A system approach to pension design and evaluation

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A system approach to pension design and evaluation

1. Why system analysis: An illustration
2. Why a system approach is important
3. Examples of pension systems
4. Conclusion

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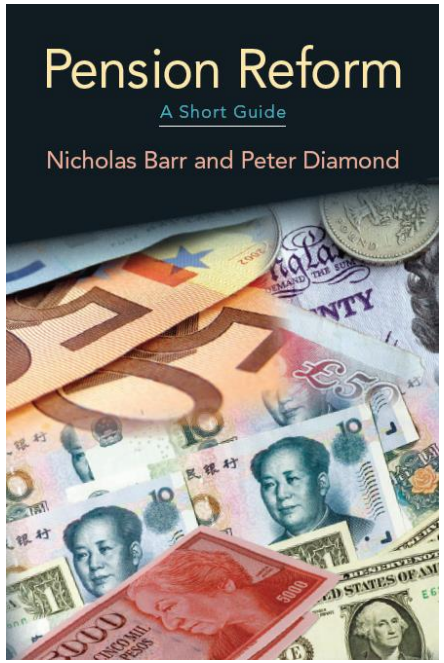
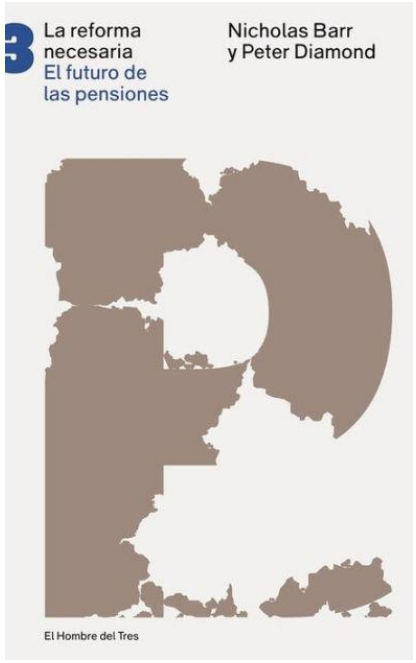
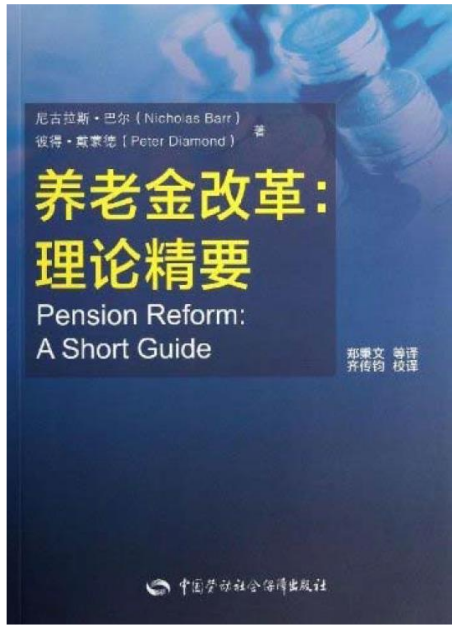
Joint work with Peter Diamond

(Barr and Diamond 2010; Barr and Diamond forthcoming)







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Plans and systems

- Important to distinguish between ‘pension systems’ and the different elements of pension systems, referred to as pension plans
- Since pensions have multiple objectives, a well-designed system generally comprises multiple plans, e.g. a non-contributory basic pension plus individual accounts

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Central message

- Avoid the common error of tunnel vision in pension analysis, i.e. focussing excessively on one part of a pension system
- Important to
  - Give due regard to the rest of the pension system
  - And to wider policies such as the availability (or not) of good insurance cover for health care and/or long-term care

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1 Why system analysis: An illustration

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Example: Ambulances in the UK

UK: long-wait for an ambulance after an emergency call. Why?

- Many ambulances in queue outside Emergency Departments (EDs). Why?
- The ‘back door’ problem:
    - ED unable to admit patients rapidly because no beds available. Why?
    - Hospitals unable to discharge patients well enough to leave. Why? Because of lack of capacity of social care

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Ambulances in the UK (2)

- The ‘front door’ problem
  - People unable to get an appointment to see their family doctor, thus
  - Go to the ED, or
  - Phone National Health Service helpline whose algorithm errs on the side of caution and sends people to the ED
  - Thus more people than necessary go to EDs
- Short-run government response: buy more ambulances
- Real solution: expanded social care, expanded primary health care

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2 Why a system approach is important

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2.1 A pension system has to fulfil multiple objectives

- Individual objectives
  - Consumption smoothing
  - Insurance
- Additional public policy objectives
  - Poverty relief
  - A government may also have redistributive objectives wider than poverty relief
- Wider objectives
  - Incentive effects
  - Risk sharing
  - Intergenerational distribution

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Example: Multiple objectives

- Two countries each with a non-contributory plan and DC individual accounts
  - **Poverty relief** will be greater with a higher-non-contributory plan
  - **Consumption smoothing** will be greater with a larger DC plan
  - **Risk** facing each plan member will be lower the larger the non-contributory benefit relative to the DC element (e.g. New Zealand) and vice versa (Chile pre-2008)
  - **Incentives** will vary, e.g. depending on whether the non-contributory plan is subject to an income test (Canada), pension test (Sweden) or no test (Netherlands)
  - **Intergenerational distribution** will be different depending on the relative size of the two plans, one funded, the other not

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2.2 How large a mandate 1: The size of the pension system as a whole

- The answer bears on what constitutes an adequate pension
- The mandate for the national plan should be smaller, *cet. par*.
    - The greater the extent of employer plans
    - The higher is voluntary pension saving
    - The better the cover provided by medical and long-term care insurance

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How large a mandate 2: The relative size of plans within a system

Factors that influence the relative sizes of plans within a system include:

- The income distribution: the poverty relief element is more important the heavier the lower tail of the distribution
- Other programmes: poverty relief is more important the less comprehensive are income-tested housing assistance and medical insurance
- Coverage of the contributory plan: better coverage enhances the role of the mandatory contributory plan relative to the non-contributory plan
- Saving propensities: a country with a higher saving propensity may choose a different balance between mandatory contributions and individual saving
- Changes over time: the relative importance of a poverty-relief element can change, e.g. if the lower tail of the income distribution becomes less significant or a defined-contribution plan matures

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2.3 What earliest pension age

- Voluntary pensions are part of accommodating diversity. Thus the age at which a worker can draw on non-mandatory accumulation without penalty may be significantly earlier than for mandatory plans
- Note that the age of access is part of an incentive structure that encourages voluntary pension saving, i.e. a worker is more likely to have voluntary saving if they can access it before earliest pension age in the national system

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Access before earliest pension age: Mandatory plans

- Should a worker have access before earliest pension age?
  - Because of disability (many countries)
  - For purposes such as house purchase, education or medical expenses (Singapore)
- During Covid-19 there was pressure to allow early access
  - Issue of balancing long-run saving against financing current consumption, risking lower pensions later. For the latter reason, the OECD warned against early access in the context of the pandemic
  - Countries including Chile, Peru, Australia, US allowed at least some early access
- The greater the accessibility of pension saving the weaker the mandate and the greater the downward impact on future pensions

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Access before earliest pension age: Voluntary plans

- There is a case for allowing more flexibility over early access in voluntary plans
- However there is a balance in that less flexibility over early access
    - Prevents some people from saving too little, but
    - May deter others from locking up savings

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2.4 What rules about drawdown

- Q1 What fraction of their pension wealth should a person annuitise?
- Q2 What constraints on drawdown of non-annuitized pension wealth?

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How much should a person annuitise

- The complication is diversity in individual preferences and circumstances
- Rules need to strike a balance between
    - Annuitising too little risks poverty if outlive ones savings
    - Annuitising too much cuts across other uses of accumulated wealth and/or other time paths of consumption in retirement
- The fraction of pension wealth which a person should convert into an annuity depends on
    1) Individual consumption preferences
        - Greater risk-aversion implies a greater welfare gain from longevity insurance and hence annuitizing a larger fraction of pension wealth
        - Greater concern for a partner points to more joint-life annuitisation
    2) Individual bequest preferences
    3) The surrounding system: optimal annuitisation is larger where there is good medical and long-term care insurance

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How much should a person annuitise (2)

- The desirability of different levels of annuitization is influenced by the extent of annuitization across different plans
- Thus the extent of voluntary annuitization in defined-contribution plans should depend on benefits, if any, from defined-benefit plans and defined-contribution plans with mandatory annuitization
- I know of a very famous economist who took a lump-sum in place of a very good DB pension – for good reasons

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What constraints on drawdown of non-annuitized wealth

- Some countries limit the size of drawdown to protect a person's future benefit, and sometimes include a minimum withdrawal
- Again, the complication is diversity in individual preferences and circumstances
- Rules need to strike a balance between
    - Drawing down to fast, risking poverty in later old age
    - Drawing down too slowly, hence having lower than necessary consumption in retirement
- The system element
    - Desirable constraints on drawdown take account of mandatory annuitisation in other plans in the pension system
    - More freedom over speed of drawdown if non-annuitized wealth is only a small part of the system (New Zealand), and vice versa
    - Note, however, that Australia (fairly large DC national plan) has a drawdown option with no constraints

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2.5 Funding, cross-cohort distribution and national output

- Two issues
  - The effect of funding on intergenerational distribution
  - The effect of funding on national output

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Funding and intergenerational distribution

- US built up temporary funding
  - Starting in 1983 the US built a surplus on its Social Security trust fund to help finance future benefits for baby boomers
  - Spending on pensions is now drawing down that surplus
- The Canada Pension Plan (CPP) addressed the baby boom through
  - Steady-state funding of base CPP pension; approx. 25% funded
  - Full funding of an enhanced element of the CPP pension

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Does funding increase investment

- System aspects:
  - An increase in mandatory pension saving may be offset wholly or in part by a decline in voluntary saving by individuals or by increased borrowing by government
- Example: returning to the temporary surplus in the US Social Security trust fund, two potential outcomes (or a mix) are possible
  - The surplus represented an increase in national saving, leading to capital accumulation; ***or***
  - The surplus financed additional deficit spending on public consumption or transfers used for consumption, diminishing or eliminating the direct effect on capital accumulation

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Does funding increase output? A parable: three economies

- Case 1: a single commodity, food
  - Grows on top of tall trees which only the young can climb and is perishable, hence cannot be stored (in his seminal article Samuelson (1958) uses the example of chocolate bars)
  - Thus retirees can consume only what young people harvest and share
  - The young share, hoping the next generation will do the same for them
- Case 2: two commodities: food and cowrie shells
  - Today's young people harvest less food for themselves to free time to collect cowrie shells to exchange for food after they have retired
  - Tomorrow's young accept the cowrie shells as payment in order to exchange them for food when they have retired

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Three economics (cont'd)

- Case 3: two commodities: food and ladders
  - Young people harvest less food for themselves but, crucially, use the resulting free time to build ladders, a productive asset, not simply a store of value
  - When old, they let younger workers use the ladders, making workers more productive, hence allowing a larger harvest
  - The young share the larger harvest in exchange for use of the ladders

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Population ageing

- Suppose that life expectancy increases, other things unchanged, so that the number of retirees rises
- Case 1:
  - With number of workers and production technology constant, unchanged chocolate harvest must be shared among more people
  - Thus average consumption must fall – workers, pensioners, or both have to consume less
- Case 2:
  - Again, output remains unchanged
  - A larger older generation will try to protect their consumption through their accumulation of cowrie shells, but a likely result is that the value of cowrie shells will fall, i.e. food price inflation
  - Again, workers, pensioners or both have to consume less

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Population ageing (2)

- Case 3:
  - In this case, output rises
  - If it rises enough, average consumption does not have to fall, thus neither workers nor pensioners have to consume less
- **Key conclusion (a system element): funding increases output only if it increases productive investment**

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3 Many ways to skin a cat: Examples of systems

- The following slides give examples of very different systems

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3.1 New Zealand

- Non-contributory pension (New Zealand Super)
  - Subject to tests of age (65) and residence (from 2024 rising over time from 20 years residence to 40, plus at least 5 years after age of 50)
  - No income, pension or wealth test, but subject to income tax
- Kiwisaver:
  - Regulated individual accounts
  - Pension age the same as New Zealand Super
- Voluntary individual pensions

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3.2 Netherlands

- Non-contributory pension (the OAW pension)
  - Subject to a test of age (currently 67 but due to be linked to life expectancy) and residence (50 years, *pro rata* if less)
  - No income, pension or wealth test, but subject to income tax
- Industry plans
  - Formerly DB, from 2028 all DC
  - Single fund for each plan, i.e. collective investment
  - Heavily regulated
  - Pension age the same as the AOW pension
- Voluntary individual accounts

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3.3 Canada

- Non-contributory pension (Old Age Security)
  - Subject to a test of age (65) and residence (lived in Canada for at least 10 years since age 18 (20 years if living outside Canada))
  - The benefit is subject to an income test but one that applies only at high incomes
- Canada Pension Plan
  - Base CPP: a partially funded (approx. 25%) DB plan
  - Enhanced CPP: fully funded DB plan
  - Pension age
    - Normal pension age 65
    - Earliest pension age 60 with a reduced pension but without an earnings test
    - Increased benefit for a delayed start up to age 70
- Voluntary individual accounts

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3.4 Sweden

- NDC plan, partially funded (approx. 11%)
  - Earliest pension age 63, rising to 64 in 2026
- Minimum pension guarantee, i.e. a non-contributory pension
  - Subject to a pension test relating to the NDC pension (but not to occupational pensions)
  - Earliest pension age 65, rising to 66
- Occupational pensions, now mostly DC
  - Earliest pension age 55
- Voluntary individual accounts

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3.5 New Brunswick (Canada)

- Canada's approach to risk sharing plans is based on
  - Credible, independent projections at agreed intervals using agreed methodology
  - Rules agreed ***in advance*** for adjustment in case of deficit or surplus
- Levers: potential adjustment of the following levers
  - (1) Employer contributions
  - (2) Worker contributions
  - (3) Accrual rates of future benefits
  - (4) Indexation of benefits in payment
- In case of a deficit/surplus, ex ante rules specify in advance
  - Which of (1)-(4) change, how much, in what order and over what time scale
  - How fast and in what order changes are reversed if the fund moves into surplus, i.e. catchup

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3.6 Outline of systems at different levels of economic development

- The examples below are intended only as illustrations; ***they should not be taken as a template***

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Illustrative pension systems for a low-income country

- Choice will be highly constrained by fiscal and institutional capacity. Low-income countries might not have the capacity to administer an income test
- **First tier**
  - Family, charitable organizations and/or local government
  - Limited poverty relief through transfers to local governments or through a national system that targets by age
- **Second tier**: lacking fiscal and institutional capacity a mandatory contributory plan should generally remain an agenda item for the future
- **Third tier**: voluntary plans should be regulated but, given fiscal constraints, should not receive any tax concessions

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Illustrative pension systems for a middle-income country

- **First tier**
  - A noncontributory, tax-financed pension; or
  - A simple contributory PAYG pension, e.g. a flat-rate pension based on years of contributions
- **Second tier**
  - A publicly organized, earnings-related, defined-benefit pension, or possibly an NDC pension; or
  - A defined-contribution pension as part of a provident fund
- **Third tier**:
  - Voluntary, defined-contribution pensions at the level of the firm or the individual are possible
  - Regulation is important
  - Any tax favouring should be designed to avoid undue regressivity

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Illustrative pension systems for a developed country

- **First tier**
  - A noncontributory, tax-financed pension; or
  - A contributory pension aimed at poverty relief
- **Second tier:** menu includes (separately or in combination)
  - A publicly organized, defined-benefit pension;
  - An NDC system (as in Sweden);
  - An administratively cheap savings plan with access to annuities (e.g UK Nest pensions);
  - Mandatory, funded, industry plans; and/or
  - Funded, defined-contribution individual plans
- **Third tier**.
  - Voluntary, defined-contribution pensions can be organized at the level of the firm, the industry or the individual
  - Regulation, particularly of the funding of defined-benefit plans, is important (and difficult)
  - Any tax favouring should seek to avoid excessive regressivity

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Takeaways

- A country should not
  - Set up a system beyond its fiscal and administrative capability
  - Introduce a mandatory, earnings-related pension until it has a robust capacity to keep records accurately over forty+ years
  - Introduce individual funded accounts until it can regulate investment, accumulation, and annuitisation
- Options widen with greater fiscal and institutional capacity
- That a country is capable of implementing an administratively demanding plan does not mean that such a plan is necessarily superior to a less administratively demanding system. New Zealand has a simple pension system through choice, not constraint

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4 Conclusion: Wider than the pension system

- Often a mistake to analyse a pension plan in isolation
- For many purposes the question, 'Is this a good plan' (e.g. individual accounts) needs to be assessed not only in its own terms, but also in terms of
  - The other plans in the pension system
  - Factors outside the pension system such as the quality of coverage (or lack of it) of medical insurance and long-term care insurance
  - Note that there is wide variation across pensioners in the cost of providing medical or long-term care

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