THE IMPLICATIONS OF LONGEVITY FOR RISK-SHARING IN PUBLIC AND PRIVATE PENSION SCHEMES

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SECTION SUR LES PENSIONS, AVANTAGES SOCIAUX ET SÉCURITÉ SOCIALE DE L'AAI

IAA PENSIONS, BENEFITS AND SOCIAL SECURITY SECTION

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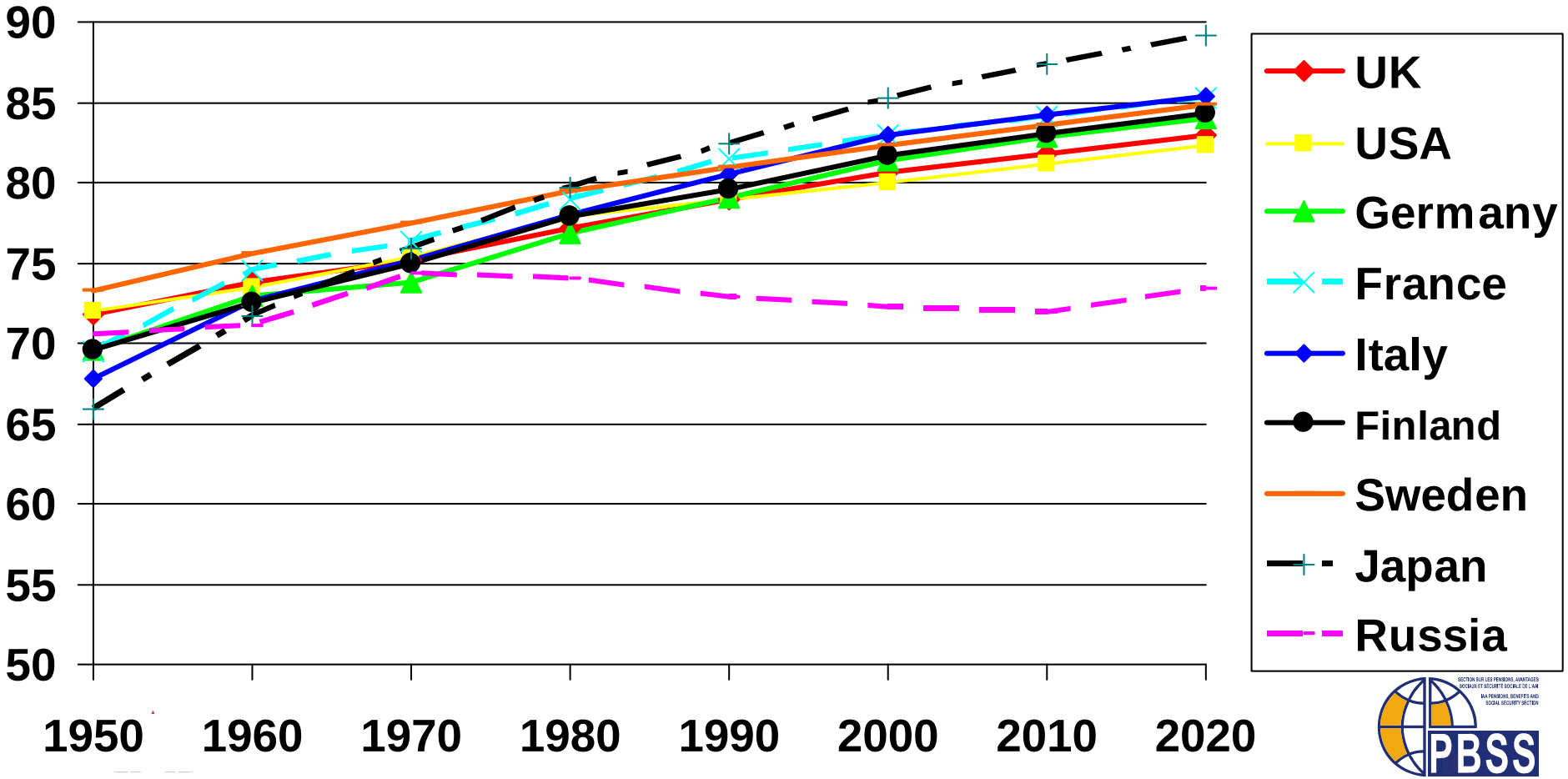
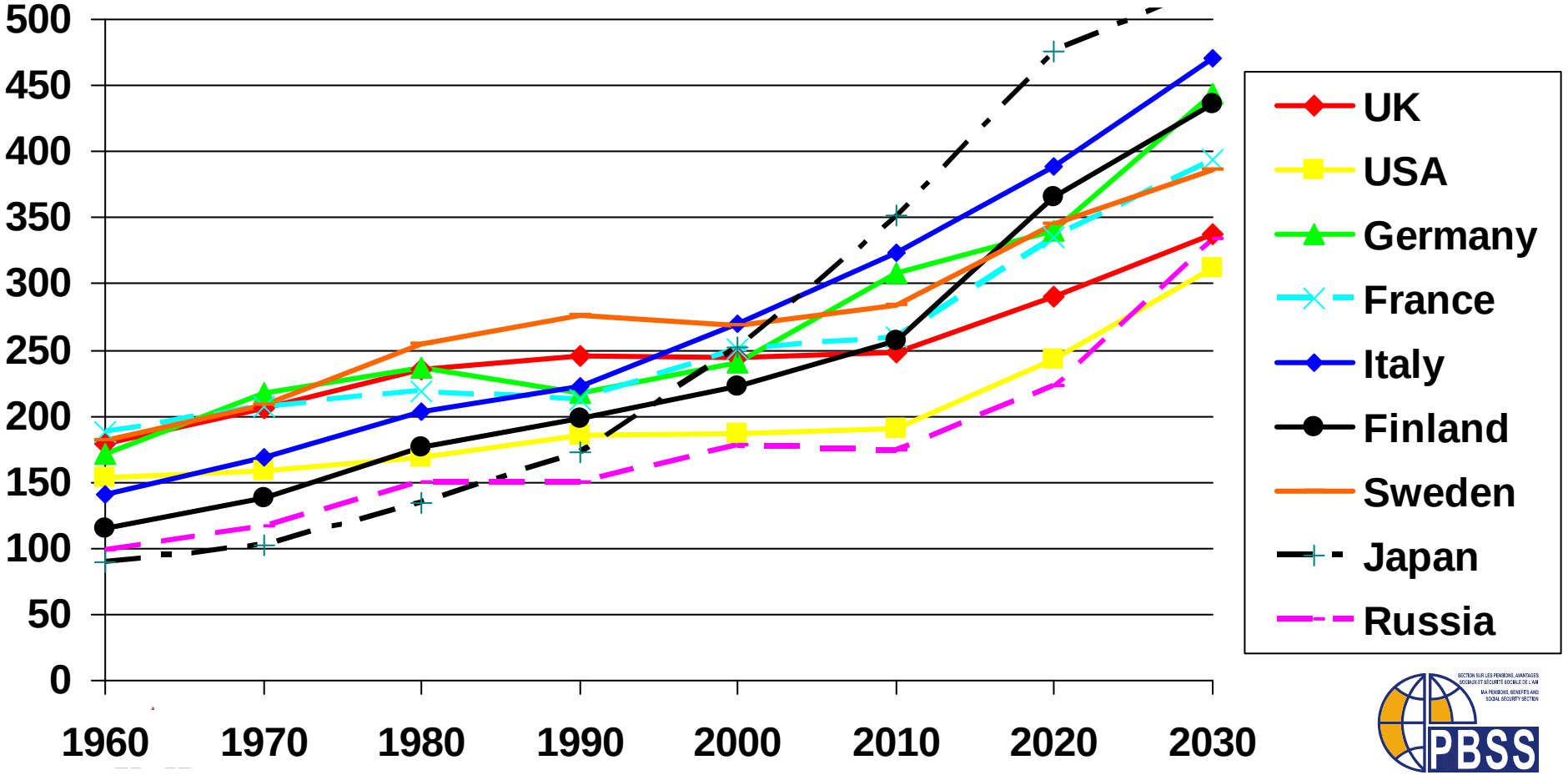
POPULATION AGEING

Expectation of life at birth for females, 1950-2020



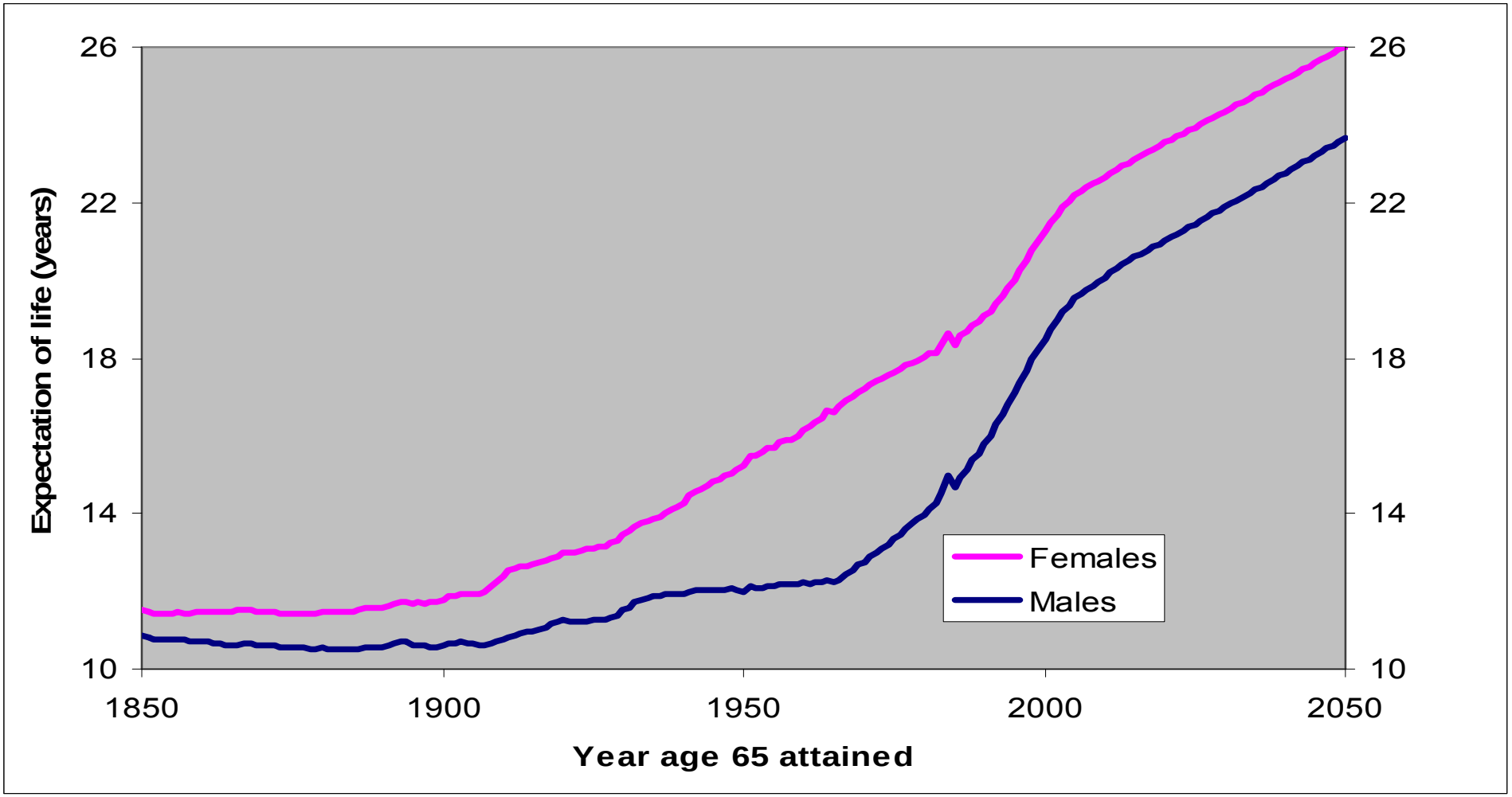
POPULATION AGEING

Dependency ratios, 1970-2030 (nos. 65 and over per 1000 aged 15-64)



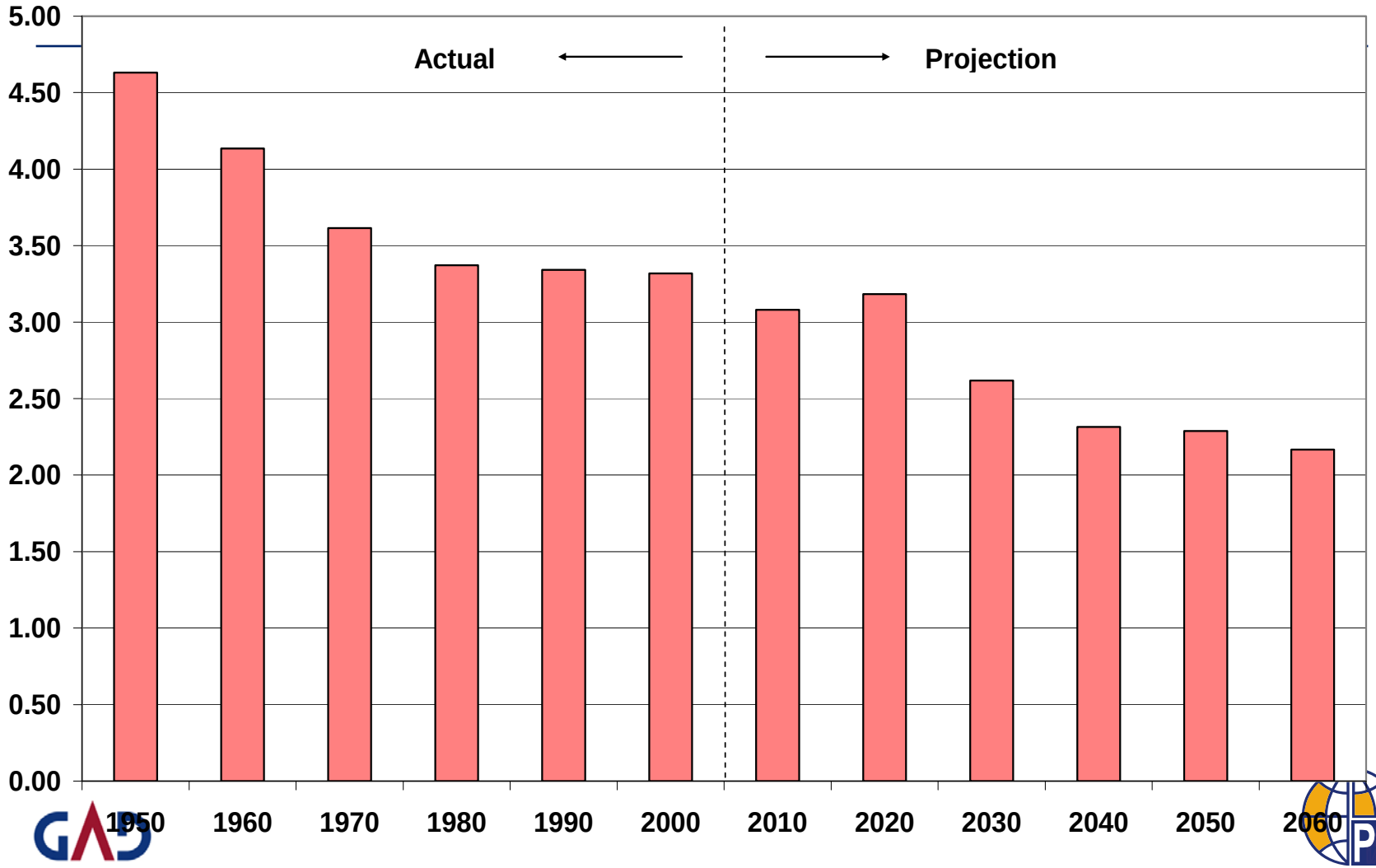
POPULATION AGEING

Expectation of life at age 65 on cohort basis, E&W



POPULATION AGEING

Pensioner support ratio (i.e. no of people at working ages per person over pension age)



WHO BEARS THE RISK?

Risk structure of defined benefit social security

- no (or little) investment risk
- longevity risk is measured by change in dependency ratio
- increased longevity is met by:
  - increasing contributions from workers and/or employers
  - contribution (or increased contribution) from national budget
  - increase in retirement age for current workers
  - worsening of indexation provisions for existing pensioners
  - pension reform leading to benefit reductions, especially for future

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WHO BEARS THE RISK?

Risk structure of notional defined contribution

- no (or little) investment risk
- longevity risk is measured by automatic balance mechanism
- increasing longevity is met by
  - increasing ‘annuity’ cost at retirement
  - increase in retirement age needed to maintain value of pension
  - automatic balance mechanism adjustment to accrued rights
  - no additional financial inputs

WHO BEARS THE RISK?

Risk structure of defined benefit occupational plans

- investment risk is carried by sponsor
- longevity risk is measured by annuity value at retirement
- increased longevity is met by:
  - increased contributions from sponsoring employer (and members?)
  - adjustments to discretionary benefits
  - reducing benefits for future accrual for existing workers
  - increasing retirement age for future accrual for existing workers
  - closing the plan to new entrants
- insolvency risk of employer is carried by active members
- …and, to a much lesser extent, by pensioners

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WHO BEARS THE RISK?

Risk structure of defined contribution occupational plans

- investment risk is carried by individuals
  - apart from any guarantees provided by pension institution
- longevity risk is measured by annuity value at retirement
- increased longevity is met by:
  - reduced pension benefits for those reaching retirement
  - or the need to increase retirement age to offset the effect
- insolvency of sponsor only affects future accrual

SOCIAL SECURITY REFORM

What are the imperatives of social security reform?

> to recognise the impact of longevity

> to ensure sustainability of structure and financing

> to reduce potential increases in public expenditure/tax

> to apportion risk more fairly between the stakeholders

> to improve retirement incentive structures

> to reduce intergenerational subsidies

PRIVATE PENSION REFORM

What are the imperatives for private pension reform?

> to recognise the impact of longevity

> to ensure sustainability of structure and financing

> to reduce potential financial burden on sponsors

> to apportion risk more fairly between the stakeholders

> to improve retirement incentive structures

> to improve incentive structures to save for retirement

> to reconcile the desire for security of pension rights with the cost of providing guarantees

DB OCCUPATIONAL PLANS

Decline of defined benefit occupational plans

- increased costs arising from
  - greater longevity
  - lower interest rates
  - lower expected real rates of return on investments
  - increasing guarantees and benefits mandated by legislation
  - reduced tax advantages
- effect of accounting standards on reporting of pension cost
- volatility of results from mark to market asset valuation
- focus shifting from long-term to short-term
- plan closures have highlighted cost of buying out benefits

DB OCCUPATIONAL PLANS

Options for sharing longevity risk

> closure of plans to new entrants or to further accrual
> reduce accrual rate for the future
> sharing of increased cost between sponsor and employees
> move from final average salary to career average salary
> index pension age at which unreduced benefits are paid
> flexibility of indexation to permit offset of longevity costs
> ensure early retirement reduction factors are actuarially fair

DB OCCUPATIONAL PLANS

Sharing longevity risk through targeting cash benefit

> define benefit as capital sum at retirement…

> …and convert to pension using current annuity value

> cash balance plans with variable accumulation

> unit-linked individual accounts with guaranteed underpin

DB OCCUPATIONAL PLANS

Sharing longevity risk through discretionary benefits

> define lower level of guaranteed benefits

> apportion emerging surplus to supplementary benefits

> make revaluation of average salary subject to conditions

> have no or low guaranteed post retirement increases…

> …and award increases as bonuses from surplus

DB OCCUPATIONAL PLANS

Dutch risk-sharing plans

> mutualised industry-wide schemes

> insulate sponsor from risk of increased contributions

> increased costs from longevity (and other reasons)…

> …absorbed by flexible retirement age…

> …and flexible revaluation/indexation of benefits

DB OCCUPATIONAL PLANS

Implications of risk-sharing for regulation

> more risk is inevitably passed to members

> regulatory structures designed to protect members' rights

> weakening protection is politically sensitive

> but without changes workers may lose access to DB plans

> shift to DC alternative has more dramatic impact on risk

DC PENSION PLANS

Risk to members in DC plans

> investment risk usually passed fully to members…
> …systemic investment risk and individual choice
> no insurance of longevity risk - primary benefit is lump sum
> each cohort bears longevity risk through cost of annuities
> direct exposure to career salary record
> employer is generally not at all on risk – fixed contributions

DC PENSION PLANS

Risk-sharing in DC plans

> mitigation of investment risk by guaranteed returns…
> …cash balance with discretionary interest distributions
> …or guaranteed maturity value products through insurers
> traditional with profits contracts achieve shared risk
> …with insurer rather than employer bearing investment risk
> longevity risk mitigated by guaranteed annuity terms

DC PENSION PLANS

Risk in the decumulation phase

> traditional annuities leave the longevity risk with insurers…
> …although some of the cost is passed on in annuity price
> insurers also carry investment risk unless assets matched
> …although cost of interest guarantee is in annuity price
> pensioners dislike cost and lack of investment flexibility
> insurers fear concentration of systemic longevity risk
> …and reinvestment risk when assets are too short

DC PENSION PLANS

Risk-sharing in the decumulation phase

> programmed withdrawal and deferred annuitisation
> unit-linked annuities
> with-profits annuities
> annuitised fund
> successive temporary annuities

See my paper for the PBSS Colloquium in Sydney

SOCIAL SECURITY REFORM

Some alternative routes to reform national systems

> individual accounts

> notional defined contribution

> modification of defined benefit

INDIVIDUAL ACCOUNTS

Individual account reforms

- started in Chile in 1981
- by now includes most countries in Latin America…
- …also several countries in central and eastern Europe
- competitive private sector investment vehicles
- usually mandatory for formal sector workers
- compulsory purchase of annuities at retirement
  - or some form of programmed withdrawal
- promoted by World Bank in *Averting the Old-Age Crisis*

INDIVIDUAL ACCOUNTS

Individual account reforms - evaluation

> coverage is still a major problem…
> …individual accounts are not enough of an incentive
> transaction costs generally remain high…
> …competition does not bring down the charges
> churning and mis-selling have been an issue
> pension levels may not be adequate…
> …too many people will qualify for the minimum pension

SOCIAL SECURITY REFORM

Alternatives

> to achieve similar incentive effects to individual accounts

> …without high transaction costs or mis-selling problems

> …but maintaining fairness between generations

> …passing on to individuals the risk of greater longevity

> …and avoiding the cross-subsidies of defined benefit

NDC PENSION REFORM

Notional Defined Contribution

> structured as defined contribution…
> … but on a PAYG basis rather than funded
> clear link between contributions and benefits…
> …but not subject to investment risk
> targets lump sum at pension age…
> with ‘notional’ purchase of an annuity
> permits flexibility of retirement age
> passes on part of longevity risk

Swedish NDC

> DB state scheme replaced by NDC
> revalorisation of individual accounts by average wage
> automatic economic regulator of pensions increase
> annuity value responds to improving mortality
> automatic balancing mechanism to maintain in balance…
> …as otherwise both benefits and contributions are fixed

Automatic balancing mechanism ('actuarial accounting')

Annual balance sheet for scheme:

Liabilities =

present value of all future outlay for pensions in payment

+ accumulated individual accounts for all persons not yet in receipt of a pension

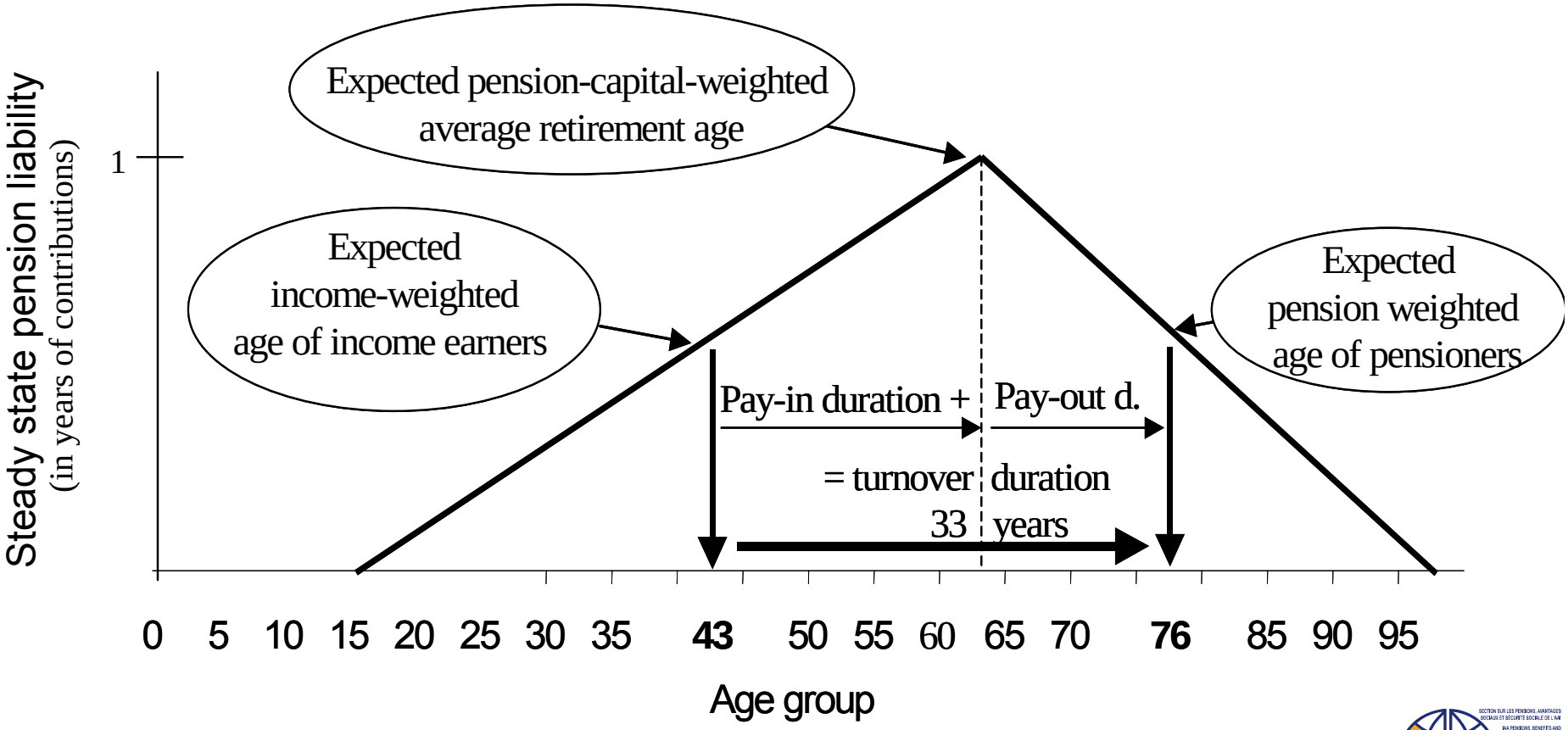
Assets =

real assets in buffer fund + value of future contributions

Value of future contributions =

contribution rate x wage mass x expected turnover duration

Expected turnover duration



Real individual accounts

> mandatory funded individual accounts (PPM)
> 2½% of earnings
> contributions collected with NDC contributions of 16%
> low administrative costs
> choice of more than 700 investment funds
> default arrangements if no funds selected

Overall evaluation

> hailed by many as a success
> PAYG system made sustainable
> cohort longevity risk passed on to individual members
> dependency ratio risk passed to members through ABM
> concern about expected fall in replacement ratios…
> …and arbitrary effect of automatic balancing mechanism

Dealing with demographic ageing

- objectives of recent reform of earnings-related scheme
  - to postpone average age of retirement by 2 to 3 years
  - to adapt the pension system to increased expectations of life
  - to reduce pressures for future increases in contributions
- average of last 10 years → career average revalued
- variable accrual rate
  - 1.5% a year from 18 to 52
  - 1.9% a year from 53 to 62
  - 4.5% a year from 63 to 68

Dealing with demographic ageing

> introduction of "*life expectancy coefficient*"

Life expectancy coefficient for year N (>2009) =

$$\frac{\text{cohort life expectancy for those reaching 62 in 2009}}{\text{cohort life expectancy for those reaching 62 in N}}$$

Multiply pensions of those reaching 62 in N

by *life expectancy coefficient* for year N

Thus adjusting a DB pension benefit for improving life expectancy

Dealing with demographic ageing

> still has earnings revaluation rather than prices but…
> …revaluation is to net instead of gross wages
> higher retirement age
> reduced replacement rate at 65
> contribution rate not to exceed 22% in 2030
> "*sustainability factor*"

Pension adjustment

Change in pensions =

Change in average income, net of contributions

x *sustainability factor*

Sustainability factor for year *x* = value for year *x*-1 of

$$\frac{\text{Number of active contributors}}{\text{Number of pensioners}}$$

divided by corresponding value for year *x*-2

CANADA

Control based on steady state funding level

> 1998 amendments to Canada Pension Plan
> contributions increased from 6% to 9.9% from 1997 to 2003
> small reduction in long-term benefit target
> excess contributions to be invested in markets…
> …under control of CPP Investment Board
> three-yearly actuarial valuation…
> …monitoring *steady-state rate of contribution*

Control based on steady state funding level

> if steady state rate is higher than 9.9%...

> …and if ministers cannot agree on what to do

> then automatic adjustment mechanism is triggered:

  > contribution rate is increased over 3 years by ½ of excess of steady state over 9.9% (subject to maximum increase of 0.2% a year)

  > benefits are frozen (i.e. not indexed any more)

  > after 3 years, situation is reviewed following new actuarial valuation

UNITED KINGDOM

Problem of adequacy rather than sustainability

- continuous pension reform for more than 30 years
- basic pension linked to retail price index (1980)
- cut back of earnings-related benefits (1988)
- equalisation of pension age at 65 (by 2020) (1995)
- more generous means-tested minimum pension…
  - …leading to a trend to more reliance on means-testing
- financially stable and sustainable…
  - …but reliant on low (and falling) level of benefits

UNITED KINGDOM

Proposals now being enacted (May 2007)

- restore earnings link for basic pension (from 2012 or later)
- raise pension age to 68 by 2046
  - 65 → 66 between 2024 and 2026
  - 66 → 67 between 2034 and 2036
  - 67 → 68 between 2044 and 2046
- invested individual accounts with auto-enrolment

SOME GENERAL LESSONS

Sharing longevity risk

1. target lump sum at retirement…
   - > …and convert to pension using current annuity value
   - > …funded individual accounts or NDC
2. index retirement age based on cohort expectation of life...
   - > …or maintain ratio between working and retired life periods
3. raise retirement age at intervals to offset rising cost
4. overall adjustment mechanism such as
   - > life expectancy coefficient
   - > sustainability factor
   - > automatic balancing mechanism
5. risk-sharing between contributors and pensioners

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SOME CONCLUSIONS

Wide range of solutions – defined contribution favoured

> each country has a different solution
> …but all are starting from different points
> DC widely favoured for its incentive structure…
> …but lacks basic characteristics of protection
> …unless in with-profits form or with strong underpin
> …exposes members to investment risk
> …and also collectively to longevity risk
> minimum pension or DB underpin reduces risk to individual
> …but care is needed to avoid this having a distorting effect

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SOME CONCLUSIONS

Wide range of solutions – new defined benefit thinking

> DB trend towards career-average revalued…
> …which is equivalent to a type of DC
> NDC is really a DB structure dressed up as DC
> focus on fund at retirement facilitates longevity solutions
> indexing retirement age is also a possibility
> cash balance is another alternative DB/DC hybrid…
> …DC on a traditional insurance “with-profits” basis
> more flexible revaluation might facilitate risk-sharing
> members should share needed contribution increases

SOME CONCLUSIONS

Wide range of solutions – encourage later retirement

> focus on balance between working life and retirement

> need stronger incentives to later retirement

> a reason for DC but possible also with DB designs

> higher pension age for unreduced pension forces trade-off

> target lump sum at retirement instead of pension

> alternative annuitisation possibilities

> need better risk-sharing in decumulation phase

Enjoy a long and prosperous life!

Toivotan teille pitkää ja antoisaa elämää