

Pension design and the failed economics of squirrels

Nicholas Barr

London School of Economics

<http://econ.lse.ac.uk/staff/nb>

Beveridge 2.0. Symposium: Reciprocity across the life-cycle

23 February 2021

Pension design and the failed economics of squirrels

1. The simple argument
2. How does economic reciprocity work?
3. How reliable is reciprocity?
4. Conclusions

1 The simple argument

- Analysis of pensions is often complicated because it concentrates on financial flows
- For many purposes it simplifies to focus on output of goods and services
- Starting point: goods and services consumed by pensioners have to be produced mainly by younger workers
- In that sense interactions between generations are inevitable – today's symposium is about exploring the nature and characteristics of those interactions

Some definitions

- PAYG and funding
 - A Pay-As-You-Go (PAYG) pension plan pays benefit out of current revenues
 - A funded plan pays benefits out of accumulated funds
- Pub economics: something that is obviously right, and everyone knows is right – but it's wrong

A shockingly enduring example of pub economics

- Some examples eventually fade (few now deny that smoking damages health)
- Others, like vampires won't die
- In the present case the argument that
 - Funding makes a generation independent, and in particular, addresses population ageing
 - PAYG, in contrast, is dismissed as a Ponzi scheme, where sooner or later reciprocity fails
 - 40+ years since Barr 1979
 - 20 years since Barr 2000, heavily read IMF paper

Independence and failure of the squirrels model

- Pensioners are interested in consumption, not money
- Only two ways of organising consumption for ones older self
 - Store current production during work life
 - Build a claim on future production
- Storing current production faces problems
 - Cost
 - Uncertainty about future tastes, constraints, life span
 - Services
- Can finesse some of the issues: can store
 - Some goods, e.g. home ownership
 - Some services (those that derive from physical capital)
 - But not services from human capital, e.g. medical care, social care
- Thus the squirrels model fails. Goods and (especially) services consumed by today's pensioners must mostly be produced by today's workers
- Two ways to build a claim on future output
 - Promises, i.e. a PAYG plan
 - Accumulation of financial assets, i.e. a funded plan

2 How does economic reciprocity work?

- Because of lockdown, Qantas is doing well making circular flights from Sydney
- I shall take a leaf out of their book and do a couple of circuits

2.1 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 old can consume only what young people harvest and share
 - The young share, hoping the next generation will do the same for them
 - In this case, the flow of economic benefit is in one direction from younger to older
- Case 2: two commodities: food and cowrie shells
 - To try to avoid having to rely on the altruism of the next generation, 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

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
 - In this case the flow of benefits is in both directions

Population ageing

- Suppose that life expectancy increases, other things unchanged, so 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
- 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

2.2 Back to economics: the Turner Test

- If there are problems in paying for pensions there are **four and only four** solutions
 - Lower average monthly pensions
 - Later retirement at the same monthly pension (another way of reducing pensions)
 - Higher contributions
 - Policies to increase national output
- Any proposal to improve pension finance that does not involve one or more of these approaches is illusory
- The next few slides apply this analysis to different pension regimes

PAYG pensions

- This is Case 1 (though compulsory not voluntary)
- If output remains unchanged
 - Workers have to consume less (higher contributions) and/or
 - Pensioners have to consume less (lower monthly pension or higher pension age with no compensating increase in benefit)

Funding with no increase in productive assets

- This is Case 2
- Simplest case: workers save in cash; after they retire
 - Desired pensioner consumption exceeds desired saving by workers
 - Excess demand in the goods market causes price inflation, reducing the purchasing power of pensioners' savings
- Thus workers do not get the real pension they expect
- The same is true also in more complex cases
 - Bonds: if workers save in bonds
 - Desired bond sales by pensioners exceeds desired purchases of bonds by workers
 - Excess supply in the bond market reduces bond prices, reducing pension accumulations and hence pensioners' purchasing power
 - Equities: tech note: the same is true if workers' pension saving is in equities, if workers offset pension equity holdings by reducing equity holdings elsewhere in their portfolios
 - Open economy

How much difference does an open economy make?

- The idea
 - Pensioners can consume goods made abroad if they can organize a claim on those goods
 - British workers could use some of their retirement savings to buy Australian firms
 - In retirement they could sell their share of the firms' output for Australian money to buy Australian goods which they then import to the UK
 - Not foolproof: depends on future output in Australia, fails if they all retire
- Thus the open-economy argument rests on a series of assumptions about the countries receiving foreign investment
 - Need on average a younger workforce than the transmitting countries
 - They need economic capacity (e.g. a workforce with sufficient skills), economic stability (so that trade can continue reliably), and political stability (so that property rights are respected)
 - Crucially, the scale of recipient countries needs broadly to match that of transmitting countries
- Though international diversification is generally helpful, its impact, except for small economies should not be exaggerated

Funding via increased productive assets

- This is Case 3: if investment in productive assets increases output enough, the analysis in the previous slide becomes:
- Cash accumulation
 - Decline in the savings rate increases aggregate demand
 - But if supply has increased sufficiently, no effect on prices
 - Thus pensioners get the real pension they expect
- Asset accumulation
 - Wages generally keep pace with output
 - Rising wages imply rising demand for financial assets, hence little effect on asset prices, i.e. no ‘asset market meltdown’
 - Again, pensioners get the real pension they expect
- Conclusion
 - The key variable is output
 - Policy should consider the entire menu of policies which promote output growth (next slide)

Broader policies to increase output

- Increasing the productivity of each worker, through
 - (1) Investment in more and/or better physical capital
 - (2) Higher investment in human capital, including that of older workers
- Increasing the number of workers from each age cohort
 - (3) Higher labour force participation at all ages
 - (4) Higher age of retirement
 - (5) Importing labour directly (immigration)
 - (6) Importing labour indirectly (export capital)

3 How reliable is reciprocity?

- Three questions
 - Does accumulating assets always increase output?
 - Is funding safe?
 - Is more saving the right policy?

3.1 Does accumulating assets always work?

- Answer: often, but not always or necessarily
- Three links: higher saving, leads to higher investment, leads to higher output
- Need to test each link
 - Higher saving: but may be partly or wholly offset, hence no fall in consumption (hence no ladders built)
 - Higher investment: but (e.g.) Old Masters, fall in consumption but cowrie shells, not ladders
 - Higher growth: but allocation of capital may be inefficient (the latter days of communism), e.g. too many ladders, each too short to be useful

3.2 Is funding safe?

- Answer: often but not always; ditto PAYG pensions
- Sometimes argued that funded pensions, because based on explicit property rights, are safer than PAYG arrangements, which can be vulnerable to short-term political pressures
- PAYG plans can be run badly (many examples) or well
- Governments can reduce real return to pension funds: they can require fund managers to hold low-yield government financial assets; or they can reduce or withdraw tax privileges. Or they may appropriate pension fund assets with no or inadequate compensation
- In political economy terms, the issue turns on whether pensioners are better able to fight for their share of national output as recipients of current tax revenues or as owners of capital
- PAYG mechanism makes clear both the quarrel over output shares and the dependence of pensioners on younger workers
- Funding hides both issues, but does not remove them

Is social security a Ponzi scheme?

- Price or bribe
 - China visa £151 normal, £178 express; this is a price – transparent, available to all on an equal basis
 - Bribe is non-transparent and specific to individual
- Transparency is key
 - If a Ponzi scheme were transparent nobody would join
 - Social security can make profligate promises, which eventually become unsustainable
 - But social security can have transparent rules and mandatory independent auditing with legally-enshrined rules for addressing projected shortfalls (Canada Pension Plan)
- Bottom line: what matters for both PAYG and funding is good government

Bad government can cause problems for any pension design

- PAYG: profligate promises, e.g. Greece
- Funded pensions: appropriating pension fund assets with inadequate compensation, e.g. Argentina, Hungary
- Strategic incoherence, e.g. the UK
 - Up to age 55: policy based on the assumption that people cannot be relied on to make good choices, hence nudges like auto-enrolment into NEST
 - Age 55+: policy based on assumption that people can be relied on to make good choices, hence pension freedom

Strategic incoherence

‘Unless the government beefs up guidance, new pensions freedoms could undermine auto-enrolment and leave us with a pensions crisis. *If the government was worried about obesity but simultaneously handing out free sweets, you’d have to question either their motives or their competence.*

‘But that’s exactly what the government has done with pensions. Autoenrolment largely exists because we believe that people are either incapable or unwilling to save for their future. At the same time, ‘freedom and choice’ makes the assumption that people are capable of making good decisions about retirement.

‘It doesn’t take a behavioural economist to tell you something’s not right here. The two policies aren’t just contradictory; they are underpinned by diametrically opposed assumptions about the way people think’

Pensions Insight, January/February 2015, <http://www.pensions-institute.org/reports/PI-Top50.pdf>, p. 8, emphasis added

3.3 Is more saving the right policy?

- Answer: often, but not always or necessarily
- Dynamic efficiency
 - Yes, in a country that saves too little ([Economist article](#))
 - That is often the case but not always (China)
 - Sounds nerdy, but saving in China in the early 2000s (about 50% of GDP) was a significant element in the global imbalances that contributed to the 2008 financial and economic crisis
- Intergenerational distribution
 - To increase growth, funding has to increase investment
 - Increased investment now means less consumption now and more consumption later
 - That is often but not always the right policy: in Asher *et al.* (2005) written for the government of China, Peter Diamond and I argue that with high growth rates, increased saving by poorer workers today to make future richer generations even richer is bad policy

But higher saving does not necessarily require funded pensions

- Funded individual accounts are one way to organise saving, but not the only way
- Within the pension system options include
 - Fully-funded individual accounts from competing providers (Chile, Australia)
 - Simpler, cheaper individual accounts with less choice (US Thrift Savings Plan, UK NEST pensions)
 - Fully-funded industry plans (Netherlands)
 - Partially funded national plans (Canada, Sweden)
 - Partially-funded sub-national plans with risk sharing (New Brunswick)
- Outside the pension system:
 - Government debt
 - Sovereign wealth fund

4 Conclusion: Where does this get us on reciprocity?

- Pensioners consume goods mostly produced by younger workers
- Younger workers use capital accumulated by older workers; that capital makes younger workers more productive, hence with higher wages
- The scale of the exchange depends on
 - Saving and investment, i.e. (a) how much today's pensioners had saved and (b) the extent and effectiveness with which those savings were channelled into productive investment
 - Behavioural offsets: pension savings are only part of workers' wealth. If my pension fund invests more in equities I might balance my portfolio by moving my non-pension saving more towards bonds (Diamond and Geanakoplos 2003)

Though pension design is important, two other factors are even more important

- Output growth, hence the importance of ladders in Case 3
- Good government, to assist efficient investment and protect pension rules
 - Good government will run PAYG and/or funded plans responsibly
 - Work by Tim Besley on state capacity is highly relevant in this context
- Pensions are about sharing output between workers and pensioners and are thus inherently about reciprocity
- Good government will handle this task well

Epilogue: Why won't the vampire die?

- Answer: partly because of the vultures
- Over a full career, a 1% annual management charge reduces a pension accumulation (and hence the resulting pension) by 20%

References

- Mukul Asher, Nicholas Barr, Peter Diamond, Edwin Lim and James Mirrlees (2005), *Social Security Reform in China: Issues and Options*, Policy Study of the China Economic Research and Advisory Programme, http://econ.lse.ac.uk/staff/nb/Barr_SocialSecurityStudy2005.pdf
- Nicholas Barr (1979), 'Myths My Grandpa Taught Me', *Three Banks Review*, No 124, December, pp. 27-55, reprinted in N. Barr (ed.) *Economic Theory and the Welfare State*, Edward Elgar Library in Critical Writings in Economics, 2001, Vol. II, pp. 83-111
- Nicholas Barr (2000), '[Reforming Pensions: Myths, Truths, and Policy Choices](#)', Working Paper WP/00/139, International Monetary Fund.
- Nicholas Barr and Peter Diamond (2009), 'Reforming pensions: Principles, analytical errors and policy directions', *International Social Security Review*, Vol. 62, No. 2, pp. 5-29 (also in French, German and Spanish)
- Nicholas Barr and Peter Diamond (2010), *Pension Reform: A Short Guide*, New York and Oxford: Oxford University Press, (also in Chinese, Spanish and Polish)
- Timothy Besley (2020), 'State Capacity, Reciprocity, and the Social Contract', *Econometrica*, Vol. 88, No. 4 (July, 2020), 1307–1335
- Timothy Besley and Torsten Persson (2014), 'The Causes and Consequences of Development Clusters: State Capacity, Peace, and Income', *Annual Review of Economics*, DOI: 10.1146/annurev-economics-080213-041128
- Peter Diamond and John Geanakoplos (2003), 'Social Security Investment in Equities', *American Economic Review*, Vol. 93, No. 4, pp. 1047-1074.
- [Overlapping generations: Kicking the can down an endless road](#), *The Economist*, 31 August 2017.