

EXAMINERS' REPORT

June 2022 examinations

Subject F104 — *Retirement and Related Benefits* Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principal Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners and should not be taken as model solutions.

QUESTION 1

i)

- ✓ Retirement benefits
- ✓ Unemployment benefits
- ✓ Disability benefits
- ✓ Death benefits
- ✓ Child grants
- ✓ Other grants
- ✓ Housing
- ✓ Non-monetary benefits such as healthcare and education

ii) Compulsion

- ✓ Requires a very specific definition of the benefit
- ✓ And may need corresponding regulation around design, price and disclosure
- ✓ Compulsory minimum contributions
 - ✓ By employers
 - ✓ By employers on behalf of members
 - ✓ By employees on behalf of non-working dependents
 - ✓ By the state on behalf of non-working persons.
- ✓ Compulsory minimum benefit levels
 - ✓ By employers for employees
 - ✓ By individuals through insurance

Incentives

- ✓ Cash incentives may be offered
 - ✓ E.g. a matching programme or enhanced returns
- ✓ Tax incentives
 - ✓ Contributions by ER partially or fully tax deductible
 - ✓ Contributions by ER on behalf of member partially or fully tax deductible
 - ✓ Contributions by member partially or fully tax deductible
 - ✓ Investment income partially or fully untaxed
 - ✓ Capital gains partially or fully untaxed
 - ✓ Benefits subject to reduced taxation
 - ✓ Which may differ by type of benefit
- ✓ Cash and tax Incentives usually subject to a cap
- ✓ Behavioural incentives
 - ✓ E.g. default strategies or auto-enrolment

This was a straightforward bookwork question that was surprisingly poorly done. For part i, many candidates simply listed grants as opposed to benefits, which is a much broader term. In part ii, many candidates defined compulsion as opposed to explaining how it could be used. Very few candidates mentioned any incentives other than for tax.

QUESTION 2

Advantages of choice

- ✓ Member may like the feeling of autonomy that having a choice brings
- ✓ Member is able to tailor the investment strategy to take investments outside the fund into account.
- ✓ Age may be a poor proxy for lifestage meaning the lifestage investment strategy may be inappropriate for certain members.
- ✓ Member may be able to better reflect personal utility/risk aversion through choice.
- ✓ Lifestage portfolios tend not to work well for people who plan to retire early or late.

Advantages of lifestage

- ✓ Some members (particularly the financially unsophisticated) may not like the idea of making a choice
- ✓ And so choice increases costs with little benefit for them.
- ✓ Members may come to regret choices they have made
- ✓ And in particular one may find members changing strategy shortly after a period of poor performance which locks in losses.
- ✓ Typically cheaper than a choice structure (from an admin perspective)
- ✓ And in a DC fund these cost savings are passed to members.
- ✓ Search and information costs are lower for members if they don't need to make choices.
- ✓ While the lifestage portfolio may not meet members needs exactly, it should approximate an appropriate investment strategy for the average member.
- ✓ Helps the investment strategy at retirement to be matched to the underlying annuity strategy reducing mismatching risk
- ✓ Provided the member actually chooses the targeted annuity/retirement benefit/
- ✓ Uncertainty about retirement choices may actually increase mismatching risk
- ✓ Very difficult to anticipate member behaviour if never offered a fund before

Candidates struggled to generate points for this question. In general, for a relative merits question and advantage of A over B is a disadvantage of B over A and the candidate would only score credit for making the point once. Candidates focussed too much on depth in this question, for example giving all the ways that costs may be higher under member investment choice, as opposed to focussing on the big picture and getting a breadth of ideas.

QUESTION 3

i)

- ✓ The transfers out reduced the number of active members in the ABC fund.
- ✓ This would have reduced the cashflows into the scheme which would create liquidity risk

- ✓ The fixed expenses for the scheme would have remained unchanged and the reduced membership would mean reduced contributions to expenses
- ✓ Depending on various factors like the divisibility of assets and the investment strategy of the DC fund. There may have been opportunities to transfer assets directly to the DC Fund
- ✓ However, in most cases, assets would have needed to be liquidated in order to purchase assets in the DC fund.
- ✓ Risk that this was done at an inopportune time/on unfavourable terms
- ✓ There is a risk that the transfers were antiselective in nature.
- ✓ E.g. people who felt they had better than average longevity
- ✓ Or salary growth prospects opted to stay.
- ✓ Unless the transfer basis reflected this bias accurately, it is likely that ultimately each transfer was not neutral in that the fund gave up future surpluses
- ✓ It is likely the membership profile changed both in terms of remaining active members and the mix of pensioners and actives.
- ✓ This complicates future experience analysis as the past will not necessarily reflect the future
- ✓ Investment risk is created as the investment strategy will need to be updated to reflect the new profile.
- ✓ And solvency risk as the basis for benefit calculations may need to be updated.
- ✓ As well as the statutory valuation basis
- ✓ All of these factors can contribute to strains on the fund that ultimately may lead to solvency problems.
- ✓ And covenant risk if the sponsor is unable to make up the deficit
- ✓ Smaller fund numbers mean the law of large numbers is less likely to arise
- ✓ Resulting in more volatile experience even if bases are correct
- ✓ Possible reputational risk if members later come to regret their decision

ii)

- ✓ Date of birth (or age)
- ✓ Date of entry (or years of service)
- ✓ Salary (or pensionable salary)
- ✓ Sex (unless unisex rates required by law)
- ✓ Normal retirement date
- ✓ Contribution rates
- ✓ Split by member and employer

iii)

- ✓ The longevity risk refers to the fact that pensions are paid for longer than expected
- ✓ Or that particularly large pensions are paid for longer than anticipated, even if the expected longevity is right on average.
- ✓ Ultimately, this is a risk that benefit payments are higher than anticipated.
- ✓ Funding methods do not change benefit costs
- ✓ So, the statement is incorrect in terms of managing the fund's longevity risk
- ✓ However, the choice of funding method will influence the level of both the SCR and MCR (or some comment about disclosed solvency level).
- ✓ And this impacts on the level of contribution risk that the sponsor is exposed to.

Longevity risk for the fund can be managed by:

- ✓ Reinsurance
 - ✓ Derivatives and
 - ✓ Buyouts
-
- ✓ The Attained Age Method (AAM) is likely to be most suitable for a closed fund
 - ✓ Because the AASCR increases more rapidly than the PUSCR despite the ALs being the same.
 - ✓ This creates a surplus and results in a more stable MCR than other funding methods
 - ✓ Which tends to appeal to the sponsor
 - ✓ And reduces the covenant risk.

This was a potentially tricky question which was made worse by candidates not reading the question properly. In part i, many candidates spoke of risks to the member or the DC fund as opposed to focussing on risks for the ABC fund. In general, candidates struggled to generate the breadth of points required.

Part ii was generally well done although some candidates confused data, information and assumptions. In part iii, candidates did not comment enough on the statement made.

QUESTION 4

i.)

- ✓ Need to guard against income fluctuations from unemployment or underemployment
- ✓ Family expenses:
 - ✓ Food, clothing, education
 - ✓ Shelter
 - ✓ Insurance of goods or shelter
 - ✓ Medical costs
 - ✓ Sanitation
- ✓ Loss of income due to illness during the deferred/waiting period

ii) Legislative

- ✓ There may be a minimum number of vacation days specified by law
- ✓ There may be a legal maximum to the % of an employee's salary that can be taken off as deductions
- ✓ Legislation would dictate who is allowed to provide insured benefits
- ✓ And the structure
- ✓ As well as the tax incentives

Regulation

- ✓ Product regulation
 - ✓ May set minimum standards around benefits, for example:

- ^ Very small disability income benefits are paid as lump sums
 - ^ Minimum levels of risk cover
 - ^ Minimum contributions to retirement funds
 - ^ More commonly, maximum charges on retirement funds which set an implicit minimum contribution rate
 - ✓ Could be on the supply-side
 - ✓ Or on the buy-side (e.g. the type of products an employer or retirement fund can buy)
 - ✓ Market conduct regulation
 - ✓ May require regular disclosure to members of the flexible benefit scheme to ensure that they understand the implications for their take home pay
 - ✓ As well as benefit entitlements in the future.
 - ✓ Disclosure around commission payments may reduce the appeal of the risk benefits
 - ✓ Whistleblowing requirements may encourage a more ethical approach to benefit design.
 - ✓ Similarly the actuary's professional requirements
 - ✓ Fit and proper requirements for market participants may limit the amount of education/advice that can be offered
 - ✓ And hence the complexity of the design.
 - ✓ Prudential regulation
 - ✓ Here the greatest influence would be any regulatory arbitrage between different benefit types
 - ✓ e.g. RBC on risk benefits makes them more expensive than retirement benefits which are generally funded on a BE basis.
- iii)
- ✓ The employer should consider if their needs are fully met by the benefit design
 - ✓ E.g. there is no sick leave benefit to help deal with the externalities created by sick employees coming to work.
 - ✓ Does the proposal have the desired sorting effect in terms of attracting and retaining staff with the right values?
 - ✓ Is it tax efficient?
 - ✓ Are there enough incentives to encourage desirable behaviour?
 - ✓ For example lowering staff turnover
 - ✓ Which increases productivity
 - ✓ And lowers recruitment costs
 - ✓ The employer should consider their level of paternalism
 - ✓ For example, offering more benefits on an employer/group basis would reduce costs for the employees
 - ✓ There are no medical benefits for example
 - ✓ May also want to set minimum benefit levels
 - ✓ How much education to offer members?
 - ✓ The less education/advice offered, the less suitable the design is for less financially sophisticated employees.
 - ✓ Whether employee needs are being met
 - ✓ Everyone gets the same death benefit

- ✓ But more financially sophisticated members may prefer lump sums while others prefer income benefits
- ✓ Any interaction with state benefits and how easy this is to incorporate.
- ✓ Cost (benefit plus admin)
 - ✓ What is the scope for anti-selection
 - ✓ and how might this influence benefit cost
 - ✓ What are the administration and other costs associated with developing
 - ✓ And maintaining the system
 - ✓ How will these be borne
 - ✓ And how do they compare to the benefits

Part i required candidates to list needs. Many listed products or benefits that could be used to address needs as opposed to considering what the need is. Others discussed needs instead of listing them and so failed to generate the breadth of points this question required. Candidates needed to plan well in order to generate sufficient points in parts ii and iii. Candidates didn't use their bookwork around types of regulation to generate points and often simply repeated the legislation points. In part iii, the best answers used bookwork lists for structure.

QUESTION 5

i)

- ✓ Cutting costs of employment
 - ✓ By retrenching older employees who are likely to be higher earners
 - ✓ And making space for younger recruits who are cheaper.
- Showing paternalism to younger employees
 - ✓ Since employees over the age of 60 are more likely to adapt to unemployment
 - ✓ Older workers should have higher savings levels
 - ✓ In the retirement fund
 - ✓ And generally lower debt levels
 - Compared to younger employees
 - ✓ who have had less time to accumulate retirement savings
 - ✓ And more financial commitments
 - ✓ For example young families, etc
 - ✓ Early retirement may also be more tax efficient
 - Than withdrawal from the fund at younger ages.
- ✓ Preserving efficiency in the business
 - ✓ Since younger employees tend to have higher energy levels
 - ✓ And lower levels of absenteeism than their older counterparts
 - ✓ Which could limit loss of productivity under the circumstances
- ✓ Generating loyalty amongst younger staff members
 - ✓ Who generally have a higher rate of turnover
 - ✓ But may feel more committed to an employer
 - Who acts in their interest during difficult circumstances.

ii)

- ✓ The main risk is funding risk or the assets are insufficient to provide the required income level in retirement
- ✓ The replacement ratio indicates a drop in income of 45% at retirement
- ✓ It is possible for income needs to reduce on retirement
- ✓ E.g. due to reduction in costs associated with work.
- ✓ But income needs may also increase during retirement
- ✓ E.g. due to medical expenses
- ✓ Employees will be forced to leave the fund without being able to save further
- ✓ Or benefit from reduced annuity rates as they age
- ✓ Also, they may be forced to retire at a time when annuity terms are unfavourable
- ✓ This is a particular risk if the investment strategy is not matched to annuity prices
- ✓ I.e. a mismatching or investment risk

iii)

- ✓ The IRR figures in are averages in both cases
 - ✓ And may not be a true representation of the group
 - ✓ If there are high or low individual results which skew the average.
 - ✓ The previous calculation was completed more than a year ago
 - ✓ And it is possible that some members included in the previous calculation
 - ✓ Have retired voluntarily and left the group
 - ✓ These members could have had higher individual IRR values
 - ✓ (especially if they opted into retirement)
 - ✓ Which would have raised the average IRR
-
- ✓ All of the individual IRR values may have reduced over the period
 - This could have been caused for various reasons including:
 - ✓ A change in the assumptions underlying the IRR calculation
 - ✓ Specifically with respect to the annuity factors applied
 - ✓ Any reduction in net interest rates
 - ✓ Or strengthening of expected mortality assumptions
 - ✓ Will lead to higher annuity rates (lower projected pensions).
 - ✓ The current IRR calculations most likely apply the current age as the retirement age
 - ✓ Compared to previously where a fixed retirement age would have been used
 - ✓ If members in the group are (on average younger) than the previous fixed retirement age
 - ✓ Annuity factors will increase on average leading to lower projected pensions.

Even with no change to post retirement assumptions, reduced IRRs can be caused by

- ✓ Actual salary increases having been higher than assumed at the previous calculation date;
- ✓ Actual fund expenses (including cost of insurance) having been higher than assumed at the previous calculation date;
- ✓ Actual investment return earned on fund assets having been lower than assumed at the previous valuation date.

Candidates struggled to get more than one-third of the marks available for this question. Part (i) was generally better answered than the other parts. Candidates who paid attention to the specifics in the question did better overall.

QUESTION 6

i)

- ✓ Consumption smoothing
 - ✓ Since income becomes available to citizens
 - ✓ Who have not been in a position to save for retirement
- ✓ Redistribution
 - ✓ Since current earners finance the benefit via tax
 - ✓ And the means test directs the benefit to the most poor.
- ✓ Insurance
 - ✓ Against extreme poverty during old age due to some government subsidisation
 - ✓ And since a younger generation is generally always present to support an older generation.

ii) A developing economy can be characterised by

- ✓ Wealth inequality and weaker tax administration
 - ✓ Which might make the redistribution element more important
 - ✓ And make benefits targeted at the poor (which the means-test does) more appropriate
- ✓ High levels of unemployment
 - ✓ Which might imply higher cost of social benefits at younger ages
 - ✓ And abolishment of the means-test an unaffordable option
- ✓ Community based support and
- ✓ High population growth
 - ✓ Which could lend themselves to abolishment of the means test
 - ✓ And imply affordability due to a higher tax base
 - ✓ Depending on the rate of economic development
 - ✓ The cost could still be unsustainable in the future.

iii)

- ✓ State
 - ✓ Will bear the additional cash outflow with immediate effect
 - ✓ May Need to curb government spending in other areas where possible
 - ✓ Tax hikes likely to be politically unpopular
 - ✓ Likely to improve popularity with older population eligible for the benefit
- ✓ Tax authority
 - ✓ Increased pressure to collect taxes more efficiently
 - ✓ Reduce tax leakages to due tax avoidance (evasion)
 - ✓ Undertake to improve tax administration systems
- ✓ Taxpayers
 - ✓ Ultimately bear the burden of the added cost
 - ✓ Unless some of the cost can be financed another way (eg. Borrowing)
 - ✓ But borrowing merely transfers the costs to future taxpayers

- ✓ May face increasing taxes if population ages
- ✓ Have some level of income security for their own retirement
- ✓ May contribute less to private retirement savings
- ✓ Social benefit administrators
 - ✓ Greater administrative burden
 - ✓ More individuals part of the social security system
 - ✓ Improve admin efficiency to prevent Any leakages via fraudulent claims (for example)
- ✓ Benefit recipients (current and future)
 - ✓ Current old age recipients not very affected
 - ✓ Unless the level benefit value changes after removing the means test
 - ✓ Current retirees have an immediate boost to current pensions
 - ✓ Future retirees may have a false sense of security
 - ✓ And act irresponsibly with private savings (lack of preservation)
- ✓ Retirement fund sponsors in private sector
 - ✓ May update benefit design to incorporate level state pension
 - ✓ Lower savings levels in the private sector
 - ✓ But higher take home pay for employees may be more attractive

Part (i) referred directly to bookwork but was poorly answered in general. Candidates tended to struggle most with part (ii) and did not generate enough relevant points in part (iii) to get marks.

QUESTION 7

- i)
- ✓ Low level of employees between the ages of 20 to 25
 - ✓ And large increase in numbers between the ages of 25 and 30
 - ✓ Suggesting lower absolute population levels at the younger ages
 - ✓ Or study requirements are a barrier to employment at younger ages.
 - ✓ Male population numbers reasonably consistent between the ages of 30 to 45
 - ✓ But large reduction in female population between the ages of 30 to 40
 - ✓ Which can be associated with female child-bearing ages
 - ✓ And voluntary exit from the work force to stay home with children
 - ✓ Or employer reluctance to hire in this group
 - ✓ Male population peaks between ages 45 and 50
 - ✓ And female population experience second peak between ages 50 to 55
 - ✓ Suggests the employer favours more experienced employees
 - ✓ Or operate in an industry where younger recruits are lower in number
 - ✓ Especially since some males over age 70 are still present in the population
 - ✓ Female population increases gradually between ages of 40 to 55
 - ✓ And evens out with the male population between ages 50 to 55
 - ✓ Suggests females returning to work force after childbearing years
 - ✓ Dramatic reduction in male population between ages of 50 and 55
 - ✓ May suggest high number of male executives in the work force
 - ✓ That are in a position to take early retirement

- ✓ After age 55, females tend to exit the work force faster than males
 - ✓ Possibly since males higher earners in dual income households
 - ✓ And females retire earlier with support of their spouses
 - ✓ And males work for longer to support their spouses.
 - ✓ Females tend to have higher levels of morbidity than males so some of these exits may be ill-health retirements.

ii)

- ✓ Would probably want to develop a strategy that would be suitable for a member who remains in the fund their entire working career (lifers)
- ✓ Would work approximately well for a member transferring who has preserved throughout their career
- ✓ Would work less well for someone with a degree of leakage (call these late new entrants)
- ✓ Or someone who wants to retire early/late
- ✓ Create model points for various types of members e.g. lifers, late new entrants, early retirees, later retirees.
- ✓ Can also have different model points for different earnings levels
- ✓ People with career breaks etc.
- ✓ Essentially would build a benefit projection model which rolls up the contributions with investment returns net of expenses
- ✓ Probably not worried about withdrawal decrement although this puts onus on member to preserve.
- ✓ Or death/ill health decrements if insured benefits are offered for these.
- ✓ So focus is on retirement benefits
- ✓ Would probably represent results as a replacement ratio
- ✓ Which is ratio of income immediately after retirement to immediately before retirement
- ✓ Applying the annuity strategy already existing in the fund
- ✓ Model could be stochastic or deterministic
- ✓ If stochastic, would probably model investment returns stochastically
- ✓ Model would be run tens of thousands of times to get a distribution of RRs for each investment strategy for each model point.
- ✓ Alternatively, model deterministically and stress certain variables such as investment returns.
- ✓ Model output in this case would be a point estimate for each scenario.
- ✓ The model output would be considered in light of which group or groups of members are most likely to choose the default
- ✓ Bearing in mind this can be influenced through member communication.
- ✓ And most appropriate strategy according to some metric used. E.g. Strategy with the highest 10th percentile outcome given a RR of at least X with a probability of Y

iii)

- ✓ Starting pensions tend to reduce when annuity factors increase
- Increases in the annuity factors can be caused by
- ✓ A reduction in the future investment earning expectations

- ✓ Either due to a dip in the economy
- ✓ Or because of a change to the investment strategy (structure) in the fund
- ✓ Pension increases expected to be awarded in the future may have increased
 - ✓ Either due to increased inflation expectations in the market
 - ✓ Or because past increases have raised member expectations related to the future
- ✓ Ultimately the interaction between the expected investment return and pension increase expectations is most important
 - ✓ An overall reduction in the net rate
 - ✓ Will lead to an increase in the annuity factors across the board.
- ✓ There may have been an improvement to the mortality expectations of the group
 - ✓ Which needs to be incorporated into the annuity factors on an ongoing basis
 - ✓ Due to longevity trends being experienced worldwide
- ✓ Expenses levied during the post retirement phase
 - ✓ May have increased over time
 - ✓ A greater proportion of the annuity factor could be attributed to expense loadings
- ✓ Given the multi-employer structure
 - ✓ And the defined contribution nature of the pre-retirement phase
 - ✓ Margins may have been added to the valuation basis
 - ✓ To protect the security of future annuitants that enter the pool
 - ✓ Especially if a significant event has occurred
 - ✓ (e.g. Recession/liquidation of one of more employers)
 - ✓ Although it would not be equitable for the prospective retirees to cover this cost.

Overall this question was not answered well. Candidates did not think deeply enough in part (i) to generate points apart from stating how they pyramid looks. In parts (ii) and (iii) candidates struggled to keep their answers aligned to the questions that were being asked.