Generational Accounting Workshop

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GA Book Contents

- **Overview of the Book**
  1. Methodology: Generational Accounting using National Transfer Accounts
  2. Summary of findings
- International comparison of Generational Accounting
  1. Comparison of public finance structure
  2. Comparison of GA
     - 2.1. Comparison using relevant indices
       - Generational imbalance
       - Required tax change
       - Sustainability gap

2.1 Identification of sources of difference in GAs

- Demographic factors
- Fiscal deficit and debt
- Expected change in the future cash balance (if any)
- Policy factors, e. g., pension, medical insurance, or others
- Other sources of difference (if any), e.g., macroeconomic factors

- Assumptions:
  - Benchmark assumptions
    - Real interest rate =3.5
    - Productivity growth = 1.5% annum
    - Country-specific population projection
  - Alternative assumptions
    - Country-specific interest rate
      - » Justification is needed
    - Country-specific productivity growth
      - » Justification is needed
    - Fixed population
- Choice of country-specific discount rate?
  - Rate of return
  - Risk-free rate of return (government bond rate)
  - How to deal with difference in return to government fund and bond rate?

- Aggregate control
  - National Account base
  - Aggregate expenditure excluding interest payment
  - Revenue including tax and non-tax revenue
    - Exclude borrowing, sale of property
  - Primary fiscal balance
- Net Government Wealth
  - Net property income / rate of return
  - Gather and compute net government wealth (debt)
- Spreadsheet

Table 1 Public Sector Revenues and Expenditures, 2010 (mn NT)

Public sector revenues (percentage of total revenue)		**Public sector expenditures** (percentage of total expenditure)	
Taxes and transfers	1,720,499 (59%)	**Government consumption**	1,642,101 (56%)
capital income taxes	739,072	education	416,449
consumption taxes	573,274	health	37,422
labor income taxes	118,062	other government consumption	1,188,230
other taxes	127,458	**Cash transfers**	450,9751 (15%)
other transfers (incl. ROW)	162,633	OAF	50,535
		subsidies to social insurances	218,198
		other cash transfers (incl. ROW)	182,243
Property income	372,689 (13%)	**Property expenses**	138,13 (5%)
government	335,461	government	119,310
social insurances	37,228	social insurances	18,825
Social insurance revenues	816,056 (28%)	**Social insurance benefits**	702,908 (24%)
NHI	464,549	NHI	445,942
LI (with EI)	227,625	LI (with EI)	147,231
PSPF	56,805	PSPF	35,544
NP	44,658	NP	40,498
GEI	17,698	GEI	25,230
FI	4,720	FI	8,462
Subtotal	2,909,243 (100%)	**Subtotal**	2,934,119 (100%)

- Country Reports(15-20 pages)
  - European countries:
    - Austria, Finland, Hungary, Slovenia, Spain
  - Non-European countries:
    - Columbia, India, Korea , Mexico, Peru, Taiwan, USA
    - Japan (??), Chile (??)

1. Structure of public finance
   - Reports the aggregates and proportions of government expenditure and revenue
2. Special features of each country
   - Highlight the most important generational policy
3. Generational Accounts and its interpretation
   - GA under current policies
     - Benchmark assumptions
     - Under alternative assumptions
   - Effects of the expected reforms (if any)

- Special issues
  - Effect of immigration (Mexico) ??
  - Effect of health care on fiscal sustainability
    - Miller and Mason's projection (will update)
    - Need to provide GDP projection and health expenditure to Tim and Carl (almost done)
  - Retrospective accounts (Hungary for public pension)
  - Controlling business cycle (Spain)
  - Full Generational Accounts including private and public transfers

What should we do?

- Treatment of government consumption
  - Treating public transfer
  - Not allocating to age groups
- Coverage of public finance
  - National Account
  - Financial government net debt
- Reasons for the base year selection
  - Spain; business-cycle neutral
- Some summarizing tables

- Special Features
- Official projection of GDP and population

Government expenditure in percent of GDP by government function (European Countries)

	Austria (2010)	Finland (2011)	Spain (2010)	Hungary (2010)	Slovenia (2010)
Total	**52.6**	**49.6**	**46.3**	**49.8**	**50.3**
General public services	6.8	4.0	5.3	9.2	5.8
Defence	0.7	1.4	1.1	1.2	1.5
Public order and safety	1.5	1.3	2.3	1.9	1.8
Economic affairs	5.7	3.7	5.7	5.9	5.3
Environment protection	0.6	0.2	1,0	0.6	0.8
Housing and community amenities	0.6	0.3	0,7	0.7	0.7
Health	8.1	7.7	6.6	5.2	6.9
Recreation, culture and religion	1.0	1.1	1.7	1.8	2.3
Education	5.7	6.0	4.9	5.6	6.6
Social protection	21.7	23.9	17,0	17.7	18.6

Government expenditure in percent of GDP by government function (Non-European Countries)

	Peru (2011)	Columbia (2010)	India	Taiwan (2010)	Korea	USA (2011)
Total	**18.0**	**18.7**		**21.5**	**33.1**	**34.5**
General public services		1.2			5.5	2.0
Defence		1.5			1.0	4.7
Public order and safety		1.6			1.3	2.2
Economic affairs		0.7			2.8	2.1
Environment protection		0.2			0.6	
Housing and community amenities		0.3			0.5	0.3
Health	1.8	1.9			4.8	7.5
Recreation, culture and religion		0.2			0.6	0.2
Education	2.5	3.1			3.0	5.3
Social protection	4.6	8.0			13.0	8.6

Report of government revenue structure?

- (National Account)
  - Taxes
    - Labor income
    - Capital income
    - Consumption
    - Others
  - Social insurance contribution
  - Net transfer (others)
  - Net property income

Tax Structure (European Countries)

	Austria (2010)	Finland	Spain (2010)	Hungary (2010)	Slovenia (2010)
Taxes on labour	56.8	??	52.2	48.3	51.8
Taxes on consumption	28.1	??	27.2	39.2	37.5
Taxes on capital	15.3	??	23.1	12.5	11.1
Others					
Social Insurance Con.					

Tax Structure (Non-European Countries)

	Peru	Columbia	India	Taiwan	Korea	USA
Taxes on labour	6.0	??	??	7.5	11.9	45.1
Taxes on consumption	56.1	??	??	36.8	40.0	13.6
Taxes on capital	30.3	??	??	47.4	42.0	29.0
Others	7.6	??	??	8.2	6.2	12.2
Social Insurance Con.						

	Austria			
Taxes Taxes on labor Taxes on capital Taxes on consumption Others				
Social insurance contribution				
Net transfer to government				
Net property income				
Total Revenue				

Fiscal sustainability (European Countries)

	Austria	Finland	Spain	Hungary	Slovenia
Revenue[1)]	48.1	53.9	22.90[2)]		
expenditure[1)]	52.6	55.0	35.56		
Balance[1)]	4.5	-1.1		3.0-9.0% (1997-2007)	
GI (base case)	18.6%	560%	38.4%	35.5%	
GI (constant Pop)		-6.0%			
GI (Country) specific macros.	Sensitivity Analysis	Sensitivity analysis on discount rate	Sensitivity Analysis		
Policy experiments	Pension reform		2011 Pension reform	Tax restructuring	
Sustainability Gap	18.16%	8.7% (2011)	3.03%	9.8%	
Tax adjustment	45.5%	23.3% (2021)	8.60% (2015)	35.5% (2017)	

Note: 1) % of GDP

2) Include only public transfer

Fiscal sustainability (Non-European Countries)

	Peru (2012)	Columbia (2010)	India	Taiwan	Korea	Mexico	USA
Revenue[1)]	16.0	26.9		21.2	31.9%		27.1
expenditure[1)]	18.0	29.6		21.5	33.1%		34.5
Balance[1)]	2.0	-2.8		0.3	-1.1		-7.4
GI (base case)	-58.1	??	-	153%	189%		0%
GI (constant Pop)				24%			
GI (Country specific macros.)							
Policy experiments	Pension reform scenarios	Pension system coverage expansion			NPS reform		Alternative projections
Sustainability Gap	-3.07%		415%				10.5%
Tax adjustment		??			31.4% (2020)		36.4% (2020)

Note: 1) % of GDP

	Austria			
Revenue				
Expenditure				
Primary Balance				
Generational Imbalance Base case Fixed population Country specific macro's				
Sustainability Gap				
Tax adjustment 2015 2020 2030 2050 Tax and transfer adjustment 2015 2020 2030 2050				
Policy Experiments				

Special features

- Common features
  - Population aging (add a table)
  - Pension reform
- Taiwan
  - Expansion of public pension
  - Population aging
  - Agricultural sector
- Hungary
  - Pension reform
  - Political cycle

- Spain
  - Immigration
    - Impact on sustainability gap
    - Any difference in age profile of taxes and benefits?
- Mexico
  - Immigration
  - Natural resources (crude oil)
- South Korea
  - Maturing of public pensions
  - Political competition of social welfare policy expansion

Demographic transition

	2010	2015	2020	2030	2050	2070
0-14						
15-64						
65+						

Special issues

- Effect of immigration (??)
- Controlling business cycle
- Full GA
- Retrospective accounts
- Health expenditure projection

Business cycle and GA

- Compute evolution of GA over time
  Separating the change into 4 effects
  - Business cycle
  - Demographic change
  - Wealth effect
  - Pure policy effect

Figure 3 Evolution of Standard and Cyclically Neutral (CN) Generational Accounting Sustainability Indicators 1995-2007

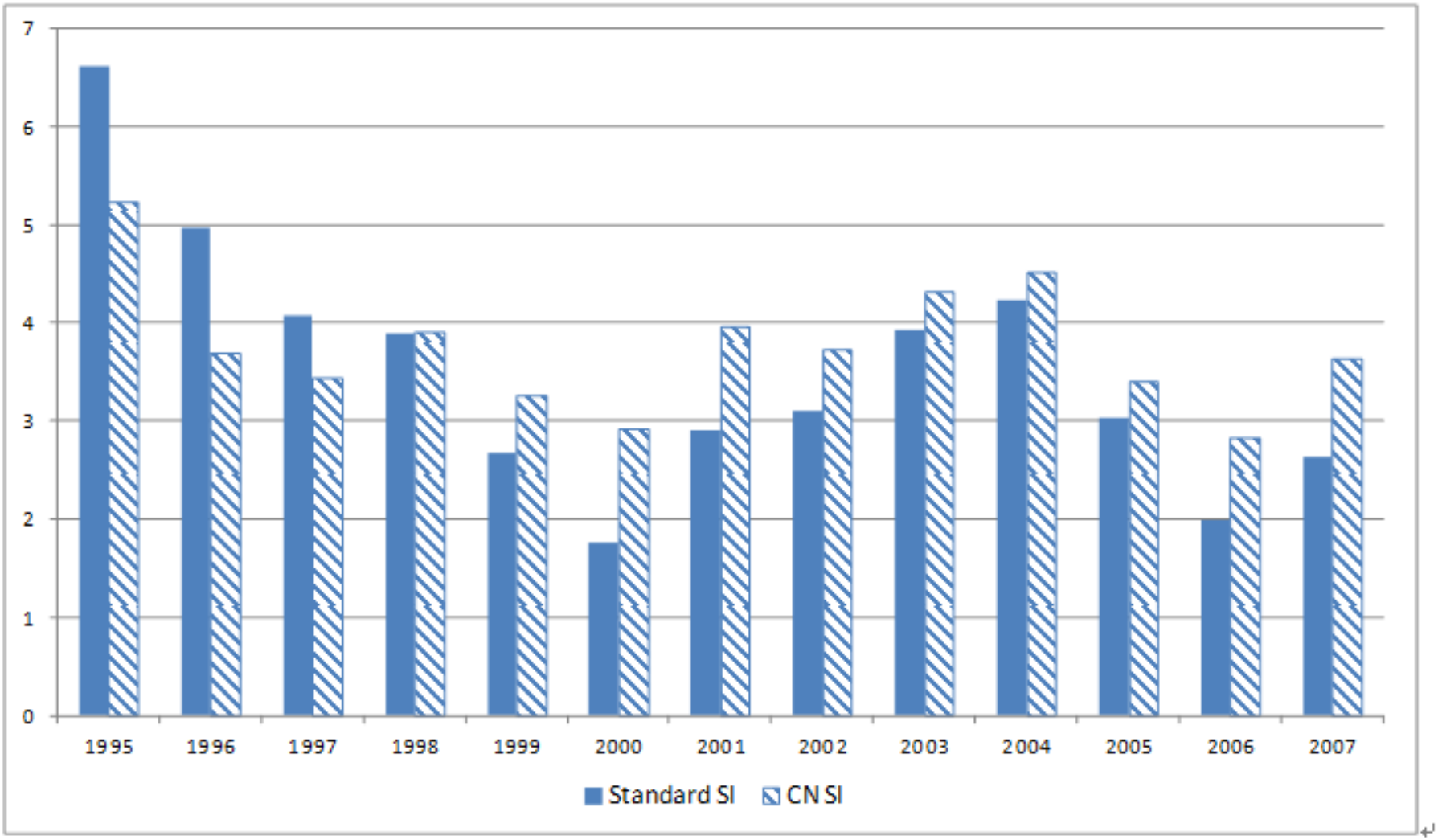
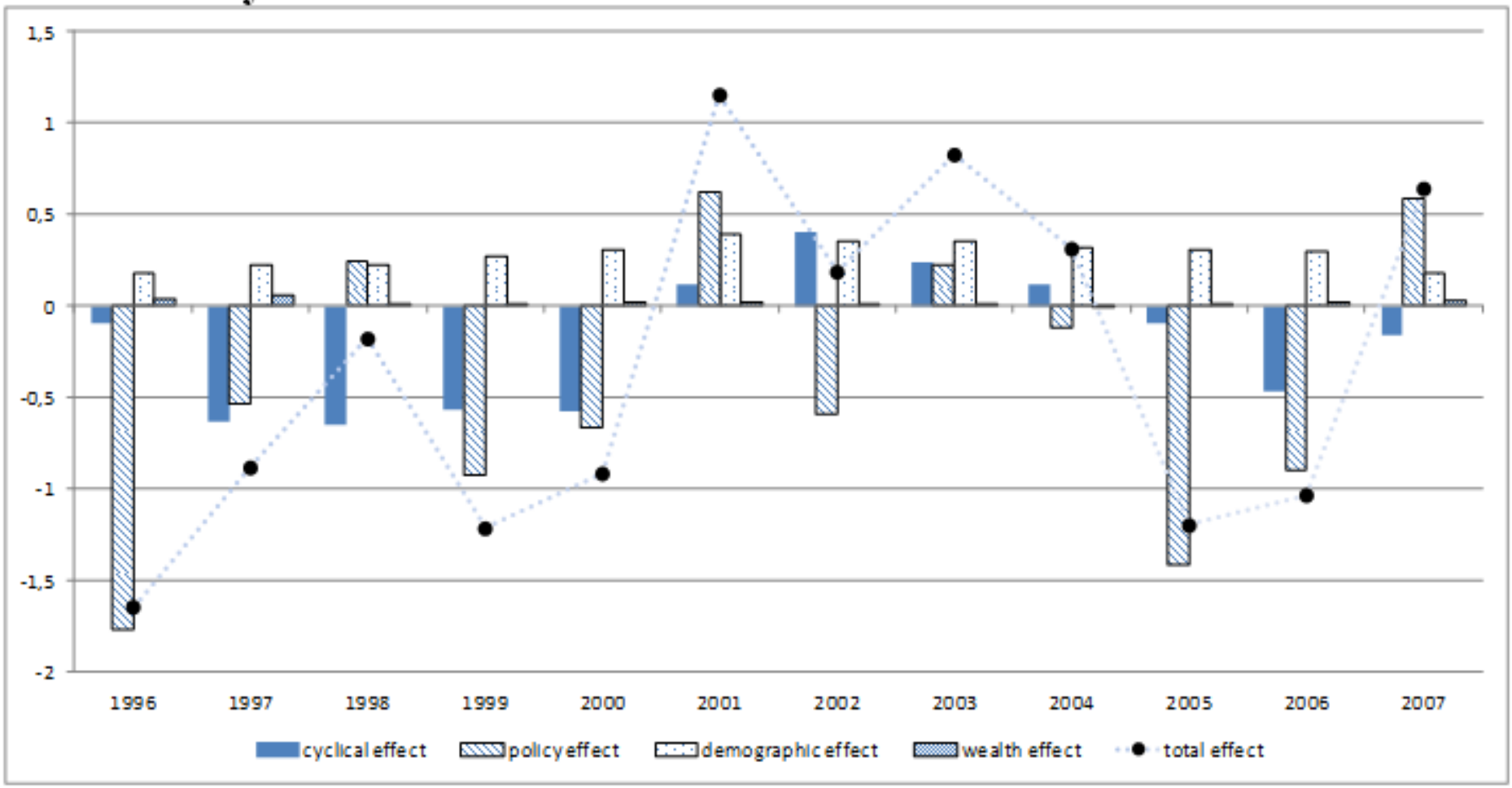


Figure 5 Decomposition of year-to-year changes in the Standard Sustainability Indicator



Full GA

- GA for gross private transfer + net public transfer
  - All kinds of public transfers and taxes
  - Health, education, bequest, and other consumption
    - Not including intergenerational transfer of knowledge, technology, institutions, or natural world

Figure 6. Public and Private Generational Accounts without Balancing Adjustments:
NPV of Expected Future Transfers (given – received) by Age of generation in 2010
(expressed as % PV Lifetime Labor Income for Births in 2010)

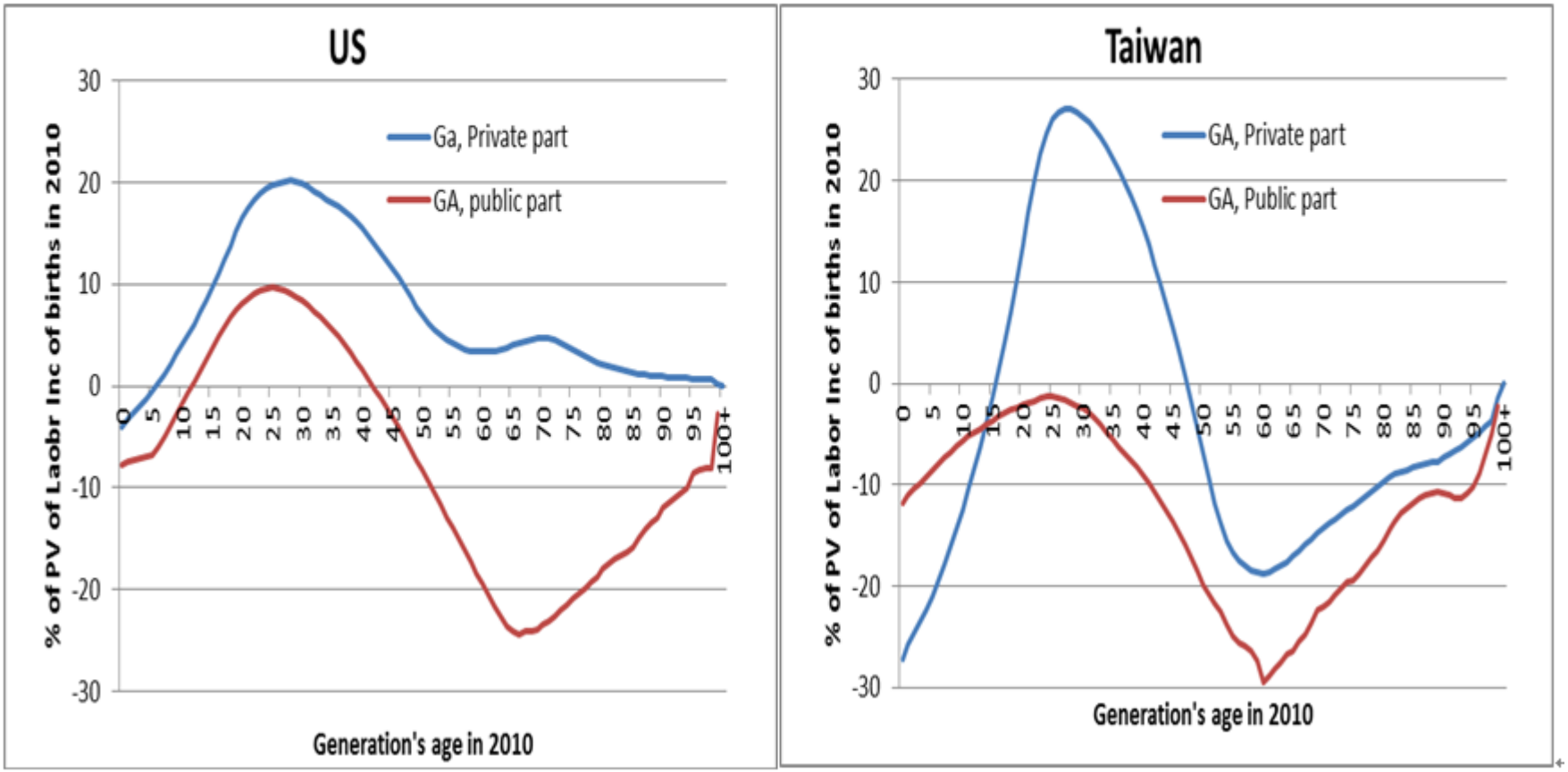


Figure 7. Public and Private Generational Accounts with Balancing Adjustments:
NPV of Expected Future Transfers (given – received) by Age of generation in 2010
(expressed as % PV Lifetime Labor Income for Births in 2010)

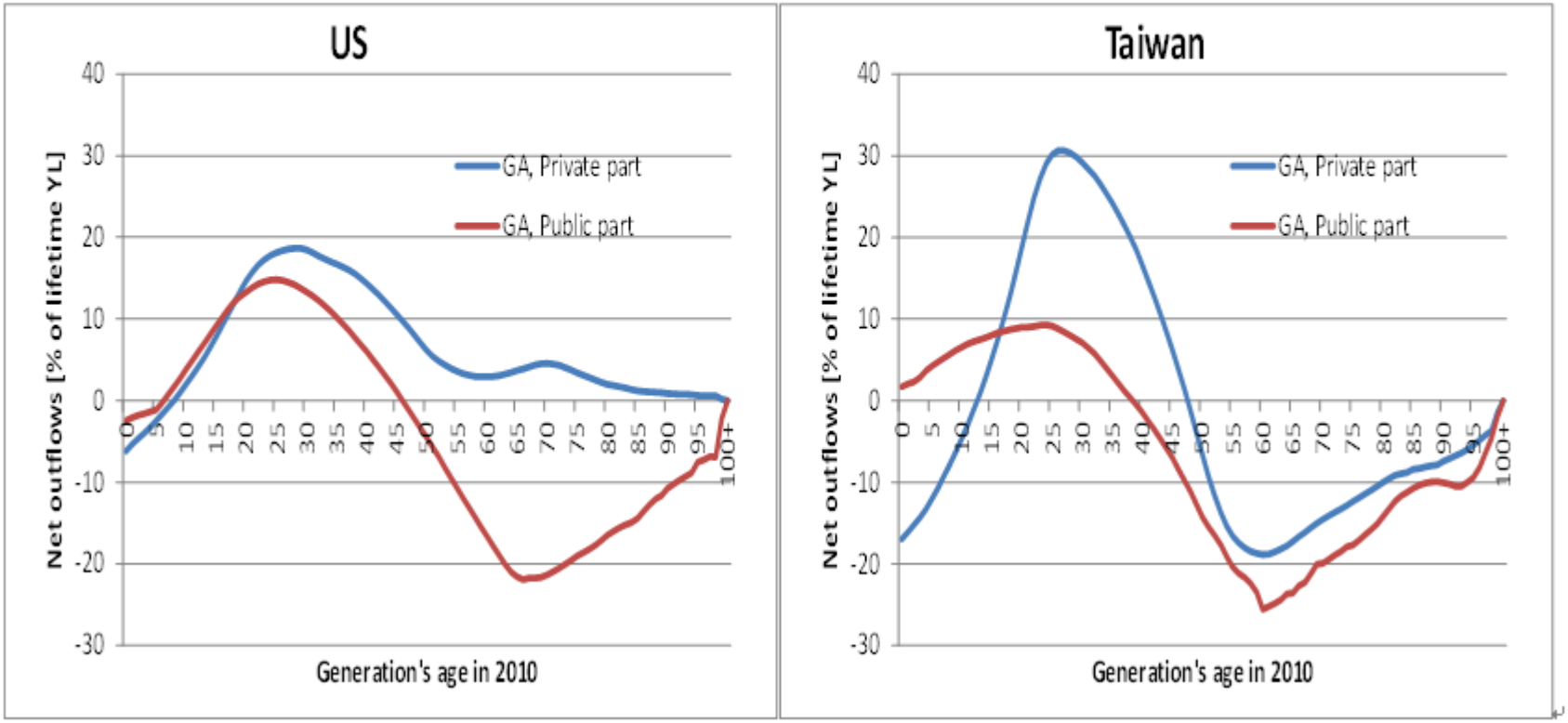


Table 1. The Full Generational Account (FGA) and its Decomposition, Expressed as a Percent of PV of Lifetime Labor Income

	Net public trans rcvd	Net private trans rcvd	Bequests rcvd	TOTAL	Full Generational Account, (excludes private outflows)
US	2.4	6.2	7.5	16.1	65.6
Taiwan	-1.7	17.0	7.5	22.7	91.9

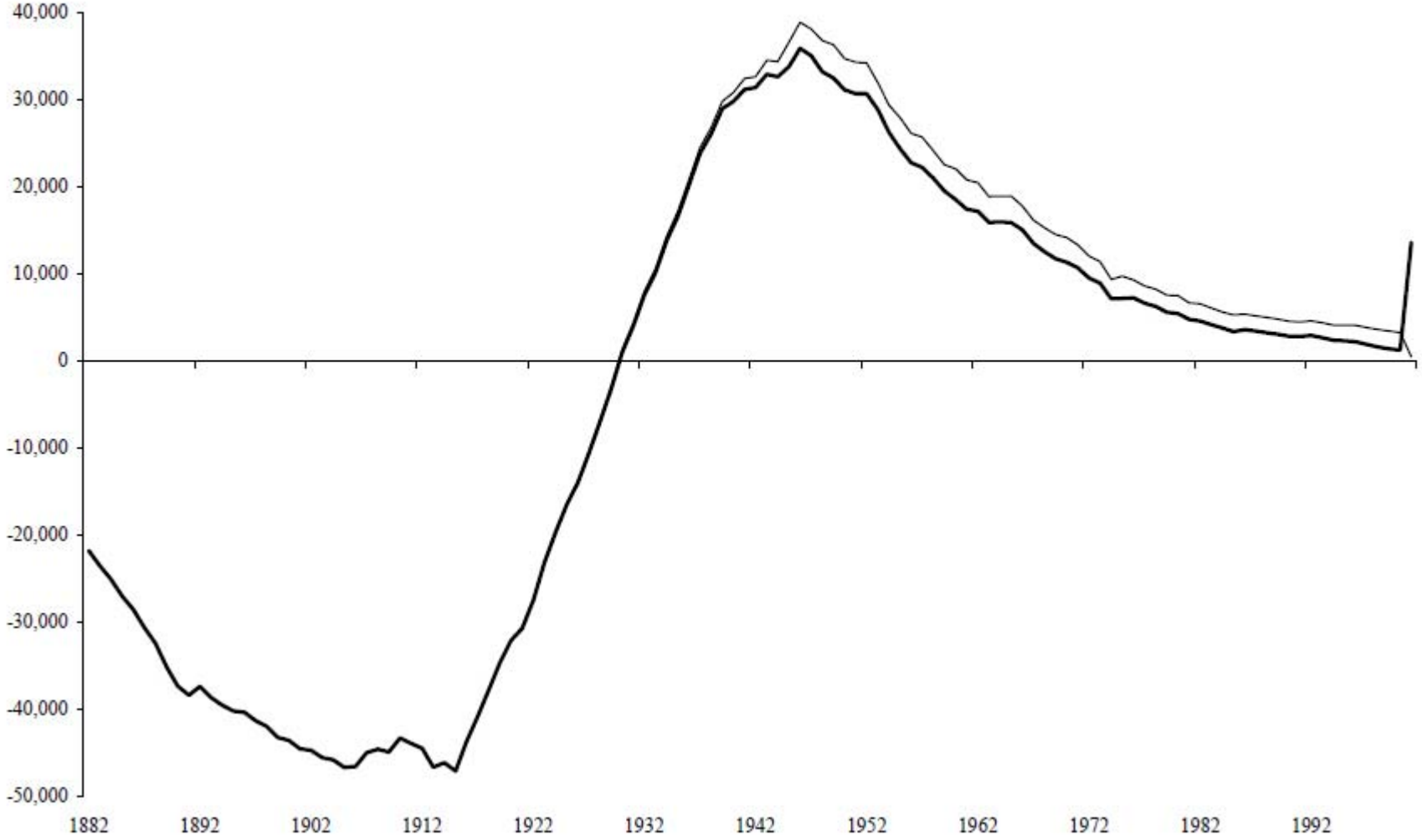
Table 2. Gross Transfers Received as Percent of PV of Lifetime Labor Income
(After balancing adjustments to public and private systems)

	US	Taiwan
Pub rcvd	60.1	64.2
Priv rcvd	55.7	86.2
Beq rcvd	7.5	7.5
Tot rcvd	**123.3**	**157.9**
Pub Ed	10.5	7.5
Priv Ed	1.8	13.1
Tot Ed	**12.3**	**20.6**

Retrospective accounts

- Accounts are computed for deceased generations as well as for current and future generations
- To assess net benefits from the fiscal system across generations

Retrospective generational pension accounts without and with pension reform



Health expenditure projection

- Mason-Miller method
- Official projection of GDP, and population needed
- New spreadsheet (including HEP)