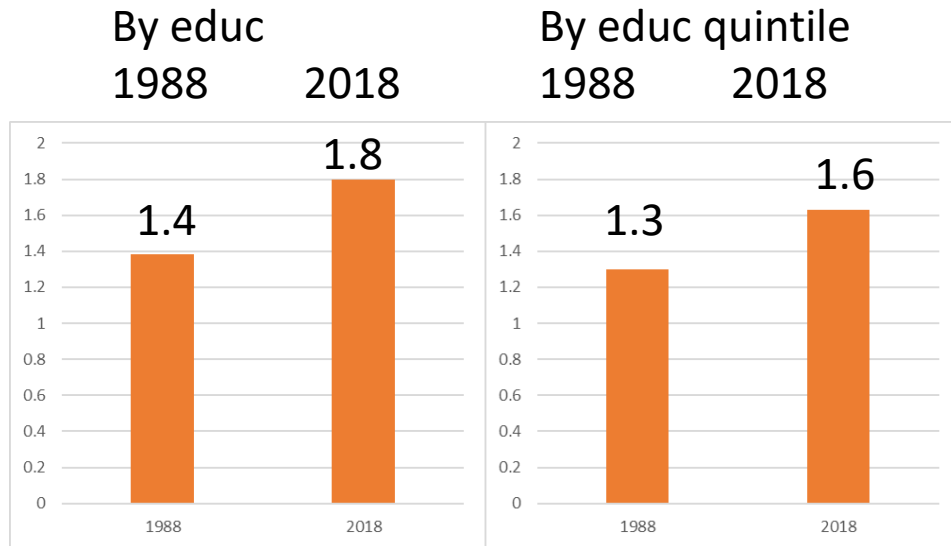
educ of HHH

2.6 (1988) 3.6 (2018)

educ quintile of HHH

Labor income inequality rose strongly from 1988 to 2018.
But not for quintiles, so increase mostly due to increased selectivity.

By *absolute* educ of HHH 1988

By educ *quintile* of HHH, 1988

2018

2018
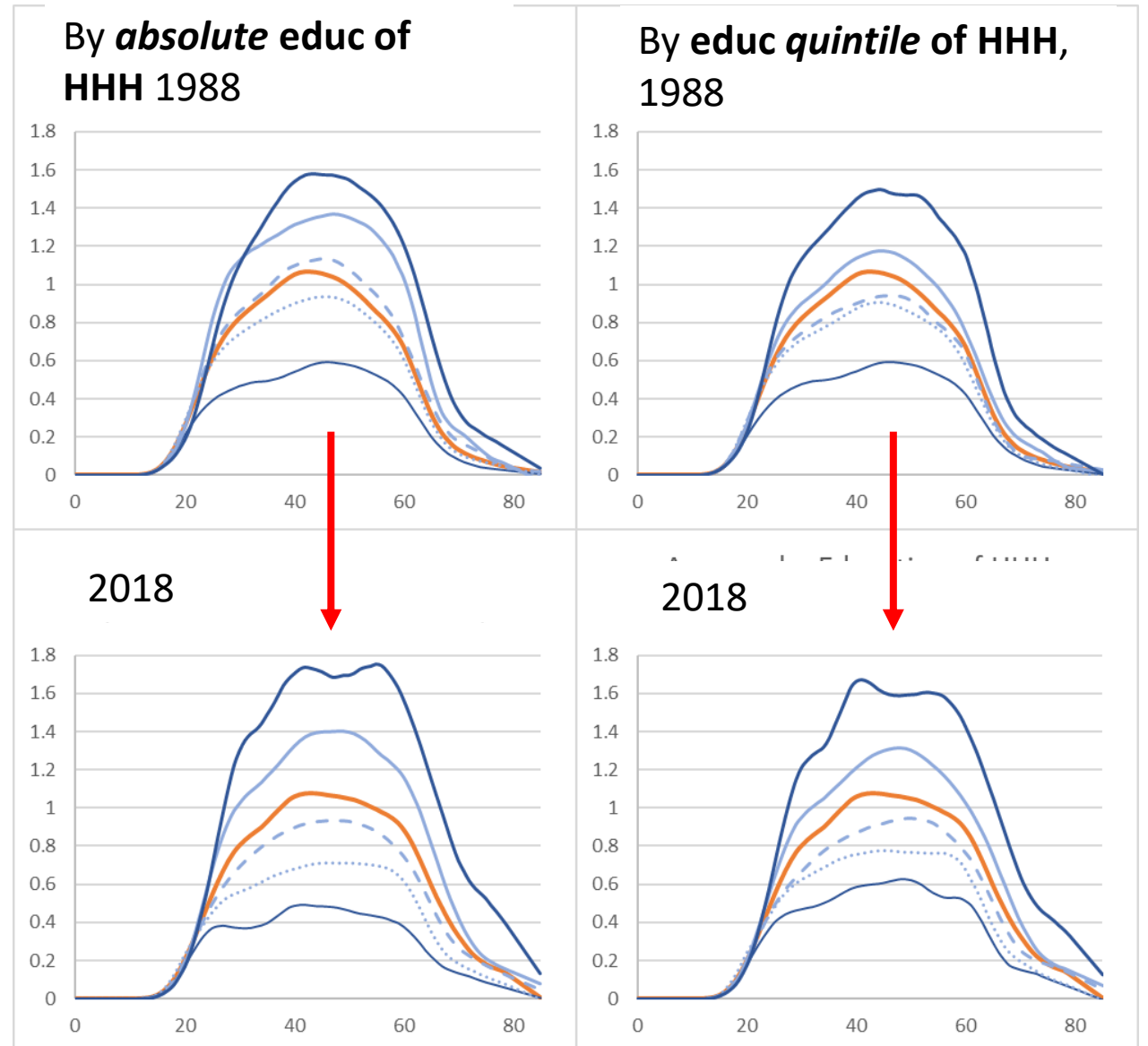
Median ratio of BA+ to <HS for consumption

By educ
1988   2018

By educ quintile
1988   2018

- Inequality less for quantiles
- Inequality increased by both measures.

By educ of HHH 1988
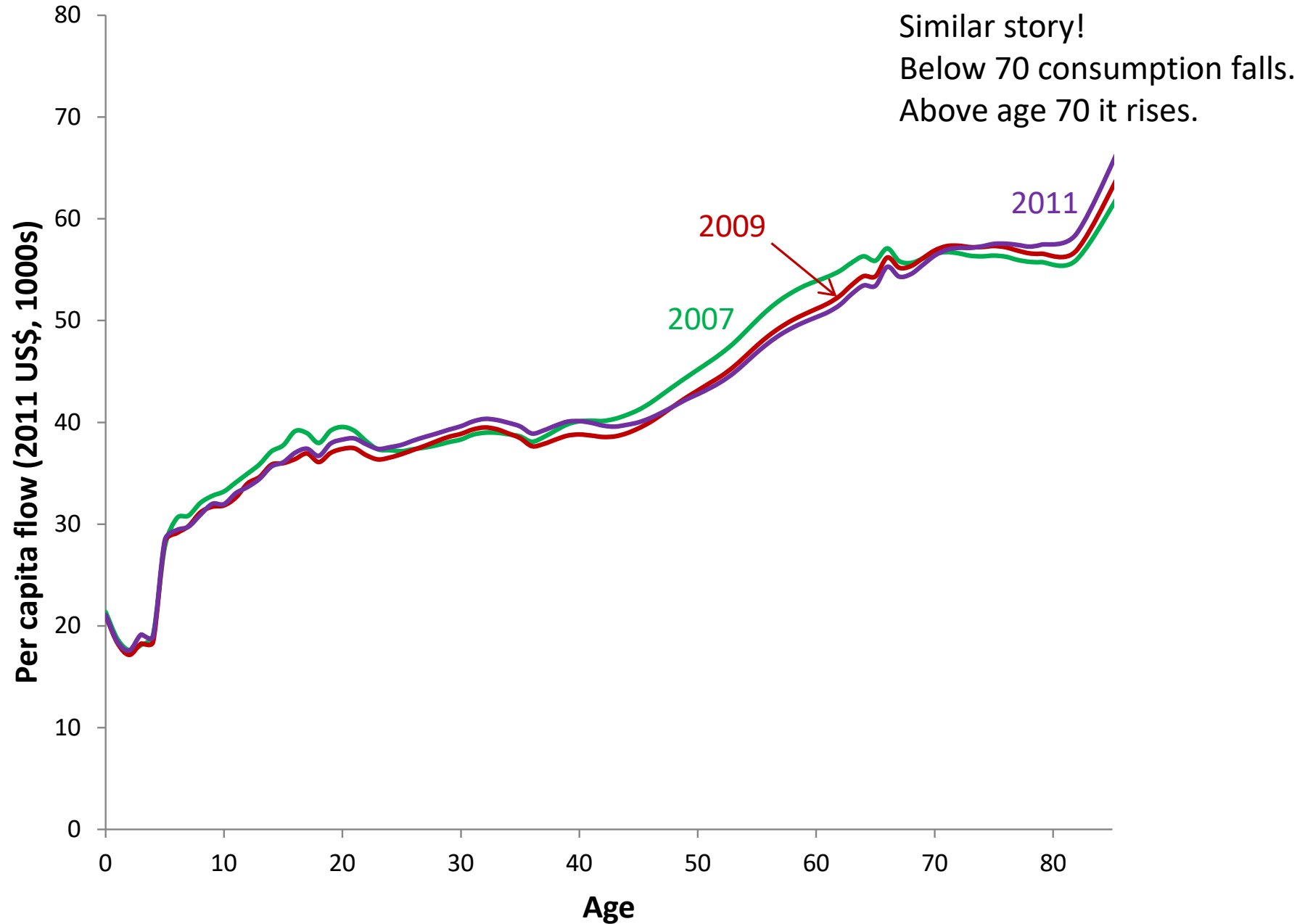

By educ **quintile** of HHH, 1988

2018

2018
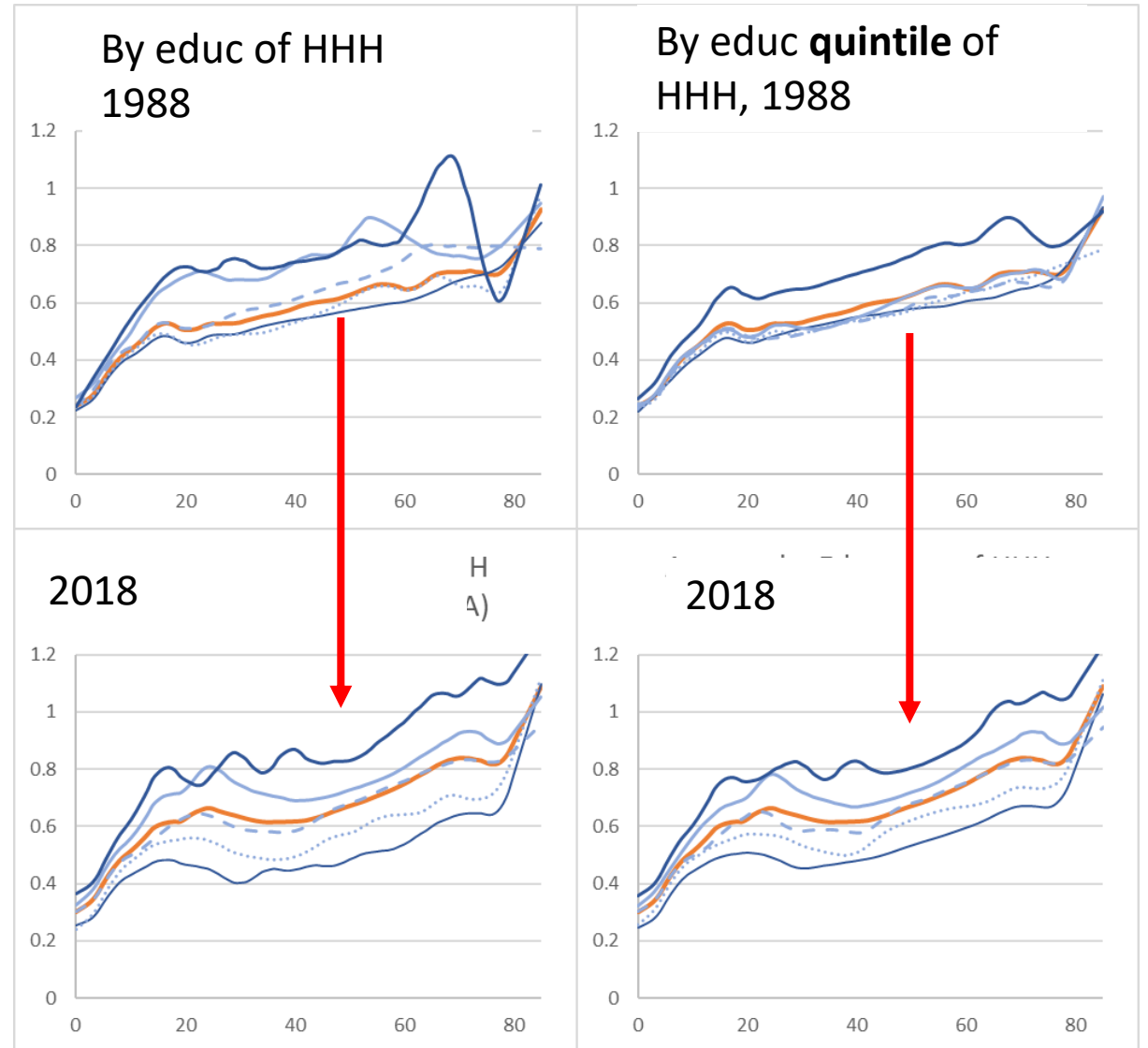
4. NTA and the US Great Recession: 2007, 2009, 2011 (Donehower and Lee 2014)

US Labor Income (2011 $)
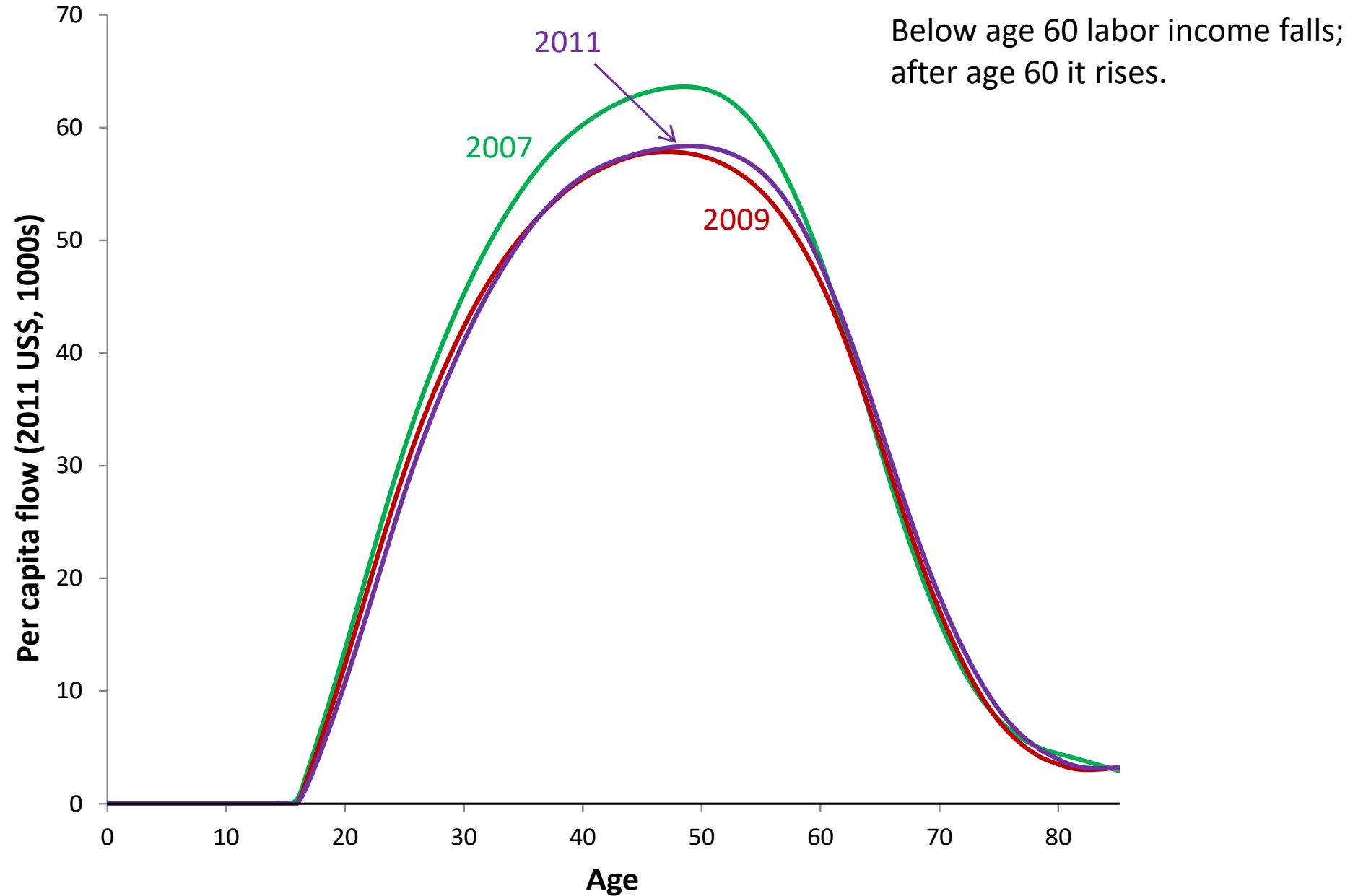
Consumption

References

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- Lee, Ronald, David McCarthy, James Sefton, and Jože Sambt (2017) "Full Generational Accounts: What do we give to the next generation?" *Population and Development Review* 43(4): 695–720.

- Lee, Ronald, G. Donehower, and T. Miller (2011) "The changing shape of the economic lifecycle in the United States, 1970 to 2003" Chapter 15 in R. Lee and A. Mason (eds.), *Population Aging and the Generational Economy: A Global Perspective.* Edward Elgar. (viewable on the IDRC website http://www.idrc.ca/EN/Resources/Publications/Pages/IDRCBookDetails.aspx?PublicationID=987

- Lee, Ronald (1994) "The Formal Demography of Population Aging, Transfers, and the Economic Life Cycle," in Linda Martin and Samuel Preston, eds., *The Demography of Aging* (National Academy Press, 1994) pp.8-49. (Free download at National Academies Press).

- Lee, Ronald and Andrew Mason, lead authors and eds. (2011), *Population Aging and the Generational Economy: A Global Perspective.* Edward Elgar. (on-line access at https://www.idrc.ca/en/book/population-aging-and-generational-economy-global-perspective)

- Lee, Ronald and Timothy Miller (1997) "The Lifetime Fiscal Impacts of Immigrants and Their Descendants" Project on the Economic Demography of Interage Income Reallocation, Demography, UC Berkeley. Draft of Chapter 7 for *The New Americans*, a report of the National Academy of Sciences Panel on Economic and Demographic Consequences of Immigration, National Academy Press, 1997 (pp.297-362).

- McCarthy, David, James Sefton, Ronald Lee, Joze Sambt, (2022) "Generational Wealth Accounts: Did Public and Private Inter-Generational Transfers Offset Each Other Over the Financial Crisis?", *The Economic Journal*, ueac019, https://doi.org/10.1093/ej/ueac019