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Market Structure and Challenges for Annuities in India

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The published version of this Working Paper may be found in the 2011 publication: *Securing Lifelong Retirement Income*.

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Abstract

India will need to develop a robust annuity market if it is to enable its rapidly aging population to address longevity risk. As the fraction aged triples by 2050, driving a huge potential demand for annuity-type products that will need to be matched by responses from annuity providers. Developing a deeper and broader market for annuities will require disaggregated morbidity and mortality databases for better price discovery; supply of financial instruments enabling better matching of assets and long-term liabilities; innovations in annuity products and distribution channels; greater financial literacy, and more robust regulation.

Disciplines

Economics

Comments

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Securing Lifelong Retirement Income: Global Annuity Markets and Policy

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Chapter 3

Market Structure and Challenges for Annuities in India

Mukul G. Asher and Deepa Vasudevan

Pension systems address longevity and inflation risks in various ways. For the most part, the richer OECD countries tend to rely on social insurance programs to address longevity risk, and to address the inflation risk, some countries apply price or wage indexation to pensions, while others rely on ad hoc increases in nominal pension benefits. In India, most people do not benefit from nor are they covered by pension (and healthcare) benefits on a universal basis. Typically, only the armed forces, civil servants, and some private sector employees have access to pensions. As a result, longevity and inflation risks are mitigated only for a small proportion of the labor force. This chapter discusses the need for robust annuity markets in India, along with an overview of annuity products and providers. We also outline challenges facing the development of the industry in India along with reform directions.

The rationale for robust annuity markets in India

In India, the insurance industry has divided deferred annuities into two phases from the risk management perspective, focusing on the accumulation phase and the payout phase, and there are often different providers of these two phases. Here, we understand the annuity to be an insurance product involving periodic payments during retirement that addresses longevity risk (some annuity products also address inflation risk and survivor risk). Annuities may be immediate at the time of retirement, deferred so purchase takes place during the working years, or within a specified time after retirement. Many types of annuities are normally priced on the basis of product features as well as interest rates and other economic variables. Terms and conditions of annuity products, particularly the level and duration of income stream, provided from a given capital sum, have equity and adequacy implications.

TABLE 3.1 Labor force and demographic indicators in India

Demographic indicator	Time period	Value
Life expectancy at birth (years)	2009[a]	69.89
Male	2009[a]	67.46
Female	2009[a]	72.61
Male life expectancy at age 60 (years)	2000–5	17
Female life expectancy at age 60 (years)	2000–5	19
Total fertility rate (number of children)[b]	2007	2.68
Population (million)	2001	1,028
Females (million)	2001	496
Males (million)	2001	532
Sex ratio (females per thousand males)	2001	933
Population above age 60 (million)	2005	79.4
Population above age 60 (million)	2050	315.6
Total workforce (million)	2001	424.6
Urban workforce (million)	2001	97.7
Rural workforce (million)	2001	326.9

[a] Estimate.
[b] Total fertility rate is defined as the average number of live childbirths over a woman's lifetime.
Source: Central Intelligence Agency (2009), United Nations Population Fund (2008, 2009), Office of the Registrar General (2001).

In our view, there are several reasons why India would benefit from developing a robust annuity market. First, India is experiencing a demographic transition characterized by declining fertility rate and increasing life expectancy. People are having fewer children but live much longer than before, so the population is aging rapidly. Projections indicate that the proportion of population aged 65 or older that may be classified as retired will rise to 8 percent in 2031, and it will rise to over 13 percent by 2051. In absolute terms, the number of persons aged 65 or older will grow from 62.5 million in 2011, to 121.8 million in 2031, and to about 229.4 million in 2051.[1] There is however significant interstate variations in fertility rate; states such as Kerala and Tamil Nadu, which have below-average fertility rates, are expected to age earlier than other states (Table 3.1).[2]

Both the level and the pace of aging are likely to provide significant challenges. Life expectancy at 60 years was anticipated at 17.5 years in 2001; by 2006, it was revised upward to 19 years.[3] Longevity will rise further, particularly for the salaried middle and upper class with access to superior education and health facilities. Uncertainty in longevity trends is, however, complicating the task of pricing annuities in India. This is in part because the combination of lower fertility and higher life expectancy creates longevity risk, or the risk that retirees will outlive their savings. Traditional family structures addressed the problem by providing for the financial needs of dependents through the income of earning members of the family. Frequent mobility of labor and migration from rural to urban jobs has broken down traditional extended families, and created nuclear family units in which the degree of self-reliance by nuclear families in providing for their retirement needs is expected to increase.

Another factor is that in the future, India will find it increasingly unsustainable to maintain and expand its existing defined benefit (DB) pensions. With fewer workers expected to experience lifetime (or even long-term) employment with a single employer and pension plan sponsor, the portable defined contribution (DC) model offering greater flexibility has become more attractive. While precise data are unavailable, it appears that the share of contract workers who receive lower or no pension and healthcare benefits is rising, in both public and private sectors in India. As a result, these workers will need to rely on their own savings to a greater extent in financing retirement, boosting the demand for annuities. Furthermore, the civil servant DB pension schemes are economically unsustainable. Central and state government budgets are already burdened with large fiscal deficits, and the resources needed to address the retirement needs of vast numbers of elderly people are likely to be too enormous to be fiscally sustainable. The need to refocus on the goals of the Fiscal Responsibility and Budget Management (FRBM) Acts by the Centre and several states may result in further expenditure contraction and debt curtailment. As a result, state-financed income support will be curtailed in the future, yet elderly retired persons will need income support for longer periods of time.

Another consideration is that India has been projected to need to create 140 million jobs between 2005 and 2020, nearly 30 percent of the world's total, and most of the new jobs will be in the informal sector (ILO 2008). Many of the informal sector workers will have some ability to save for their retirement, thus generating a demand for annuities.[4] These workers require avenues for retirement saving which generate reasonable market-based returns and in which they have confidence.

The effectiveness of the New Pension Scheme (NPS) launched in 2004 will also require the existence of well-developed and fairly priced annuities. NPS is a DC system of individual pension accounts jointly funded by the employer and employee, each of whom contributes 10 percent of gross salary. Members can select a pension fund manager and allocate funds to an investment scheme of their choice. A key feature of the NPS is that withdrawals are not normally permitted until the age of 60. At retirement, accumulated balances are divided into two components: at least 40 percent of the account balance must be mandatorily used for purchasing annuities;

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and the remainder may be withdrawn as a lump sum. Investors have the flexibility to leave the scheme before attaining the age of 60, but in that case they are required to annuitize 80 percent of their accumulated balance. Thus, it is expected that there should be a variety of competitively priced annuity options to suit the retirement needs of different members. The NPS is mandatory only for central government workers, but twenty-three state governments have already adopted it for their employees. Moreover, since May 2009 the NPS has been made available to any Indian citizen who wants to subscribe to it on a voluntary basis. Therefore, the reach of NPS is potentially very large. As membership of NPS grows, the number of persons with requirements for annuitizing is likely to increase substantially.[5]

Annuities are also relevant even for those who do not participate in the NPS. Many self-employed professionals and small business owners would find annuity products useful in managing retirement risks. In addition, micro-pension schemes are expected to have a limited but important function in providing retirement income, and these also need to address payout options including annuities (Asher and Shankar 2007).

Annuity markets in India: an overview

As noted earlier, the potential demand for annuities in India is large. Next, we show that the market for annuities is not well developed and it lacks the depth and volume that will be necessary to efficiently administer annuities for future retirees.

Annuities may be classified on the basis of the type and periodicity of payouts, as well as by the additional benefits related to the annuity stream. So in the case of an immediate annuity, payouts commence at once on purchase; in the case of a deferred annuity, payouts start at some prescribed future date. The payout may be made as a single lump sum, or fixed periodic amounts, or variable amounts linked to an underlying index of assets or prices. Payouts may also cease after a specified period, continue for the duration of the annuitant's life, or pass on to nominated survivors at a reduced rate (see Figure 3.1).

The basic annuity product is also enhanced by adding other benefits. For instance, inflation-indexed benefits address inflation risk by maintaining, partially or fully, the real value of future payouts. Variable annuities offer investors flexibility to exercise some choice over the underlying assets, in return for riskier and non-fixed income streams. A relatively new class of annuities has recently developed in the United States, the United Kingdom, and Australia, to cater to those with reduced life spans. Termed 'enhanced' annuities, they provide additional payouts to high-risk lives;

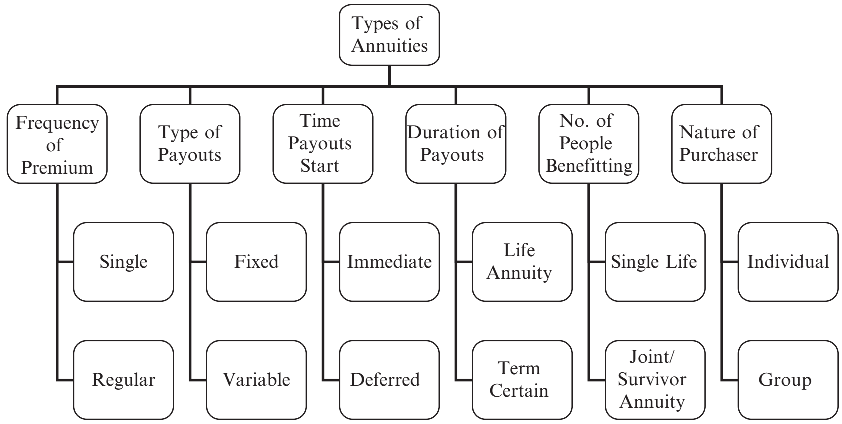

Figure 3.1 Types of annuities.
Source: Authors' adaptation of data from Swiss RE(2007).

also available are 'impaired' annuities which pay substantially higher amounts to individuals with proven serious medical conditions.[6] In this way, annuities can be created across the risk spectrum, ranging from fairly simple structures with relatively low risk to structures that expose retirees to higher risk and provide higher incomes. Some annuity products also combine survivor and other benefits. An annuity is thus like any other product where design features impact on the annuity benefits which can be purchased from a given capital sum. Therefore, price discovery for different annuity products reflecting fair actuarial value is important.

In India, there are currently twenty-three life insurance companies, of which twenty-two are in the private sector. The Life Insurance Corporation of India (LIC) is the sole annuity provider in the public sector, and is the market leader. According to the Insurance Regulatory and Development Authority (IRDA 2010), of the 3.2 million general annuity and pension plans in force in March 2007, about 2.9 million, or 91 percent, were written by LIC.[7] It appears that annuities constitute a relatively small segment of the insurance sector.[8] Life insurance products are likely the most important in terms of volume as well as premiums generated, but there has been a sharp rise in the purchase of pension policies of late. These policies are separately classified and are not included in annuities. A disaggregation of first-year premiums underwritten during 2007–8 suggests that annuity products contributed only 2.75 percent of the total premium underwritten, whereas life insurance and pension products contributed 59.5 and 37.6 percent respectively (IRDA 2008). Pension products are relevant during the accumulation phase, when they facilitate regular saving for the purpose of providing for retirement. At retirement or the vesting stage, the holder of a pension plan has the option to purchase one of the several annuity options.[9] The rising demand for pension products therefore can potentially translate into higher demand for annuities in the future (Table 3A.1)

The supply side of the market has witnessed some product innovation. For instance, almost all insurers now offer joint life annuities which provide survivors' benefits,[10] and increasing annuities, which are designed to at least partially mitigate the impact of inflation on annuity streams. Deferred plans are available to allow individuals to choose the age from which they wish to receive annuity streams; such plans may be viewed as saving with annuity products. Annuities that return the initial capital on the death of the purchaser within a specified period are widely available. Each product innovation, however, impacts on the premium for the investor; it permits a variety of risk-management preferences to be addressed from the perspective of the consumer.[11] Typically, Indian insurance companies offer an 'open market option' that permits investors in pension accumulation plans to shop for the best annuity provider at the time of vesting. This practice promotes competition and transparency in the market.

Annuity demand is typically low even in markets such as the United Kingdom where compulsory annuitization norms have resulted in better understanding of the benefits of annuitization.[12] The observed 'annuity demand puzzle' reflects a clear preference to retain some or all pension wealth in non-annuity forms. Several reasons have been advanced in the literature for this phenomenon. First is that annuities markets often suffer from adverse selection, created by the tendency of those who do not expect to live long to avoid buying annuities, thus limiting the pool to customers with substantial longevity risk. Since individuals have private information about their life expectancies that may not be available to the insurance company, there is a tendency for those with higher expected life expectancies to be more motivated to purchase annuities. On the supply side, the prevalence of asymmetric information in the annuity market makes its pricing more complex (Akerlof 1970). The outcome is that buyers often perceive annuities as being overpriced.

Additionally, annuities are usually illiquid so annuitants forfeit the option to liquidate and exit in case of unforeseen expenditures. This inherent inflexibility may deter retirees who desire greater control over their consumption decisions. Further, unlike traditional fixed income assets, most annuities do not return the initial principal used to purchase an annuity so that the products do not enable individuals to leave a bequest.[13] If annuities are not mandatory, retirees tend to opt for higher return instruments such as bank deposits and small saving instruments. However, if annuity returns are made relatively attractive and its benefits are better understood, demand may increase.

TABLE 3A.1 Annuity products offered in India

Annuity options	LIC	SBI LIFE – Immediate Annuity	ICICI Prudential – Immediate Annuity	Max New York Life	Bajaj Allianz Life – Pension Guarantee Scheme	Met Life India
Annuity for life	Yes	Yes	Yes	Yes	Yes	Yes
Life annuity with return of purchase price on death of annuitant	Yes	Yes	Yes	Yes	Yes	Yes
Life annuity guaranteed for a term, and then payable for life	Annuity certain for 5/10/15/20 years and after that payable for life	Annuity certain for 5/10/15 years and after that payable for life	Annuity certain for 5/10/15 years and after that payable for life	Annuity certain for 5/10/15/20 years and after that payable for life	Annuity certain for 5/10/15/20 years and after that payable for life	Annuity certain for 5/10/15 years and after that payable for life
Increasing annuity	Annuity increases by 3% every year	Annuity increases by 1%, 2%, or 3% every year	NA	NA	NA	Annuity increases by 3% every year
Joint-Survivor Annuity 1	100% of annuity payable to spouse on death of annuitant	100% of annuity payable to spouse on death of annuitant	100% of annuity payable to spouse on death of annuitant	NA	NA	100% of annuity payable to spouse on death of annuitant
Joint-Survivor Annuity 2	50% of annuity payable to spouse on death of annuitant	50% of annuity payable to spouse on death of annuitant	100% of annuity payable to spouse on death of annuitant, with purchase price returned to nominee after death of spouse	NA	NA	NA

Source: Authors' calculations from several industry sites.

Key challenges for India

India faces several formidable challenges in developing deep and broad annuity markets which can address longevity and related risks in an efficient, equitable, and affordable manner.

Actuarial issues

India is experiencing sustained improvement in longevity, though its speed and extent remains uncertain.[14] Given India's heterogeneity of ethnic and occupational groups, annuity providers face considerable challenges in pricing different annuity products.

One problem is that life insurance companies, the only ones authorized to provide annuities, rely on standardized mortality tables to estimate this variable. The common industry standard is LIC's computation of Ultimate Mortality Rates of Annuitants (1996–8), which has increasingly become unsuitable for the following reasons (see Table 3A.2). Yet the mortality rates used for longevity prediction were calculated nearly a decade ago, and hence they are not up to date. Since then, advances in health facilities, nutrition, and overall income levels have changed, and these are certain to have improved life expectancy at retirement. Furthermore, official mortality statistics are based on mortality patterns of occupational pensioners, who are relatively better-off salaried individuals. They are therefore likely to have higher life expectancies as compared to those not eligible for occupational pensions. Since annuity providers realize that price calculations based on underestimated life expectancies would result in underpriced annuities, they have an incentive to mark up their prices to cover the probability that the annuitant would live considerably longer than predicted.

It is also important to note that the official life tables do not adjust for variations in mortality across population groups such as urban and rural dwellers, unskilled versus highly educated labor, and by sex. For instance, women tend to live longer than men: on attaining 60 years, women have a life expectancy of over 17 years, whereas men are expected to live for only another 15.7 years. Applying uniform rates across persons with different longevity risks distorts the demand for annuities. Workers with low expected longevity will be priced out of the market, thus reducing the number of retirees who voluntarily opt for annuities. And if purchase of annuities is mandatory, there will be a perverse transfer of resources from low-risk (short-lived) to high-risk (long-lived) investors.

Miscalculation of longevity trends can seriously impair profits of life insurance companies if they underestimate longevity, or provide lower than actuarially fair annuity benefits to customers if longevity is overesti-

TABLE 3A.2 Mortality tables and life expectancy calculations for India

Age (years)	Mortality rate	Age (years)	Mortality rate	Age (years)	Mortality rate
20	0.000919	53	0.006058	86	0.115136
21	0.000961	54	0.00673	87	0.123723
22	0.000999	55	0.007401	88	0.132652
23	0.001033	56	0.008069	89	0.141924
24	0.001063	57	0.00871	90	0.151539
25	0.00109	58	0.009397	91	0.161495
26	0.001113	59	0.01013	92	0.171794
27	0.001132	60	0.010907	93	0.182436
28	0.001147	61	0.011721	94	0.193419
29	0.001159	62	0.01175	95	0.204746
30	0.001166	63	0.01212	96	0.216414
31	0.00117	64	0.012833	97	0.228425
32	0.00117	65	0.013889	98	0.240778
33	0.001171	66	0.015286	99	0.253473
34	0.001201	67	0.017026	100	0.266511
35	0.001246	68	0.019109	101	0.279892
36	0.001308	69	0.021534	102	0.293614
37	0.001387	70	0.024301	103	0.307679
38	0.001482	71	0.02741	104	0.322087
39	0.001593	72	0.030862	105	0.336836
40	0.001721	73	0.034656	106	0.351928
41	0.001865	74	0.038793	107	0.367363
42	0.002053	75	0.043272	108	0.383139
43	0.002247	76	0.048093	109	0.399258
44	0.002418	77	0.053257	110	0.41572
45	0.002602	78	0.058763	111	0.432524
46	0.002832	79	0.064611	112	0.44967
47	0.00311	80	0.070802	113	0.467159
48	0.003438	81	0.077335	114	0.484989
49	0.003816	82	0.08421	115	0.503163
50	0.004243	83	0.091428	116	0.521678
51	0.004719	84	0.098988	117	0.540536
52	0.005386	85	0.106891	118	0.559737

Source: Institute of Actuaries of India (2010).

mated. James and Sane (2003) provide empirical evidence on annuity pricing policies by the (then monopoly provider) LIC which used inappropriate mortality tables and did not sufficiently anticipate the interest rate declines of 2001–2. They estimate that the money's worth ratio (MWR), defined as the ratio of the expected discounted flow of annuity benefits divided by initial capital invested, fell from over 1 to between 0.8 and 0.9 for new annuity purchasers in 2002–3.

More robust and disaggregated mortality and morbidity data would enable better price discovery in the annuities market, particularly based on the mortality and claim experiences of LIC as well as private insurers over a recent time period.[15] Such tables, regarded in other countries as a public good, could be made widely and easily accessible to all stakeholders, including researchers. In such an event, MWR analysis could be regularly conducted and publicized.

Distribution channels for annuities

The marketing and distribution of annuities, like all insurance products, depends heavily on insurance agents. Individual agents in India procured 72 percent of the total new life business premiums in 2007–8; corporate agents (such as banks) distributed about 11 percent; and brokers and direct selling accounted for the remaining (IRDA 2008). Individual agents are a critical customer interface point for the insurance industry, and they play a key role in influencing the final purchase decision, especially for individual life and pension policies. Therefore, they need to be trained to disseminate knowledge about the benefits of annuities.

The present incentive structure for agents is often skewed in favor of non-annuity insurance products. A life insurance agent earns a commission of 2 percent of the initial amount on a single premium annuity product. On annuities with periodic premium payments, the commissions allowed are 7.5 percent of premiums paid in the first year and 5 percent of premiums paid in subsequent years. By contrast, a typical whole life endowment policy enables an agent to earn a premium of 25 percent of the first year's premium; 7.5 percent of the second and third year's premiums paid; and 5 percent thereafter until maturity. The large differential in commissions earned increases the insurance agent's incentive to promote non-annuity products.

A solution to this anomaly need not lie in increasing commissions; indeed, this would ultimately increase costs to the annuitant. Instead what would be more efficient is the development of low-cost, technology-intensive distribution channels. For instance, an initiative to restructure India Post, which has a countrywide presence, would help it act as an efficient distribution channel for a wide variety of financial products including annuities. Of course, this would also require the organizational restructuring and technological upgrading of the management information systems of this enterprise.

Establishment of other distribution channels will further develop the market. For instance, multilevel marketing processes or internet-based sales could be developed as additional distribution models (Pejawar 2008). The concept of 'telcassurance,' or selling insurance through telecom distribution channels, can also be adopted for the annuity product space. In this setting, the range of possible annuity sellers would include high-end company-owned exclusive telecom franchises, smaller telecom stores, and neighborhood shops in rural and semi-urban areas.[16] The development of several distribution channels could help enhance annuity penetration, improve awareness of retirement-financing instruments, and facilitate competition.

As annuity markets grow, it may also be useful to set up a national electronic system for comparing standardized annuity rate quotations from different providers. India's experience with nationwide electronic platforms for the National Stock Exchange of India resulted in enhanced transparency and lowering of trading costs, and this may provide a good precedent for annuity markets. For instance, an electronic bidding system for annuity quotes operates successfully in Chile, and it allows individuals to make more informed choices.[17]

Phased or programmed withdrawals

Annuity-like products such as phased withdrawals could also be developed by the industry. A typical phased withdrawal product involves accumulated sums invested in an individual retirement account that are withdrawn periodically over a number of years (typically 15–20). Unlike annuities, under a programmed withdrawal arrangement, the funds are not transferred into a common risk pool. This option is particularly attractive to those with relatively small balances (in the Indian context, less than INR 5 lakh capital sum in 2007 prices) and for those who do not anticipate a long life in retirement. Phased withdrawal products could be a possible investment option for the lump sum portion of saving accumulated under the NPS. Phased withdrawal arrangements could also be incorporated into the design of small saving schemes.[18] Allowing phased withdrawals is feasible in Chile, where at retirement, individuals must opt either for an annuity or a programmed (phased) withdrawal. In that case, about two-thirds of workers chose to annuitize, and phased withdrawals are more prevalent among workers with lower incomes and saving.[19] Nevertheless, such a phased withdrawal scheme requires careful design to ensure that the purchasers do not outlive their retirement savings. The design would also need to address concerns of the tax authority that consumers do not excessively defer withdrawal to avoid taxes.[20]

A multipler social security system could assist in addressing the possibility that phased withdrawals may end even while the person requires retirement support. India could strengthen social pensions and social assistance schemes accessed by the elderly poor to address this issue. India may also consider developing annuity products which could be repriced with different risk-sharing mechanisms between the annuity purchasers, providers, and the government. Additionally, reverse mortgage products that permit retirees to access the equity in their housing may also merit consideration. A commercial bank in India has introduced a reverse mortgage loan annuity (RMLA) product, which combines annuity with simple reverse mortgage and thereby addresses longevity risk. To date, however, the response in India has been relatively limited.

Inflation risk

Annuity payouts may continue for twenty years or more after retirement, and if they are fixed in nominal terms, inflation may lead to a steady erosion of value. Increasing longevity compounds the cumulative impact of even low inflation rates.[21] Inflation losses are particularly damaging for retirees because they may not be able to make up by increasing their earnings or saving power.

Current annuity options in India only partially address such inflation risks. For instance, SBI Life offers payouts with annual increments of 1, 2, or 3 percent, but since inflation is usually much higher, these do not fully hedge this risk. To date, annuity suppliers have been averse to issuing inflation-indexed annuities because of the absence of inflation hedges in the market. The complete absence of indexed instruments may create incentives for annuity providers to hedge against inflation by investing in riskier assets such as real estate, equity, or high-return derivatives; or charge higher rates for taking on inflation risk. To develop better inflation-linked products, it would be helpful for indexed bonds to be issued by the Reserve Bank of India. Such bonds do, however, shift the risk of unanticipated inflation to society at large which then manifests as contingent fiscal liability.

Market risks

This refers to the possibility of earning lower-than-expected returns due to adverse changes in asset prices (interest rates, exchange rates, equity prices, real estate prices) than expected, during the term of the products. Annuities are long-term financial instruments and are consequently subject to higher market risk than short duration products. In our view, the most challenging issue for annuity underwriters is to match annuity-related liabilities with an appropriate pool of long-term investments. In India, however, most annuity payouts tend to be fixed and guaranteed at purchase, so annuity providers invest predominantly in long-term corporate bonds and government securities.

An adequate supply of bonds, both government and corporate, with longer term maturities (at least fifteen years) would be necessary to address asset–liability mismatches of annuity issuers in India.[22] As the long-term debt market is limited to infrequent issues of long-term government debt, insurance companies that sell life annuities are substantially invested in assets with maturities lower than their future annuity liabilities. As a result, annuity providers are exposed to reinvestment risk, and are likely to safeguard their position by assigning a higher pricing to annuities.

The mandatory annuitization regulation of NPS will result in a steep growth in demand for annuities in the future as the present cohort of members reach retirement. As a result, disproportionate proportions of liabilities of the life insurance companies in India would be in the form of annuity products. To avoid asset–liability mismatch, asset portfolios would need to be adjusted accordingly. Thus, the creation of a large pool of long-term assets, at least partly indexed to inflation, would be critical to sustain the growth of annuities.

It is also worth noting that the global economic crisis has increased the market risk of annuities. In particular, the steep decline in Indian equity markets[23] has emphasized the need for insurance companies to find alternative investment avenues that can provide sustained returns commensurate with those historically obtained from equities.

Annuitization age

Annuity returns are a function of prevailing interest rates at the time of annuity purchase, which in turn depend on the macroeconomy. Thus, two persons retiring at different times with the same accumulated savings may earn different returns from the same annuity scheme interest rates. If the purchase of annuities at the time of retirement is to be made mandatory, then annuitants will forfeit the option to defer the purchase of annuities until rates are favorable. This provision may significantly reduce the incomes available to those who retire during periods of economic downturns and low interest rates.

So as to mitigate this risk, retirees could be permitted to hold the annuity portion in their retirement accounts until market conditions are favorable; and compulsorily annuitize by, say, the age of 70.[24] However, retirees are likely to need professional advice on timing the market; the Pension Fund

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Regulatory and Development Authority (PFRDA) will have to play an important role in educating and guiding investors particularly in the early stages of development of the annuities market.

Financial education and literacy

The need for financial education and retirement planning information for investors as well as pension advisors, distributors, and employers is critical.[25] PFRDA and IRDA, in association with employers and insurance companies, must ensure that annuity purchasers have access to information about the benefits and costs of different schemes and providers. Improved financial literacy has been observed to lead to greater participation as well as higher average saving in other countries.[26]

Conclusion

In this chapter, we have argued that India will need to develop wider and deeper annuity markets to more satisfactorily address longevity and other risks during the retirement period. Rapid population aging and rising life expectancies will lead to potentially huge demand for conventional annuity and annuity-like products such as programmed withdrawal and conversion of housing equity into retirement income. As the formal sector grows, where long-term employer–employee relationships are prevalent, pension formation will increase. Mandatory annuitization under the NPS Scheme could boost demand for annuities. Consequently, while India's annuity market is currently small, it is expected to grow rapidly.

Nevertheless, there are several key challenges that must be tackled to enhance the market's functioning. More mortality and morbidity data on a disaggregated basis are required to price annuity type products more accurately and flexibly for different groups. Greater innovation in both products and distribution channels would reduce transaction costs and accommodate different risk preferences. If annuities are to be mandated, it would be useful to make the age for annuitization flexible, so as to mitigate the impact of macroeconomic cycles. And last, but surely not least, there is a great need for better financial education and literacy so people better understand how to save for retirement and decumulate their assets in old age. India will be better able to address these challenges if the number and variety of players specializing in different segments of the insurance industry grows substantially. Further, insurance regulation would benefit by becoming more robust and transparent, benchmarked to best-practice international standards.

Notes

1. The population projections cited herein were made for two different assumptions of the future total fertility rate (TFR). Scenario A assumes that states with higher current TFRs would decline to the 'replacement level' of 2.1 children, and Scenario B assumes that the TFR will decline to 1.85 children, close to the levels observed in states such as Kerala. Both scenarios are consistent with the goal of India's National Population Policy 2000, that fertility will decline to the point where, on an average, there are two children per family. Our chapter relies on data for Scenario B and hence projections are more optimistic (Population Reference Bureau 2008).
2. The Population Reference Bureau (2008) projects that the proportion of population aged 65 or older will exceed the proportion of population under age 15 by 2041 in Kerala and by 2051 in Tamil Nadu.
3. This is based on an extrapolation of Census data.
4. A significant minority of these workers will, however, be lifetime poor and hence will need to rely on social assistance programs whose effectiveness and viability will depend on fiscal position as well as the efficient delivery of government services.
5. The issue of whether NPS should contain mandatory annuitization provision is discussed later in the chapter.
6. A detailed explanation of types of annuities and the benefits of each, as well as factors affecting annuities, is available from the Pension Annuity Advisory Service at http://www.pension-annuity.co.uk/
7. This data has to be interpreted carefully. When a consumer buys a pension product, he buys an accumulation product and it is counted as 'pension'. When this pension product vests, there being no guarantees and with the possibility of the annuity provider being different, it is counted as annuity.
8. Data on the number of annuities outstanding is currently not available in India.
9. Most pension plans do not require participants to annuitize the entire corpus; instead, upon vesting, the participant has the option to withdraw part of the proceeds as a lump sum.
10. These are vital as women as a group live longer but have lower exposure (and remuneration) from labor market activities.
11. Table 3A.1 highlights some of the annuity products offered by a sample of insurance companies in India.
12. The compulsory annuities market is estimated to be ten times the size of the voluntary annuities market. The profile of a typical annuitant in the two markets is vastly different: a purchaser of a voluntary annuity is likely to be female and around 70 years of age whereas the average compulsory market annuity purchaser would be male and around 65 years (Cannon and Tonks 2006).
13. The bequest motive has been addressed by annuities that offer that option of returning the initial principal to a nominee. For instance, ICICI Prudential offers an annuity plan in which the initial purchase price, or the value of the investment corpus at the end of the accumulation phase with which the annuity

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was purchased, is returned to the annuitant's nominee on the death of the annuitant.

[14] This tends to make life insurers price annuities conservatively. For example, calculations based on LIC's mortality table show that the implied life expectancy at age 60 is about 20 years, but Census extrapolations indicate that it is 19 years (Table 3A.2).

[15] Recent reports indicate that The Mortality and Morbidity Investigating Centre, an affiliate of the Institute of Actuaries of India (IAI) and the Life Insurance Council, is in the process of generating new and improved mortality and morbidity tables (Hindu Business Line 2009).

[16] Asthana (2009) points out that telecom dealers tend to be entrepreneurs with sound selling skills and have a fairly large prospect base of customers. In small towns, their influence may be significant.

[17] The concept of using electronic platforms to disseminate information about annuity rates has already been adopted successfully in Chile. The *sistema de consultas y ofertas de montos de pensión* or 'SCOMP' system allows prospective annuity buyers to send a quote into the system through the pension fund, insurance company, or agent. The system transmits the quote to annuity suppliers, and their response is sent back to the purchaser, who can choose an annuity offer, make a new quote, opt out of annuitization, or ask for an external quote (see Mitchell and Ruiz 2011).

[18] For instance, some senior citizens' saving schemes could be designed with phased withdrawals at the payout stage (Asher and Vasudevan [2008] discuss reforms for small savers).

[19] Some fear that a disproportionate share of liabilities of life insurance companies in Chile is in the form of annuities; this would mean that their asset–liability matching would differ considerably from that of an average life insurance company.

[20] A typical phased withdrawal design suggested by industry veterans is:

1. Divide the purchase price by the then expectation of life. This is the maximum withdrawal that can be allowed. The minimum would be around 30 percent of the maximum. The annuitant can withdraw within these limits.
2. In Year 2, divide the balance amount by the then expectation of life and repeat the process outlined in Step 1.
3. This continues till the annuitant is 80/65, when conventional annuity is purchased with balance amount.

[21] Barr and Diamond (2008) point out that even with 2 percent annual inflation, the real value of a nominal benefit after ten years is only 82 percent of its original value, and only two-thirds after twenty years.

[22] In 2008–9, the maturity profile of Central Government debt securities was skewed toward shorter term debt. Of the total outstanding stock of government securities, 26 percent had less than five years to maturity, 40 percent had between five and ten years, and only 34 percent of securities had more than ten years left

to maturity as at end-March 2009 (Reserve Bank of India 2009). This suggests that reinvestment risk is currently significant for annuity providers.

[23] The BSE Sensex lost about 55 percent of its value between January 2008 and January 2009.

[24] This is the practice in the United Kingdom where the purchase of annuities is no longer mandated, though retirees have strong tax incentives to annuitize their pension fund by the age of 75 years.

[25] In the course of research for this chapter, it was observed that some private insurance companies in India have well-designed websites that provide very useful information, and knowledge available extends beyond details of schemes on offer. Topics such as the need for and benefits of retirement planning and features of different types of annuities are discussed, and online tools for simulation of life insurance premiums and payouts are provided. Other insurance companies might consider upgrading their web pages to facilitate consumer knowledge in a similar manner.

[26] In the United States, for instance, company-sponsored education has been found to improve participation as well as saving.

References

Akerlof, George (1970). 'The Market for Lemons: Qualitative Uncertainty and the Market Mechanism,' *Quarterly Journal of Economics*, 84(3): 488–500.

Asher, Mukul G. and Deepa Vasudevan (2008). 'Lessons for Asian Countries from Pension Reforms in Chile.' PIE Discussion Paper No.381. Tokyo, Japan: Hitotsubashi University.

—— Savita Shankar (2007). 'Time to Mainstream Micro-Pensions in India,' *Pravartak*, 2(3): 95–102.

Asthana, Nitish (2009). 'The Next Frontier,' *IRDA Journal*, 7(5): 14–17.

Barr, Nicholas and Peter Diamond (2008). *Reforming Pensions: Principles and Policy Choices*. London, UK: Oxford University Press.

Cannon, Edmund and Ian Tonks (2006). 'Survey of Annuity Pricing.' Research Report No. 318. Norwich, UK: Department of Work and Pensions.

Central Intelligence Agency (2009). *World Factbook*. Washington, DC: Central Intelligence Agency. https://www.cia.gov/library/publications/the-world-factbook/geos/in.html

Hindu Business Line (2009). 'New Table for Mortality Rates to be Finalized Soon,' *The Hindu Business Line*, June 13, 2009.

Institute of Actuaries of India (IAI) (2010). *Published Mortality Tables*. Mumbai, India: Institute of Actuaries of India. http://www.actuariesindia.org/Publication%20and%20Library%20Facility/Publication/mort_annuity_04.html

Insurance Regulatory and Development Authority (IRDA) (2008). *Annual Report 2007–08*. New Delhi, India: Insurance Regulatory and Development Authority.

——(2010). *Indian Insurance Industry*. New Delhi, India: Insurance Regulatory and Development Authority.

International Labor Organization (ILO) (2008). *Global Employment Trends*. Geneva, Switzerland: International Labor Organization.

James, Estelle and Renuka Sane (2003). 'Annuity Markets In India: What are the Key Public Policy Issues?' *Economic and Political Weekly*, 38(8): 729–39.

Mitchell, Olivia S. and Jose Ruiz (2011). 'Pension Payouts in Chile: Past, Present, and Future Prospects,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford: Oxford University Press.

Office of the Registrar General (2001). *Census of India 2001*. New Delhi, India: Office of the Registrar General. http://www.censusindia.net/

Pejawar, A. (2008). 'Distribution Channels.' Paper presented at 2008 Insurance Summit. Pune, India: National Insurance Academy.

Population Reference Bureau (2008). *The Future Population of India: A Long Range Demographic View*. New Delhi, India: Population Reference Bureau. http://www.popfound.org/Population%20Projection%20PFI_PRB.pdf

Reserve Bank of India (2009). *Annual Report*. New Delhi, India: Reserve Bank of India. http://rbi.org.in/scripts/AnnualReportPublications.aspx?year = 2009

Swiss RE (2007). *Annuities: A Private Solution to Longevity Risk*. Zurich, Switzerland: Swiss RE. http://media.swissre.com/documents/sigma3_2007_en.pdf

United Nations Population Fund (2008). *World Population Prospects: The 2008 Revision Population Database*. New York, NY: United Nations Population Fund. http://esa.un.org/unpp/

—— (2009). *State of World Population 2009*. New York, NY: United Nations Population Fund. http://www.unfpa.org/webdav/site/global/shared/swp/englishswop09.pdf