Finnish Centre for Pensions
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Population and statutory pensions in Finland

Statistical Days 2011: Population: Migration and Aging
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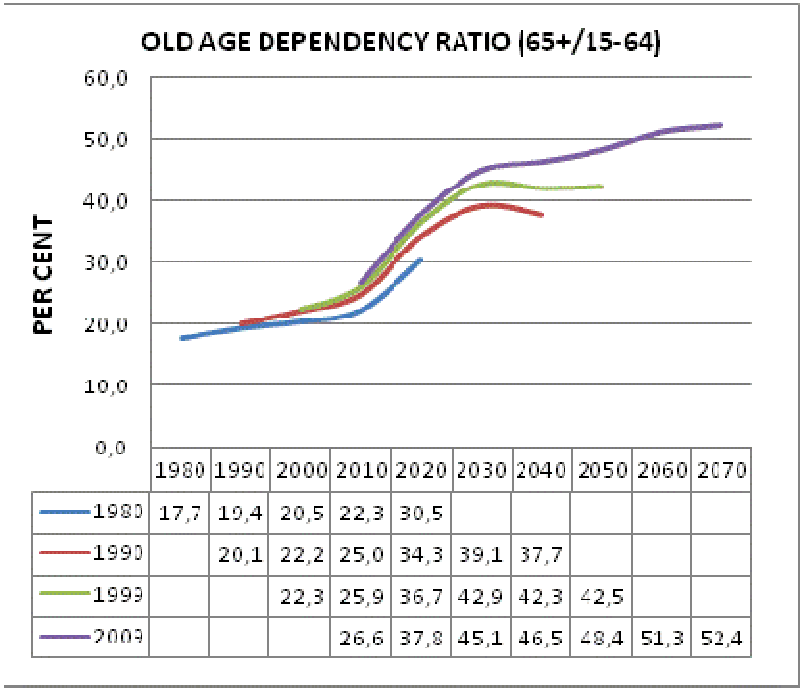
Background: How the future was seen in the past?

1980. The first comprehensive long term projection by the Finnish Centre for Pensions (a part of the STAT-report). Population forecast by Statistics Finland 1978.

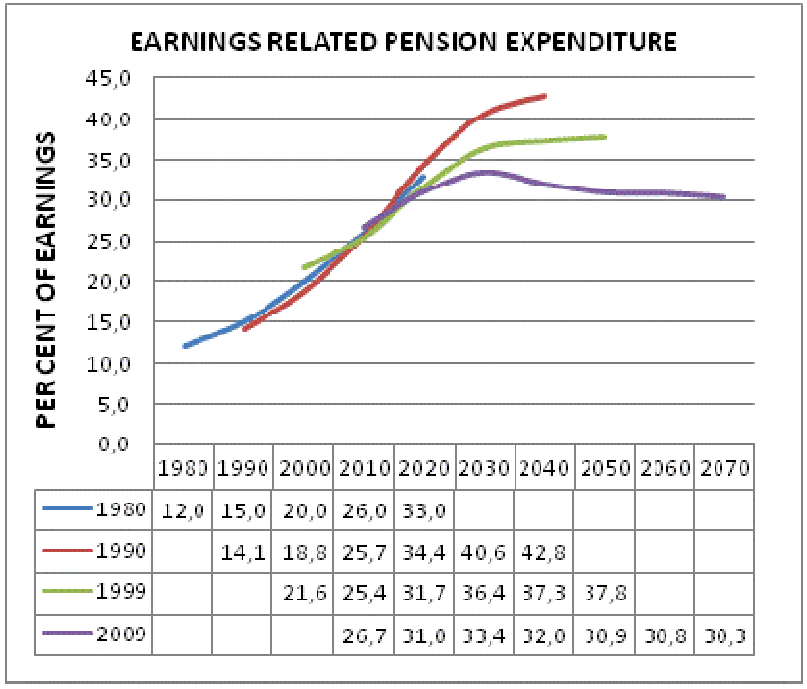
1990. A projection for the pension commission 1991. Population forecast by the Social Insurance Institution 1989.

1999. Long-term report by the FCP 1999. Population projection by Eurostat 1996

2009. Long-term report by the FCP 2009. Population forecast by Statistics Finland 2009



	1980	1990	2000	2010	2020	2030	2040	2050	2060	2070
1980	17,7	19,4	20,5	22,3	30,5					
1990		20,1	22,2	25,0	34,3	39,1	37,7			
1999			22,3	25,9	36,7	42,9	42,3	42,5		
2009				26,6	37,8	45,1	46,5	48,4	51,3	52,4



	1980	1990	2000	2010	2020	2030	2040	2050	2060	2070
1980	12,0	15,0	20,0	26,0	33,0					
1990		14,1	18,8	25,7	34,4	40,6	42,8			
1999			21,6	25,4	31,7	36,4	37,3	37,8		
2009				26,7	31,0	33,4	32,0	30,9	30,8	30,3

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Statutory pensions in Finland – key features

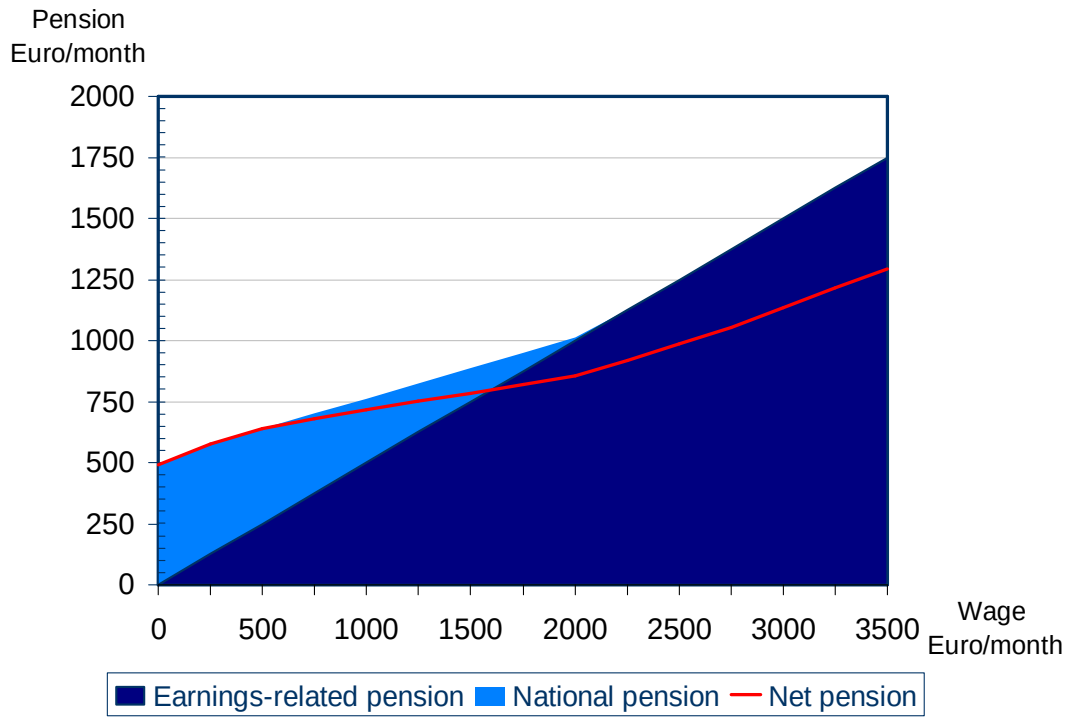
- Total pension = Earnings-related pension + National pension
- The earnings-related pension is an insurance against loss of salaried income (defined benefit)
- National pension guarantees a minimum pension.
- Historically, public-sector pension rules have been more generous than private-sector pensions. Currently, equal benefit rules for all insured.
- Pensions are financed mainly on a pay-as-you-go principle, although a substantial pension fund exists, pension assets 2/3 of GDP (2007)

Basic protection of a pension beneficiary

Earnings-related pension + National pension = Total pension

Maintains the attained income level to a reasonable degree

Guarantees a minimum income



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How the earnings-related pension is determined

Earnings-related pension =
life expectancy coefficient x annual earnings x accrual rate

Accrual

- The pension accrual rate depends on the age:
  18–52: 1.5%, 53–62: 1.9%, 63–67: 4.5%
- The pension also accrues on the basis of social benefits determined by law

Price and wage adjustments

- The annual earnings are adjusted by a wage coefficient at the start of the pension (80% wage 20% price)
- The pensions in payment are adjusted by a pension index (20% wage 80 % price)

Life expectancy coefficient

- The pension is proportioned to life expectancy by means of a life expectancy coefficient, applied for the first time in 2009 (effect started in 2010)

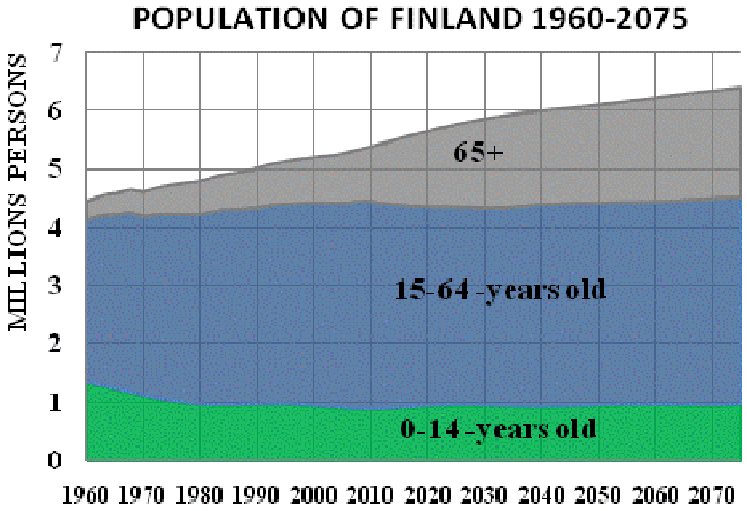
The long-term projection 2009 by the Finnish Centre for Pensions*

Assumptions

- **Very short:** Observed trends will continue
- **Short:**

a) Population projection by Statistics Finland 2009

b) Economic assumptions:



	2008	2010	2025	2075
Employment rate (%)	70.6	66.9	70.8	71.0
Expected retirement age (years)	59.4	59.5	61.0	61.9
Real growth in earnings level (%)	1.3	1.3	1.75	1.75
Real return on pension assets (%)	-18.5	3.4	4.0	4.0

* Statutory pensions in Finland , Long –term projections 2009, Finnish Centre for Pensions , Reports 2010:6.

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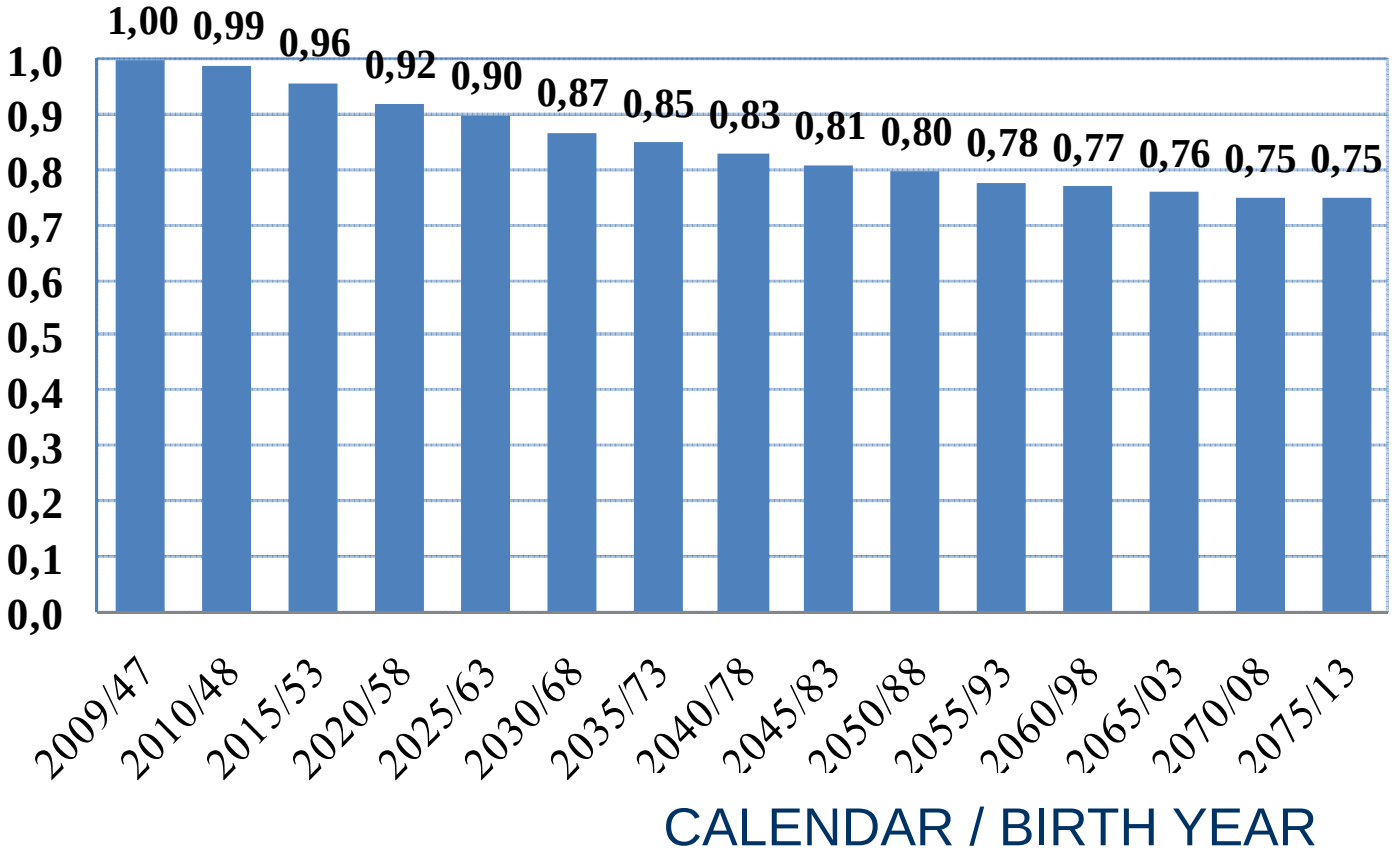
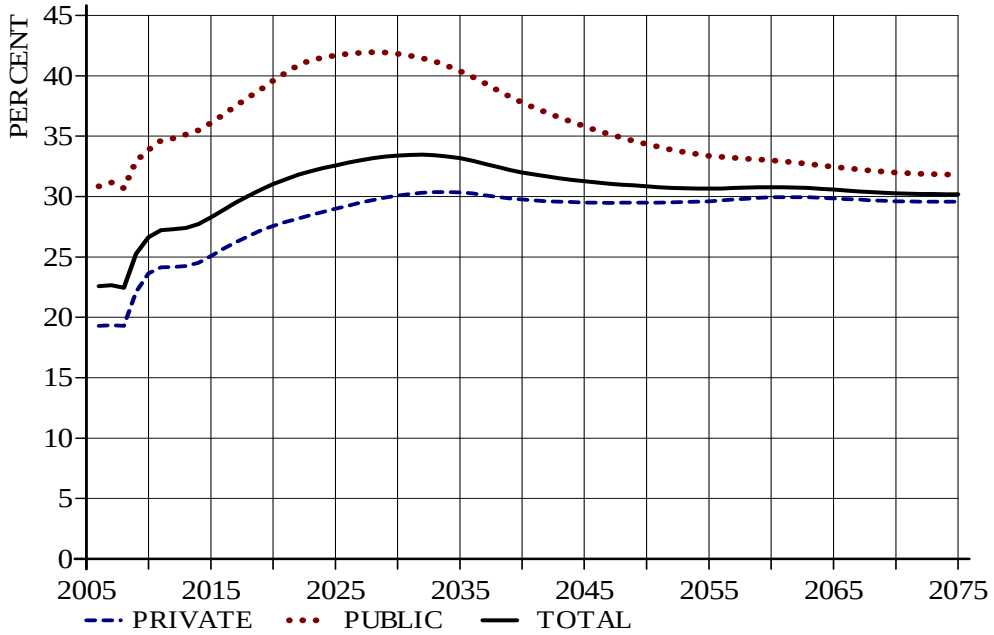
The life expectancy coefficient



The life expectancy coefficient adjusts the level of new earnings-related pensions in such a way that the present value of the old-age pension remains unchanged even if mortality rates were to change. The reference level is the observed mortality in 2003-2007. The value of the coefficient is defined separately for each one-year cohort.

Earnings-related pension expenditure

Expenditure, per cent of earnings



Earnings and expenditure, total economy					
	2008	2010	2025	2050	2075
Earnings*	75	72	98	156	247
Expenditure*	17	19	32	48	74
Expenditure rate %	22.4	26.7	32.6	30.9	30.2
* € billion, 2008 prices					

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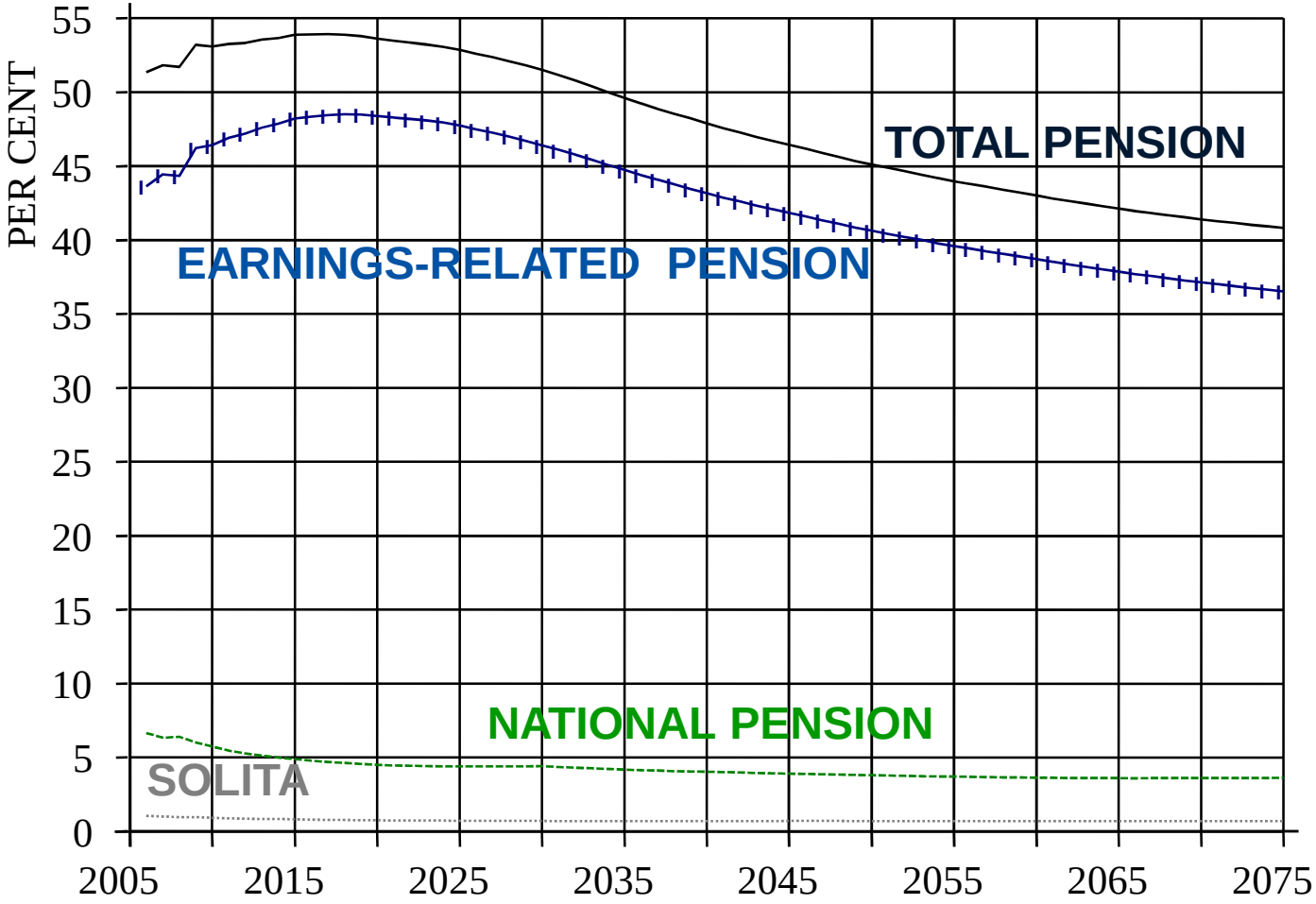
Average pension, all statutory pensions

per cent of average wage



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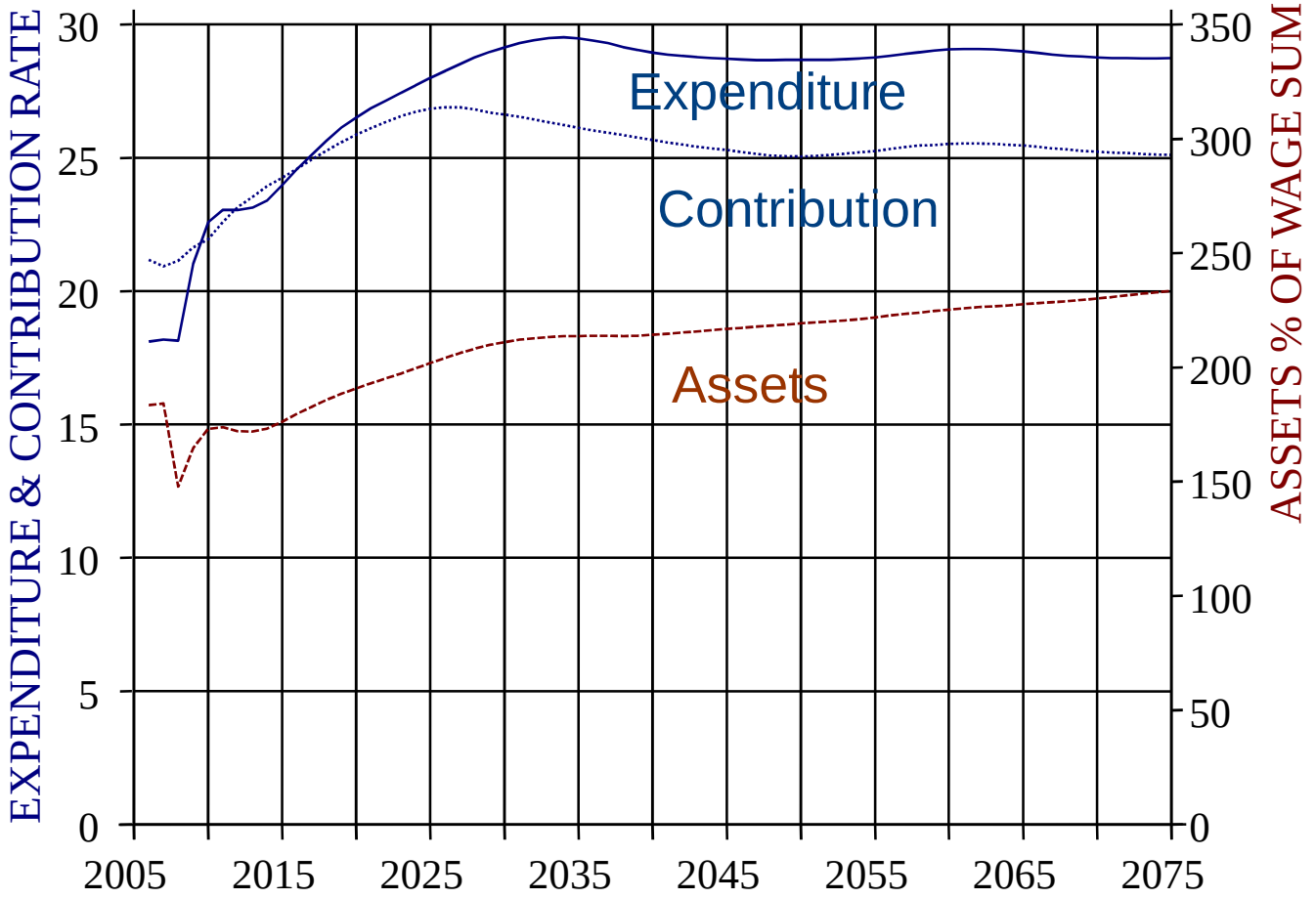
Earnings-related pensions in private sector

expenditure, contribution and assets (TyEL)



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Sensitivity analysis I: How fertility and mortality affect the earnings related pension scheme*

*Pension expenditure, contributions and funds until the year 2075, Finnish Centre for Pensions, Reports 2005:3

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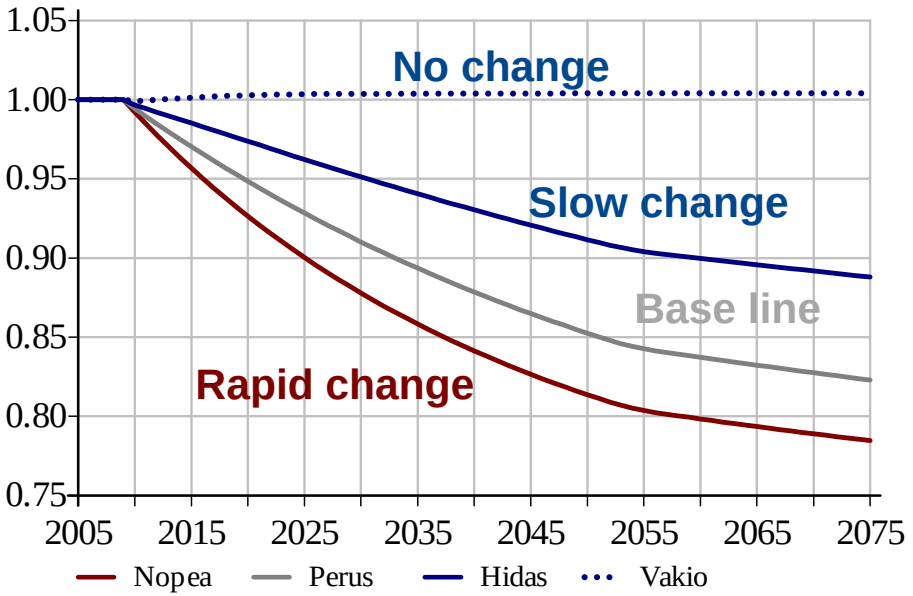
Mortality

Consider four scenarios

1) ***No change***, constant mortality rates over time
2) ***Baseline***, Statistics Finland projection 2004
3) ***Slow change***, the rate of decrease in mortality is halved
4) ***Rapid change***, the rate of decrease in mortality is 1.5-times that of the base line

The life expectancy coefficient

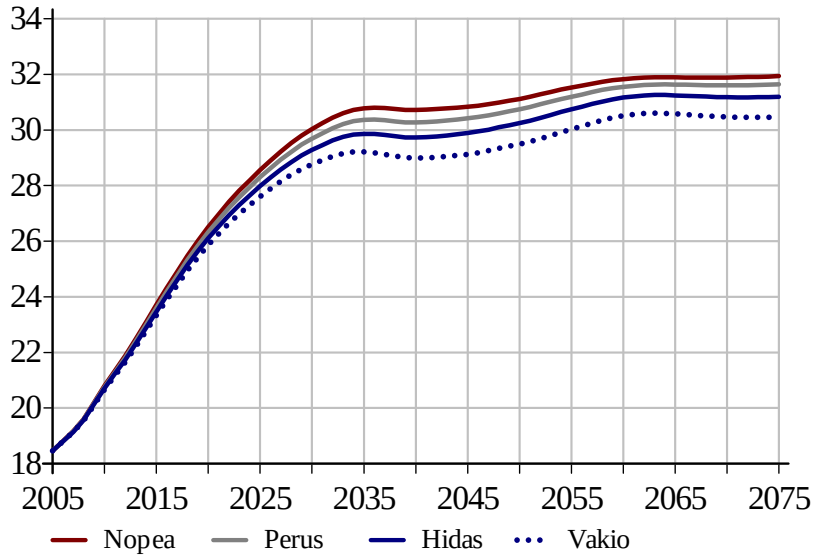


Note: The rapid change scenario presented in 2004 is close to the current baseline!

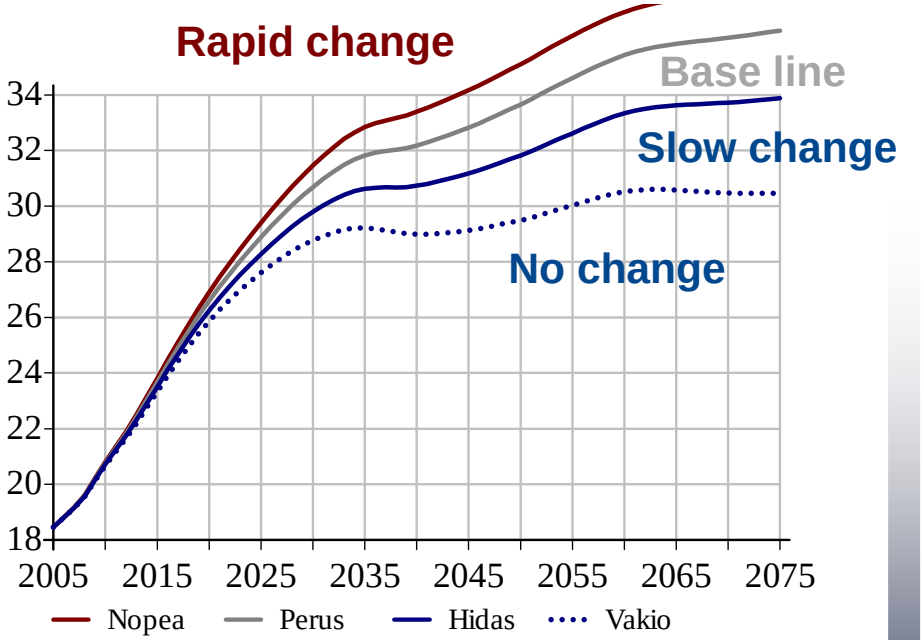
Expenditure rate under different mortality scenarios

Private-sector employees (TyEL)

Current law



Current law without life-expectancy coefficient



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Fertility

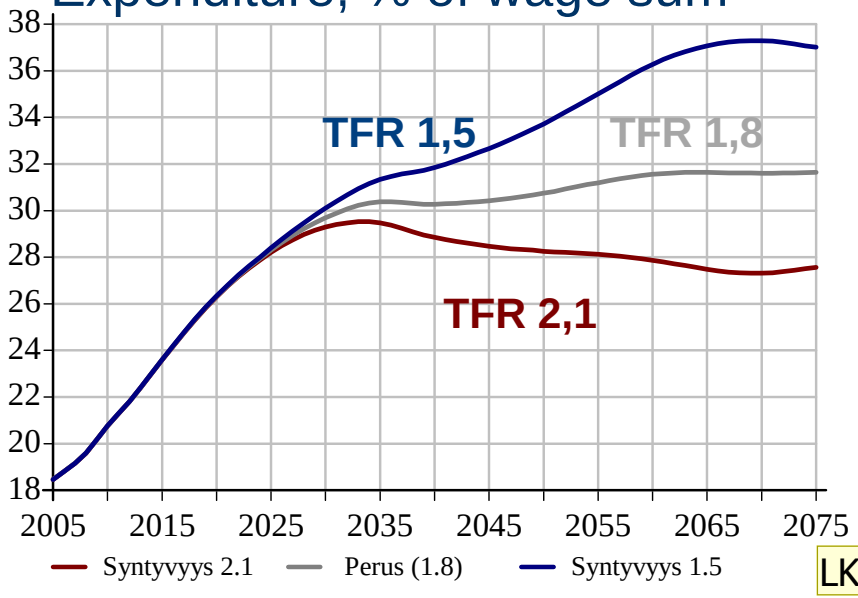
Consider three scenarios:

1) Low fertility, total fertility rate 1.5
2) Baseline, total fertility rate 1.8 (Statistics Finland 2004 projection)
3) High fertility, total fertility rate 2.1

Expenditure and contribution rates under different fertility rates

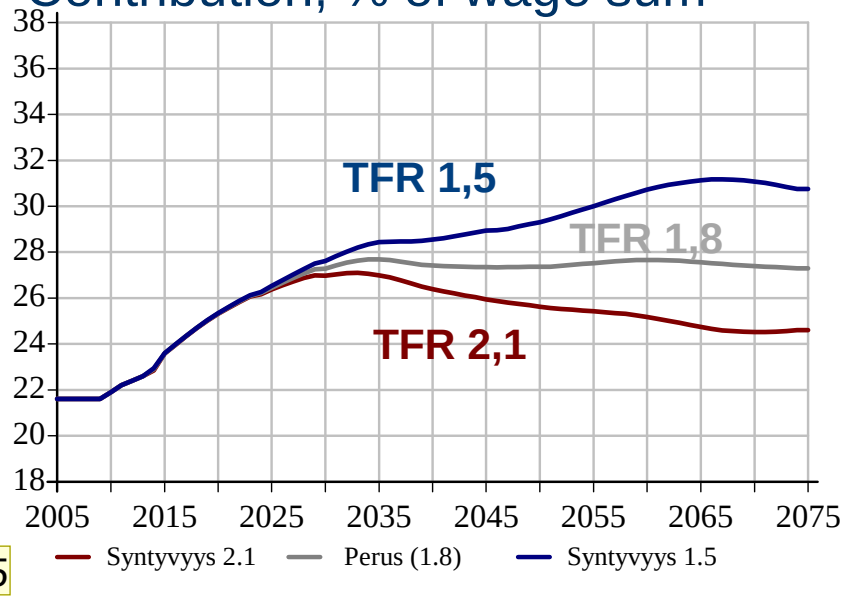
Private-sector employees (TyEL)

Expenditure, % of wage sum



LK5

Contribution, % of wage sum



- The fertility rate has pronounced effects on the long-term expenditure rate
- The contribution rate is more stable thanks to partial prefunding (the funded part is basically immune with respect to the fertility rate)

LK6

Dia 16

LK5 Tässä myös suomenkielistä tekstiä.
Lena Koski, 30/05/2011

LK6 Sanoisin ehkä mielummin näin:

(the funded part is basically unaffected by the fertility rate)
Lena Koski, 30/05/2011

Sensitivity analysis II: How pension rules affect different generations

- Under current law:

  The pensionable income from different years is adjusted by an index with an 80% weight on earnings and a 20% weight on prices
- Consider an alternative index:

  100% weight on earnings, the change takes place in 2016
- Next slide illustrates how this change affects

  1) pension expenditures,

  2) contributions,

  3) assets, and

  4) how expenditure and contribution changes are distributed between different generations

  in private-sector pension scheme (TyEL)

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Figure 1. TyEL-expenditure (% of wage sum)

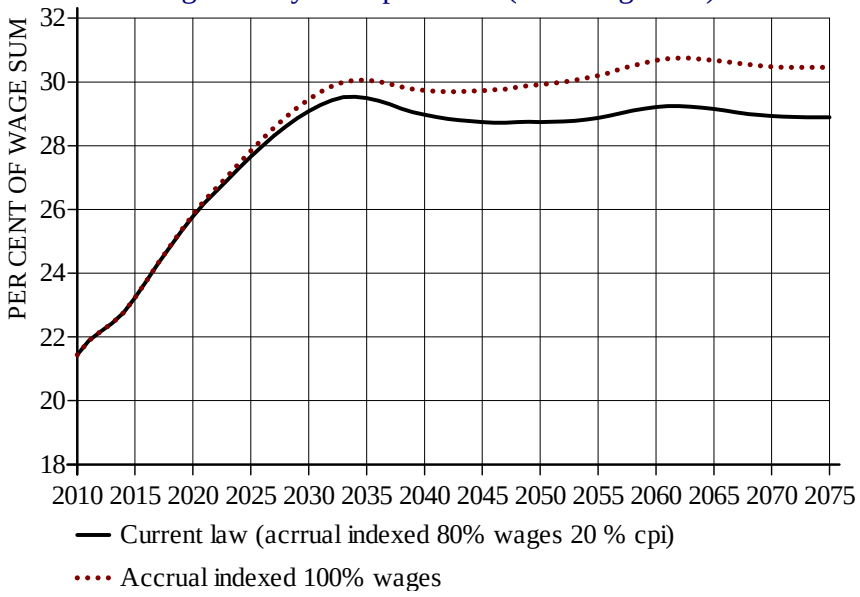


Figure 2. TyEL-contribution (% of wage sum)

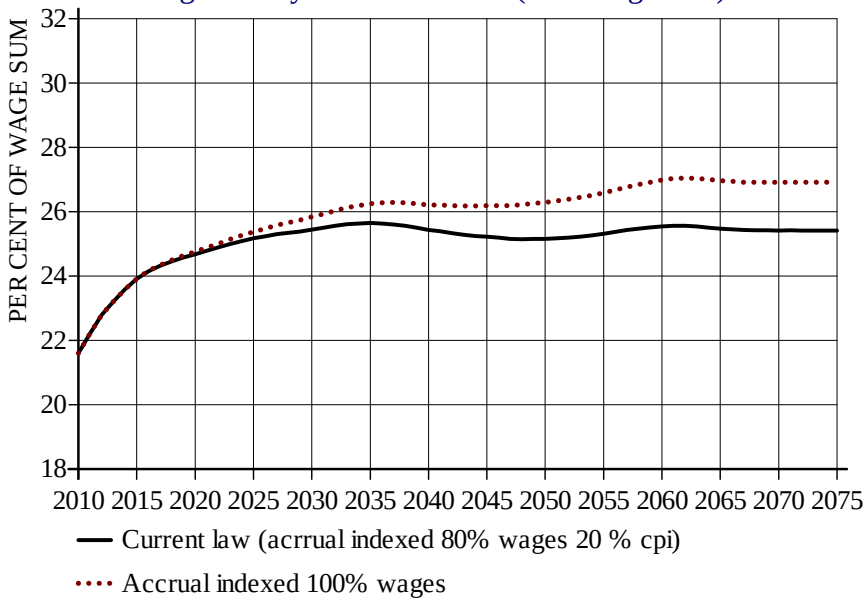


Figure 3. TyEL-assets (% of wage sum)

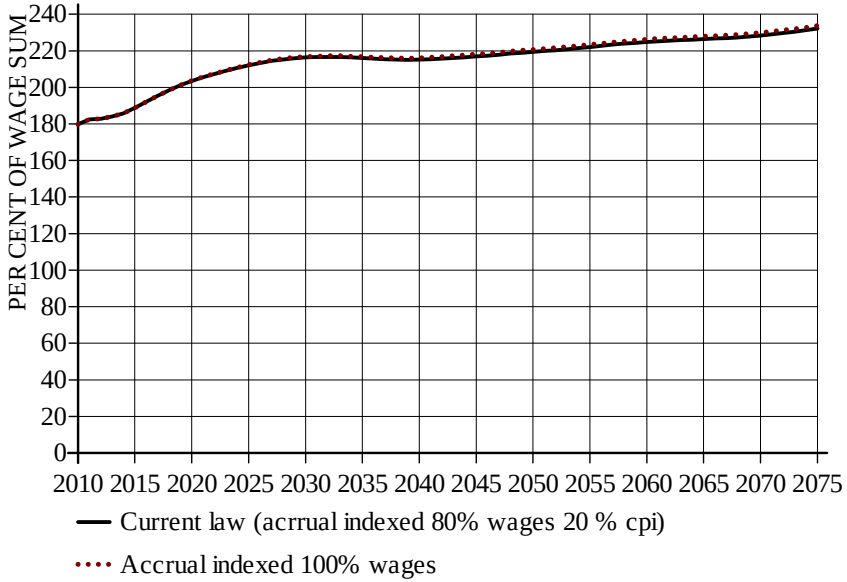
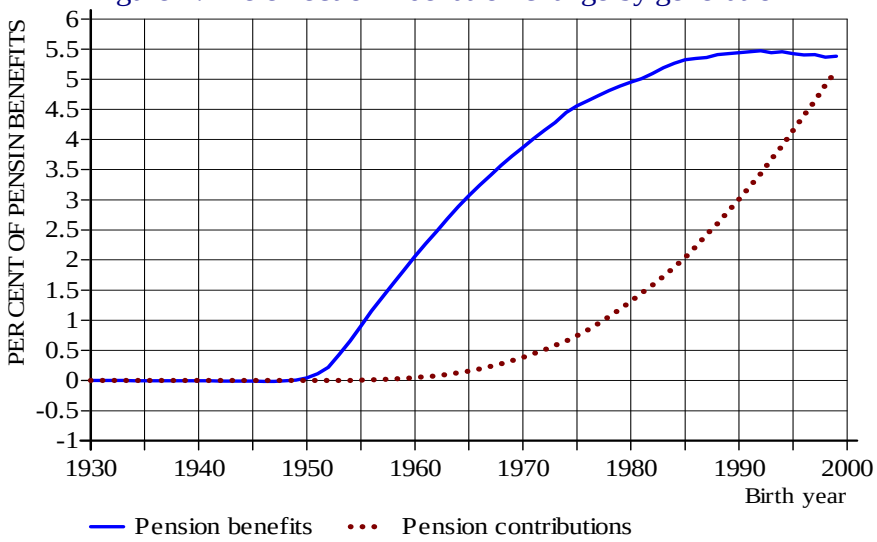


Figure 4. The effect of indexation change by generation



Published : Työurat pidemmiksi - työeläkejärjestelmän kehittämisvaihtoehtojen tarkastelua, Valtioneuvoston kanslian julkaisusarja 4/2011.

The present value of pension benefits and contributions were calculated to each one-year cohort in the following way:

$$PV = \text{present value function}$$

$$\text{Benefit effect} = \frac{PV(\text{benefits, 100\% earnings index}) - PV(\text{benefits, current law})}{PV(\text{benefits, current law})}$$

$$\text{Contribution effect} = \frac{PV(\text{contributions, 100\% earnings index}) - PV(\text{contributions, current law})}{PV(\text{benefits, current law})}$$