PENSION REFORM FOR AGGREGATE WELFARE

KEY POLICY INSIGHT

The security of retirement income is best served by reliance on market pricing mechanisms, funding policies that approximate what individuals would otherwise do, clear metrics to measure progress towards secure retirement, long-term commitment to policies, and transparency about when and how rules could change.

This policy brief is the 3rd in a series discussing pension policy design through the lens of quantitative economics. The 1st brief demonstrated that there is no global consensus on the optimal design of pension policy. The 2nd brief concluded that lifecycle portfolio choice should be the starting point for pension policy analysis.

THE PENSION POLICY PUZZLE

Pension policy must solve four problems, regardless of whether it is a defined benefit (DB) or defined contribution (DC) system.

- Sufficient annual retirement income
- Sufficient assets for the entire retirement period
- Incentives to save during working life
- Provision for unexpectedly low asset returns

The first of these problems represents the tradeoff between consumption and saving during the working life. A solution might be to design pension policy so that the average consumer has sufficient savings to reach the average mortality date.

The second is an intra-generational risk-sharing...
problem, attributable to different mortality rates within age cohorts. Pension policy might be designed to price annuities that shift assets within age cohorts.¹

The third is a moral hazard problem. Pension policy should be designed so that no consumers have incentives to reduce savings. For example, a policy that guaranteed retirement income without also requiring the consumer to save during his or her working life would provide a disincentive to save.

The fourth is a potential intergenerational risk-sharing problem. This challenge occurs when asset returns vary across generations. Differences in asset returns lead to differences in asset accumulation and retirement income across generations.²

Solutions to all of these problems rest on properly designed incentive structures and pricing mechanisms. Inadequate pricing mechanisms can lead to misallocation of resources. For example, insufficient savings can be the result of policies that overvalue assets or undervalue liabilities. Similarly, policies that overvalue annuities can lead to underinsurance of longevity risk.

**SOLVING THE PENSION POLICY PUZZLE**

Practically speaking, pension solutions are delivered by market participants. Thus, pension policies designed to solve the four pension problems must respect the objectives of all market participants (or agents). The three important agents for policymakers to consider are beneficiaries, pension plan sponsors, and investment managers. The policymaker’s tools are prices and constraints.³

The first set of agents (and perhaps most important) is pension beneficiaries. As discussed in the second brief, the objective of pension beneficiaries is to maximize the expected utility of lifetime consumption. The solution to this problem is a sequence (across time) for consumption and savings.

---

**“Raising the Retirement Age: A Sneaky Way to Reduce Social Security Benefits”**

*The Atlantic, September 4, 2015*

---

**“Chicago’s Plan to Change Pension Benefits Ruled Unconstitutional”**

*The New York Times, July 24, 2015*

The second set of agents is pension plan sponsors. Plan sponsors make pension contributions to pension beneficiaries.⁴ For private pension plans, contributions are paid from corporate earnings. By contrast, public pension contributions are paid through taxes. The underlying corporate objective is to maximize profit, while the public fund objective is to maintain a balanced budget.⁵ Corporate plan sponsors trade off pension contributions against shareholder dividends, while public plan sponsors trade off alternative tax and spending policies. Note that the sequence of contributions influences the sequence of consumption and savings choices of pension beneficiaries.

The final set of agents is investment managers, who produce investment returns for beneficiaries. Their success or failure as businesses depends on their ability to deliver investment solutions to pension beneficiaries. Their motive is to maximize the discounted value of current and future profits. Their sequence of profits depends on the level of savings chosen by pension beneficiaries.

The role of the policymaker is to choose policies (e.g. rules on how assets and pension benefits are valued) that (a) reflect the underlying incentives of agents and (b) solve the four pension problems. Those policies can include rules on pricing or constraints on agents. For example, a policy that prescribes a savings rule (i.e. contribution rates) is a constraint on behavior (on plan sponsors and beneficiaries), but may also solve the moral hazard problem.

**THREE KEYS TO GOOD PENSION POLICY**

The three key elements of good pension policy are transparency, clear rules (including conditions under which the rules can change), and metrics for evaluating the impact of the policy across time.

Transparency is most easily achieved when market prices, which are observed by all agents, are the basis for asset and liability valuations. Moreover, market prices

---

**AUTHORS**

**KURT WINKELMANN** is founder and CEO of Navega Strategies, LLC. Prior to starting Navega, he was Managing Director and Global Head of Research at MSCI and a Managing Director at Goldman Sachs Asset Management. He earned his Ph.D. in economics at the University of Minnesota, and is the chair of the Heller-Hurwicz Economics Advisory Board.

**JAHIZ BARLAS** is Vice President of Multi-Asset Research at MSCI. He earned his Ph.D. in economics at the University of Minnesota.
cannot be easily manipulated to serve other interests. By contrast, actuarial target rates of return, or valuation smoothing, can be used by one group of agents, potentially at the expense of pension beneficiaries. As the headlines in this note suggest, the use of nonmarket pricing can postpone, but not fix, pension funding problems.

In addition to transparency on pricing, policymakers can set rules on contribution (i.e. saving) rates, penalties on underfunded plans and guidelines for investment policy. Each of these can help resolve the four pension puzzles. For example, policies on plan sponsor contributions to DC plans and default options for DC investors can both help to resolve the consumption/saving problem and the moral hazard problem.

As well as providing structure for savings rates, policymakers can also provide metrics for pension performance. These yardsticks should be long-term in nature, and should provide a means for individual investors to evaluate whether they are accumulating sufficient assets.

For DB plans, the funding ratio\textsuperscript{6} is already used as a metric for pension performance. The value of the funding ratio will change as a function of investment returns and the level of interest rates. For example, a period of poor investment returns combined with low interest rates could lead to a pension funding ratio of less than 100\%. A role for policymakers can be derived from the volatility in pension fund ratios. An example of such a role is to set (a) target funding ratios to measure plan health and (b) penalties (in the form of increased contributions) if actual funding ratios fall below these levels.

**IMPLICATIONS FOR POLICYMAKERS**

This pension brief series began by proposing that the methods of quantitative economics be put to work on pension policy design. Lifecycle portfolio choice can be used to better understand the savings, investment and consumption decisions of individuals. In particular, those models should be used to evaluate alternative policies regarding savings and contribution rates. The impact of agency issues on DB investment decisions can be better understood by applying dynamic principal agent models. Finally, contractual structures that align interests between beneficiaries and investment managers can be analyzed with mechanism design theory. Good pension policies will be transparent, have clear metrics for measuring progress and will be based on market pricing.

Although it is speculation, it is probable that a DC-oriented system will emerge from the application of these methods to pension policy design. DC systems are already close to the ideal of transparent, and market-based, valuation. Moreover, DC systems can potentially better align interests through the reduction in the number of decision makers. Going forward, pension policy should focus on mechanisms regarding savings rates, default investment options and alignment of interests between beneficiaries and investment managers. Careful consideration should be given to transparency, cost and risk.

---

"No Love, Actuary - a Report on American Pension Funds is Controversially Shelved"

- The Economist, August 13, 2016
The Heller-Hurwicz Economics Institute is a new global initiative in the College of Liberal Arts at the University of Minnesota created to inform and influence public policy by supporting and promoting frontier economic research and by communicating our findings to leading academics, policymakers, and business executives around the world.

FOOTNOTES

1 Members of a specific generation would, in principle, be willing to buy insurance against the possibility of outliving their savings.

2 When individuals are solely responsible for savings, they can respond to low asset returns by either working longer or reducing retirement spending. When risk is shared across generations, then retirement dates and spending levels can be kept fixed. Periods of low investment returns are presumably compensated by future periods of higher returns.

3 Pension policymakers can also impose penalties on plans that are insufficiently funded. A penalty, though, is also a price.

4 Contributions come in the form of direct contributions for DB plans, or matching contributions for DC plans.


6 The funding ratio is the value of pension assets divided by the value of pension liabilities.

REFERENCES


Policy briefs from the Heller-Hurwicz Economics Institute are intended to convey policy relevant research done by researchers associated with the Institute and do not represent the position of the Institute.