

Securing Lifelong Retirement Income: Global Annuity Markets and Policy

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Chapter 2

The Swedish Annuity Market: Where it is and Where it's Headed

Edward Palmer and Bo Larsson

Economic theory predicts that rational individuals should demand annuities during the dissaving phase of the life cycle (Yaari 1965), but annuity markets in many countries are small and Sweden is no exception (Palmer 2008). Indeed, the voluntary demand for annuities in Sweden is quite low, as in other high-income countries (Impavido et al. 2003). While public, occupational, and private retirement schemes all provide lifelong benefits, until recently, the scope for choice within the institutional framework of the public and occupational schemes was limited by the dominance of defined benefit (DB) arrangements. This changed dramatically in 1994, as first the public pension scheme and then the major occupational schemes began a transition to a defined contribution (DC) model. This move from DB to DC personal accounts in both the public and occupational schemes has paved the way for further change, making it possible for individuals to increasingly combine public, occupational, and private accounts to acquire various forms of privately provided annuity products at – and after – retirement. For this to happen, however, legislation will have to be adopted that enables individuals to combine personal financial accounts from public, occupational, and private FDC (funded defined contribution) schemes, and to choose freely from a range of annuity products tailored to suit people exiting the labor market with varying situations and preferences.

While financial innovations in Sweden have become prevalent for private saving efforts during the working and accumulation phase of the life cycle, the Swedish retirement products' marketplace looks pretty much as it did in the 1950s. Still absent are products designed to accommodate the varying needs associated with income support and care of the older elderly population. The extensive Swedish safety net for the elderly is likely to remain in place in the future, but it is unlikely that the benefits provided by the public sector will be sufficient in scope and design to provide more than a basic universal safety net. Given this perspective, there is room for

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product innovation in the financial market to cater to the needs of the older population in the near future.

In what follows, we begin with an overview of the Swedish pension landscape, followed by an analysis of the current state of demand for annuities using a unique microeconomic database constructed for the purposes of this study. We continue with an analysis of what is likely to drive future demand, and we end with concluding remarks.

The Swedish pension landscape

Beginning with legislation in 1994, Sweden transformed the earnings-related component of its public pension commitment from a DB to a DC model. The earnings-related public benefit was transformed into a notional defined contribution (NDC) system with a contribution rate of 16 percent, and a funded mandatory component with a contribution rate of 2.5 percent. The wage-indexed ceiling on contributory earnings for both of these together is about twice the average wage. About 90 percent of the working population is also covered by an occupational scheme that provides a small supplement to the public benefit under the ceiling, and the entire benefit above the ceiling. The move to DC in the public system spearheaded a similar move within all four major occupational schemes. As a consequence of these reforms, all public and practically all occupational earnings-related benefits have now been transformed from DB to DC.

Shortly after the passage of the 1994 public system reform, the occupational scheme for blue-collar workers which covers over 40 percent of all employees was also converted to an FDC plan. Subsequently, the same evaluation was followed by two major public employee schemes, the local government employee plan in 1998, and state employees in 2003 (for coverage below the ceiling). Finally, the system covering private-sector white-collar workers converted to the FDC system in 2007. As a result, all occupational supplements to the public schemes are transitioning to FDC personal account schemes.

The typical Swedish worker now contributes a total of 7 percent of earnings to mandatory and occupational FDC schemes (2.5 and 4.5 percent, respectively). In both the public and occupational schemes, the participant's retirement account balance is converted into an annuity. In many cases, there is a choice between a traditional and a unit-linked annuity. The Swedish traditional approach would pay a life annuity including a profit-sharing arrangement, to be discussed below in more detail. A unit-linked annuity gives a variable annuity rate based on the annual performance of the participant's investment portfolio, and the benefit is recalculated annually based on the participant's account value at the time

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of recalculation, normally using a cohort life expectancy estimate fixed at the age of retirement.

As a result, the typical Swedish worker has considerable income protection in old age through the combined mandatory public and occupational benefits. A career worker who entered the labor force at age 20 and worked to age 65 can expect a gross replacement rate of around 65 percent, assuming real wage growth of 2 percent and a real annual financial return of 3.5 percent (The World Bank 2007). More generous assumptions about the financial return, of course, yield a higher replacement rate (Palmer 2002*a*).

Looking ahead, it would appear that Swedes have a substantial annuity base in the form of the mandatory public NDC scheme, plus the mandatory and occupational FDC schemes. Accordingly, substantial financial saving is likely to be transformed into annuities in the future, implying a large potential for this market. In addition, there is still room at the top for private voluntary insurance.

Demand for annuities in Sweden

Next, we analyze the present demand and market for annuities, and we identify factors likely to determine future demand and the capacity of the market to develop to meet this demand. As in other high-income countries, the development of demand for voluntary annuities in Sweden has been held back by comprehensive mandatory public and quasi-mandatory occupational pensions.¹ Prior to the pension reforms described above, the prevailing belief was that the public pension replaced 65 percent of income at age 65, and occupational pensions added an additional 10 percent. Yet this was only true in a world with no real wage growth, since benefits in pre-NDC Sweden were based on the average of the participant's best fifteen years of earnings; for most workers, this would be the final fifteen years prior to claiming a benefit, and, with real earnings growth, this average would be considerably below pre-retirement pay. For instance, with 2 percent real growth, the actual replacement rate would be 56 percent rather than 65 percent. With the expectation of such high income replacement rates, the perceived need for personal saving for retirement was (and still is) not strong.² Furthermore, the public sector provides all medical care and medicine in kind with only a small co-payment, along with substantial basic home help; it also provides, if necessary, institutional care for the disabled elderly.

Financial market events in the mid-1980s set the stage for growth in demand for private insurance. Until that point, the Swedish financial market was highly regulated and the return on financial saving was repressed by the regulatory structure, a fact reflected in households' financial

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portfolios. In 1980, household financial assets were comprised of currency, deposits, and bonds (78 percent), and only 11 percent of voluntary saving went to private pension insurance and another 9 percent to equities and mutual funds.³ Almost thirty years later, private pension saving constituted 25 percent of total household financial assets, and equities and mutual funds about 28 percent (in 2009). This is in part due to deregulation of the Swedish financial market in the mid-1980s. Private companies turned to public stock offerings to finance investments, derivatives developed, and share prices became buoyant. At the same time, mutual funds became an option for personal saving. Then in 1993, unit-linked insurance was introduced and individual retirement saving (IRS) accounts came into being in 1994.

These developments were important for the development of the financial market and the disposition of personal saving. In addition, three specific events occurring around 1990 were especially important for the growth of private voluntary insurance. The first was the beginning of the public pension reform: the publicly provided widow's benefit was abolished in 1990, beginning with the cohort of women born in 1945. The effect of this change on the insurance market was dramatic: in 1980, only about 5 percent of men and 2 percent of women aged 20–64 utilized a tax deduction for premium payments for private voluntary pension insurance. The percentage increased gradually during the 1980s, still with a slightly larger percentage of men than women purchasing insurance (Palmer 2002*b*). With the abolition of the widow's benefit in the public scheme, by 2008, 43 percent of women aged 20–64 claimed a deduction for premium payments for private insurance, compared with 36 percent of men (Table 2.1).

TABLE 2.1 Distribution of tax-deductible pension saving (2008)

Age (year)	Percent of population utilizing a deduction		Average amount of deduction (1000 kronor)	
	Men	Women	Men	Women
20–24	11.2	10.5	2.3	1.9
25–34	33.8	38.3	3.8	3.2
35–44	42.4	50.2	5.7	4.6
45–54	39.1	51.3	8.2	6.4
55–64	34.3	45.3	11.3	8.9
65+	3.4	2.3	14.4	9.4
20–64	35.0	43.0	7.1	5.8

Source: Authors' calculations based on Statistics Sweden (2009).

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The second important event was the introduction of unit-linked insurance in 1993. Only seven years after its introduction, by the year 2000, unit-linked insurance had grown so rapidly that the proportion of assets held by individuals in private voluntary insurance was about equally divided between traditional and unit-linked insurance (Palmer 2002*b*). A third event believed to have affected the demand for voluntary pension insurance occurred in 1995, when the amount of the allowable tax deduction was cut from the equivalent of \$9,000 to \$4,500 (US, using an exchange rate of 7.5 SEK per USD). With the change in the tax deduction, the average nominal amount of the yearly deduction decreased from the equivalent of \$1,250 (US) in 1980 to \$850 (US) in 2008 (or 6,400 SEK in Table 2.1 at an exchange rate of 7.5 SEK per USD; Palmer 2002*b*).

In sum, in spite of a dramatic reduction in the allowable personal income tax deduction for premium payments for private insurance, the share of individual voluntary insurance in total financial assets of households was 25 percent in 2009 versus 11 percent in 1980. The demand for private insurance has therefore increased substantially in the past three decades, and the demand for annuities will follow in the not-so-distant future.

The current distribution of pension benefits is also an indicator of the demand for private annuities, especially the market for voluntary pension insurance for today's pensioners. Table 2.2 presents data for payments of benefits from mandatory public, quasi-mandatory occupational (contractual), and voluntary insurance purchases by age group, for the year 2008. Generally, the data suggest that public, contractual/occupational, and voluntary individual benefits fulfill different needs.

The first set of pensioners is a group of beneficiaries aged 55–60. Age 55 is the minimum age at which an occupational or private voluntary benefit can be claimed in Sweden, and 61 is the minimum age to claim a public benefit. In 2008, benefit recipients aged 55–60 constituted 6 percent of all beneficiaries. The information on the total number of pensioners in this age group, together with the number of persons with an occupational or voluntary benefit, indicates that about half of those claiming a voluntary insurance benefit are also recipients of an occupational benefit. The average occupational benefit is 53,000 SEK and the average private voluntary benefit is 32,000 SEK. An individual with both would have about 85,000 SEK per year or 7,000 SEK per month, close to the social assistance minimum. Hence, it is not likely that this benefit normally is the sole source of income for the recipient.

A second subset is the group aged 61–64 with a relatively large occupational benefit, on average. In this age interval, people tend to have either an occupational or a voluntary individual benefit, but seldom both. Note also that the average public benefit among claimants in this age group is very small, indicating that most wait until age 65 to claim a full public

TABLE 2.2 Number of pensions and type of benefit received (2008)

Age (year)	Number of recipients (with at least one type of benefit)	Type of benefit					
		Public			Occupational		
		Number of recipients	Average benefit (1000 SEK)	Number of recipients	Average benefit (1000 SEK)	Number of recipients	Average benefit (1000 SEK)
55–60	126,517	0	52	98,494	53	42,411	32
61–64	234,725	86,425	110	167,420	103	67,282	42
65–69	473,264	460,329	190	429,962	56	214,323	37
70–74	362,199	362,095	181	316,422	37	92,549	38
75–79	303,161	303,148	160	250,280	30	32,728	40
80–84	247,458	247,454	147	190,560	29	16,617	41
85–89	165,910	165,907	136	119,364	29	9,969	43
90+	77,532	77,529	124	49,547	33	4,905	41
55+	1,990,766	1,702,893	153	1,622,049	47	480,784	38
65+	1,629,524	1,616,462	167	1,356,135	40	371,091	38

Note: SEK refers to the Swedish krona.
Source: Authors' calculations based on Statistics Sweden (2009).

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benefit. Age 65 is important in the Swedish context because, until 2001 when the right to work until age 67 was legislated, most employees were prevented from working longer by contracts entered into by central management and labor organizations. From age 65 onward, continued employment required an agreement between the employee and the employer. Although early retirement with a public benefit can be claimed from age 61 and workers can also continue past the age of 65, most still view age 65 as being the 'normal' pension age.

Occupational benefits are used to cover early retirement from the labor force (*a*) for those few occupations where early retirement is specified in the employment contract (e.g., firemen), and (*b*) for persons who either upon the initiative of the employer or by their own initiative voluntarily choose to leave the labor force in their early 60s deferring their claim on their public benefit until later, usually at the age of 65 (although this is in the process of changing as more people have begun to work until 67 within the framework of the new public system). For those who take out occupational benefits prior to the age of 65, occupational pensions are normally actuarially adjusted from age 65 to compensate for the early retirement payments.

The data in Table 2.2 show that the age group 65–70 constitutes a third significant group with regard to payments from occupational and individual voluntary schemes (note that the minimum pension age for the public pension is 61, but that the normal age at which people claim a public pension is 65, a custom established when 65 was the 'full-benefit' pension age in the old system). The data suggest a clear tendency to claim both occupational and voluntary benefits for the statutory minimum five-year period, where permitted by the conditions of the contract.

Finally, the data in Table 2.2 also show that the percentage of benefit recipients with a private voluntary pension declines relatively rapidly with age. This pattern reflects two market characteristics. The first is an increasing tendency for younger cohorts to purchase individual voluntary insurance, which in part explains the significantly higher incidence of payments from voluntary schemes to younger cohorts of pensioners. Secondly, however, the data can reflect preferences for five- or ten-year withdrawals to enhance consumption during the initial period of retirement. A third possibility is that voluntary insurance is particularly pervasive among persons with short lives. This implies the possibility of adverse selection, due to the knowledge that one will have a shorter life than normal. Nevertheless, there is little evidence toward this: of those that had either or both of private voluntary pension saving or occupational pension and withdrew it at the earliest possible time (at 55 years of age), the vast majority waited until age 65 or older to withdraw their public pensions. There were 805 people who had an opportunity to draw benefits at age 55 in 1992 and

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actually did it, but only 123 of those persons started to withdraw a public pension at the earliest possible age of 61. Far more (491 persons) waited until their 65th year to withdraw the public pension. Finally, although available data are insufficient to draw a firm conclusion, the overall picture of the distribution of claims among the age groups leads us to the tentative conclusion that life annuities are not much more prevalent than the approximate 7 percent figure for persons 75 and older indicates.

What about the future demand for private voluntary annuities? The age, income, and gender distribution of tax deductions for premiums paid for private voluntary pensions provides an indication of the trend (see Table 2.1). Whereas about 20 percent of present pensioners aged 65 or older receive a payment from voluntary insurance, about 40 percent of the population aged 20–64 claimed a deduction in 2008 for premiums paid to a private voluntary plan. Whether this will lead to five- or ten-year withdrawals or life annuities is impossible to say because Sweden presently has no national data on the types of contracts.

The underlying data from Statistics Sweden behind Table 2.1, while not provided here, show several dominant characteristics of persons aged 20–64 presently claiming a tax deduction for voluntary private pension or life insurance. The first is that, for both men and women, the percentage claiming a deduction increases with income. Second, the log increase in the size of deduction is slower than the log increase in income, with an estimated elasticity of 0.71. Thirdly, more women than men claim a deduction at all ages from 25 to 64. Fourthly, the average deduction of women was greater than that of men for all income classes above the average, up to the highest income class.

The main conclusion is that 40 percent of current workers claim a deduction for private insurance, indicating that the demand for annuities will be higher in the future than it presently is. A second conclusion is that the legislation abolishing the publicly provided widow's benefit for persons born in 1945 and later affected women's demand for private insurance. Indirectly, it may also have affected men's demand for insurance including a survivor benefit, although we have no data to verify this likely outcome.

Finally, it is important to note that the conversion from DB to DC has probably itself influenced the demand for private individual insurance. To the extent that the DB schemes contained some degree of implicit redistribution from long- to short-career contributors, which was certainly true of the public scheme, the general message of the transition is that for a given contribution rate, the transition is to the advantage of persons with longer contribution periods. A result of this change both within the public and occupational schemes can be increased demand for private insurance from persons with shorter earnings careers.

In many countries, the conversion to DC would be a disadvantage for women. Generally speaking, in Sweden this is not the case. This is because

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in the public NDC and FDC schemes, periods of up to four years per child in conjunction with the birth of a child are covered with non-contributory rights financed externally from the state-budget. This transfer is generally sufficient to compensate for time spent away from the labor force in conjunction with childbirth.

For all of these reasons, in the not-so-distant future, around 40 percent of new retirees will be in the market for privately provided retirement products. In theory, individuals should be especially interested in insuring against the risk of a long life, but as we have seen, the current evidence from Sweden is that this is not the case. Instead, voluntary insurance has been availed, first, to enhance consumption during early retirement (for those aged 55–64) prior to claiming a public (and supplementary occupational) benefit at age 65 or later, and, second, to supplement public and occupational benefits primarily in the first decade of retirement, in the age group 65–74. Only a small percentage of retirees aged 80 or older presently have a voluntary benefit.

Determinants of the demand for voluntary and occupational annuities

To analyze the demand for pension products, we are interested first in the kinds of products people choose, that is, life annuities or phased withdrawals of five or ten years (standard products in Sweden), and who makes these withdrawals. In the absence of such straightforward information, we have to approach the question through the back door and deduce what people have done by using a longitudinal income database. That is what we do in this section: we analyze the behavior of pension savers by examining actual withdrawal patterns.

Overview of individual data

The data used come from the LISA database from Statistics Sweden which reports comprehensive information on individuals' income and various individual characteristics. An overview of the withdrawal patterns for non-public, that is, private voluntary and occupational pensions appears in Figure 2.1. Here, it is clear that the first type of pension claimed at the earliest possible age to claim a pension (age 55) is a pension from individuals' own private pension saving. Since this saving is tax-deductible, this behavior would be logical if people have a lower tax rate when they claimed this benefit than when they paid their premiums and claimed their deduction earlier. It would also be logical for individuals who had saved some money this way but not enough to matter in the long run to claim a short

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Figure 2.1 Share of private and occupational pension for those retired in 1992. *Source:* Authors’ calculations based on Statistics Sweden (2009).

payout period as soon as they can. In general, this enhances consumption at a relatively early age, but is hardly consistent with the idea that people purchase insurance to provide for inactive years in old age.

The older the retirees, the larger the fraction that first starts drawing the occupational pension or takes a combination of both the occupational and private pension saving. This is due to the fact that occupational benefits provide a means to leave the labor force partially or wholly for persons who for one or another reason desire to do this, but are healthy and do not qualify for disability. In a very limited number of occupations, occupational benefits provide the normal means of exit for persons whose contractual labor agreements *require* that they leave the labor force prior to age 65, which until 1999 was the full-benefit retirement age in both the public and occupational schemes. For persons desiring to retire prior to age 65, an occupational benefit was – and still is – the major benefit workers claimed, leaving a claim of the larger public benefit until age 65 or later. This behavior leads to an actuarial reduction in the occupational benefit when it is converted to a supplement to the public benefit, when the latter is claimed.

Figure 2.2 shows how the private pension is actually withdrawn by pension savers. To construct the figure, we classify the withdrawals into four distinct categories: withdrawals of the minimum allowed duration of five years (23.4 percent of total observations), those we can deduce have a life annuity (21.7 percent of total observations), withdrawals that terminated before the final year of our dataset (2007) but longer than five years (44.9 percent of total observations), and finally those that have either several

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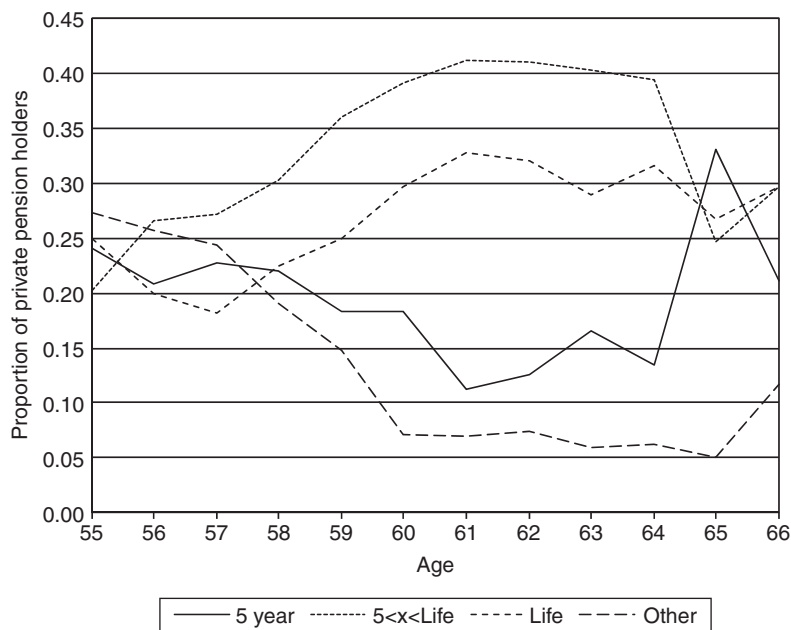


Figure 2.2 Form of private pension withdrawal (1992). *Source:* Authors' calculations based on Statistics Sweden (2009).

insurances or individual pension saving accounts for at least five years, but who stop and later start up payments, which we call 'other' (9.9 percent of all persons). For example, this group may start with a private pension, stop this pension then start later another private pension perhaps together with an occupational benefit and/or a public benefit; often this latest started private pension is not terminated before 2007, the end of our observation period (70 percent of other are not terminated by 2007). The outcome of this pension career would be a life annuity.

Older retirees tend to have a longer withdrawal duration, suggesting that the aim of early withdrawals is to liquidate funds that might have been deposited for the sole purpose of utilizing the tax-deduction. The fraction of those withdrawing private pension saving for the minimum five years is constant at around 20 percent, with a temporary peak at age 65.

Analysis of data

In the remainder of this section, we analyze what characterizes the choice of withdrawal period for private pension saving. To do this, we use a

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multinomial Logit model (Greene 1997). In 1992, just over 103,000 people who did not receive any payments in 1991 started drawing a private voluntary, occupational, or public pension (or some combination of these). About a quarter of these (25,942 persons) with a first-time benefit in 1992 had a private voluntary pension sometime between 1992 and 2007, and were still alive in 2007 or died after the private pension payments were terminated. This is the dependent variable in our analysis. With the help of the multinomial Logit model, we examine the relative odds that an individual who had a private voluntary benefit claimed it as a life annuity, which is the basis for comparison, or claimed it for at least five years but less than life ($5 < x < \text{life}$), five years (5), or other (described earlier).

The independent variables depicted in Table 2.3 include the worker's level of occupational pension (*occ*), level of income after starting drawing pension (*inc*), level of education (*edu*), sex (female is coded as 1), and age in 1992 (*age*) when first drawing a benefit. Dummies are used to denote white-collar private employees (*itp*), municipal and county council employees (*mun*), blue-collar private employees (*stp*), and central government employees (*gov*). Income variables are measured in tens of thousands of SEK (Swedish kronor). The highest level of education attained is coded from 1 through 6, where 1 is pre-high-school shorter than nine years, 2 is pre-high-school equivalent to nine years, 3 refers to high-school, 4 to post high-school education of fewer than two years, 5 is post-high-school education longer than two years, and 6 is post-graduate education (enrolled in a Ph.D. program).

From Table 2.3, it is evident that all variables matter for at least one of the types of withdrawals, in terms of being significant. Judging by McFadden's R^2 , the age and age-squared terms are especially important for the model's overall explanatory power. We have also experimented with dropping the dummies for four occupational pension categories, which does not have a big effect on the model's explanatory power, indicating that category is much less important than age. We obtain the same outcome when we delete the occupational benefit level. By examining alternative models, we see that the parameter estimates are stable, as most parameters are in the same range for all specifications with one exception (which is insignificant); parameter estimates do not change signs in the alternative specifications. The magnitude of correlation is also below 0.33 for all the included variables and most correlations are in the range $+/-0.1$.

To interpret Table 2.3, the coefficients show the log of the relative probabilities with the 'Life annuity' as the benchmark. For example, if the level of income provided by the occupational pension rose by SEK 10,000, this reduces the probability that an individual will choose a five-year withdrawal period for his or her private voluntary benefit. This suggests that either these two sorts of pension options are substitutes or that they are

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TABLE 2.3 Estimated multinomial model for persons of age 55–67 drawing private voluntary benefit during some years during 1992–2007

<i>Model:</i>				
$\ln(P_{i,j}/P_{i,Life}) = \beta_{j,0} + \beta_{j,Occ}.occ + \beta_{j,inc}.inc + \beta_{j,edu}.edu + \beta_{j,sex}.sex + \beta_{j,age}.age$ $+ \beta_{j,age^2}.age^2 + \beta_{j,inp}.inp + \beta_{j,mun}.mun + \beta_{j,stp}.stp + \beta_{j,gov}.gov,$ $j = \{5 < x < Life, 5, Other\}$				
<i>Duration in years (intercept)</i>				
5 < x < Life	–66.21***	0.66***	–67.66***	–70.27***
5	102.36***	0.40***	102.09***	107.89***
Other	81.03***	–1.43***	77.90***	81.43***
<i>Level of occupational pension in tens of thousands SEK</i>				
5 < x < Life	0.01***	0.01***	0.01***	
5	–0.02***	–0.03***	–0.02***	
Other	–0.0021	–0.01**	–0.0009	
<i>Level of income year after first drawing benefit</i>				
5 < x < Life	–0.01***	–0.01***	–0.01***	–0.01***
5	–0.02***	–0.03***	–0.02***	–0.02***
Other	0.0046**	0.01***	0.0049**	0.0047**
<i>Level of education, 6 levels coded, 1 for low and 6 for highest (9 for undefined)</i>				
5 < x < Life	–0.08***	–0.08***	–0.04***	–0.07***
5	–0.10***	–0.09***	–0.10***	–0.12***
Other	0.03 ^	0.05**	0.06***	0.03
<i>Female (0 for men, 1 for women)</i>				
5 < x < Life	0.17***	0.17***	0.23***	0.14***
5	0.16***	0.14***	0.20***	0.20***
Other	0.10 ^	0.15**	0.14**	0.11*
<i>Age in 1992</i>				
5 < x < Life	2.21***		2.27***	2.34***
5	–3.39***		–3.36***	–3.57***
Other	–2.55***		–2.44***	–2.57***
<i>Age in 1992 squared</i>				
5 < x < Life	–0.02***		–0.02***	–0.02***
5	0.03***		0.03***	0.03***
Other	0.02***		0.02***	0.02***
<i>Private white-collar occupational pension (dummy)</i>				
5 < x < Life	0.10**	0.12**		0.12**
5	0.02	–0.01		–0.01
Other	0.23***	0.31***		0.23***
<i>Municipal and county council employee occupational pension (dummy)</i>				
5 < x < Life	0.29***	0.32***		0.30***
5	0.27***	0.23***		0.25***

(continued)

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TABLE 2.3 (Continued)

Model:

$$\ln(P_{i,j}/P_{i,Life}) = \beta_{j,0} + \beta_{j,Occ}.occ + \beta_{j,inc}.inc + \beta_{j,edu}.edu + \beta_{j,sex}.sex + \beta_{j,age}.age \\ + \beta_{j,age^2}.age^2 + \beta_{j,iip}.iip + \beta_{j,mun}.mun + \beta_{j,stp}.stp + \beta_{j,gov}.gov, \\ j = \{5 < x < Life, 5, Other\}$$

Other	0.32***	0.31***		0.31***
<i>Private blue-collar occupational pension (dummy)</i>				
5 < x < Life	0.19***	0.19***		0.17**
5	0.47***	0.45***		0.49***
Other	0.12	0.38***		0.13^
<i>Central government employee occupational pension (dummy)</i>				
5 < x < Life	0.59***	0.60***		0.61***
5	0.37***	0.36***		0.33***
Other	0.21**	0.28***		0.20**
Log-likelihood	–31224	–31990	–31357	–31288
McFadden R ²	0.05	0.02	0.04	0.04
LR-test (chi-square)	2942.6***	1410.1***	2677***	2814.9***

Notes: Number of observations: 25,942. Significance levels: 0***, 0.001**, 0.01*, 0.05^. SEK refers to the Swedish krona.

Source: Authors' calculations based on Statistics Sweden (2009).

largely entirely different products, purchased with different intentions. The analysis also shows that blue-collar, municipal, county council, and central government workers are likely to choose a minimum withdrawal period of five years for the private voluntary benefit, whereas this variable is insignificant for private white-collar workers. There is a similar significant tendency for these categories of workers to take a benefit for more than five years but less than for life, and a significant – but relatively weaker – tendency for white-collar workers to do the same. Even if they go in the same direction, the results are weakest for white-collar workers which suggests a greater relative proclivity for life annuities for this group. We also see that having higher income is associated with a smaller probability of drawing a non-life benefit, suggesting that those who choose shorter payouts use the money to supplement – or replace – income during the younger years of withdrawal. In addition, the more educated are less likely to elect both short- and intermediate-term payout schemes.

We find it surprising that women have a higher probability of selecting non-life annuities than men, since several studies suggest that women tend to adopt more prudent investment strategies than men in other countries (Hinz et al. 1997; Sundén and Surette 1998; Agnew et al. 2003). Yet, other

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studies on Swedish data have shown that women are more likely to make active investment choices in the Swedish DC scheme (Engström and Wersterberg 2003), and that the gender effect appears in the context of high-risk but not low-risk choices (Säve-Söderberg 2009). Additionally, the youngest cohort studied here is eligible for widow's benefits, which could also explain why this group of women is less likely not to elect the life annuity. There is also evidence that less risk averse individuals are more likely to have voluntary pension saving, indicating that it could be that the women with voluntary pension saving value the longevity risk less (Larsson and Säve-Söderberg 2010).

To sum up, most of the evidence offered here supports a view that many individuals opt in favor of shorter rather than full-life annuities.

The future demand for life annuities in Sweden

A recurring theme in the literature on the demand for annuities is that most consumers tend not to purchase lifetime payout annuities, and thus far the Swedish data concur: those aged 55–70 years tend not to buy life annuities, perhaps because the mandatory pension system provides a consumption-smoothing device that individuals consider sufficient. It also seems that those who do purchase private insurance are not mainly considering bequests, since they use the assets to finance their own consumption when relatively young. It may be, though we cannot verify it, that people may not be informed about or understand the benefits of annuitization, or may not recognize the need to save for the contingency of disability when very old. Or maybe individuals are constrained from trading across states because financial markets are incomplete, preventing them from creating an optimum insurance portfolio (Impavido et al. 2003).

The literature has also emphasized that, when a choice is possible in annuities, the price tax may be too high (e.g., Warshawsky 1998; Mitchell et al. 2006; Brown 2007). Demand is nipped in the bud if potential annuitants cannot expect to get their money's worth in the marketplace. And conversely, we must also acknowledge that large insurance companies might not find it profitable to provide custom-tailored individual annuities. In the Swedish setting, seven large companies receive around 95 percent of individual premium payments and have command over 95 percent of all the assets of life insurance companies (Palmer 2008). Largely, the same companies also manage the occupational pension schemes. The question is, to what extent will these companies seek to develop new voluntary products without receiving an impetus in the form of new legislation?

A dilemma confronting potential annuitants is that the 'normal' pension age is too young to move all one's money from active equity investments

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into a 'risk free' investment policy associated with the purchase of a market annuity. More generally, it is often reasonable to defer annuitization until after a decade or so from age 65; Milevsky (2001) shows that utility-maximizing individuals would be best off deferring the decision to annuitize until the age of 75–80, given that they can benefit from the returns on the alternative strategy of investing in the equity market until this age. Seen in this perspective, it is likely rational for Swedes to contract five to ten withdrawal plans, within the private voluntary and occupational insurance supplements to the public mandatory scheme. This is especially true if these withdrawal plans offer a unit-link alternative where retirees retain command over the investment strategy. Of course, this alternative also requires a certain degree of sophistication to steer around the backside of market bubbles.

One might argue that the Swedish proclivity to transform saving into consumption during the younger years of retirement is the result of a poor understanding of what the future has in store. This is because both the older public pay-as-you-go DB scheme and the new NDC schemes provide price-indexed annuities; as workers experience real wage growth, the ratio of a pension to an average wage will fall. This decline in the relative living standard vis á vis contemporaneous workers becomes more marked with increasing age. Yet, few Swedes transform financial saving into annuities purchased at a more advanced age, 75–80, to provide for older, old age. Statistics Sweden data indicate that only around 2 percent of persons aged 65 or older claim a deduction for premium payments for private pension or life insurance. Instead, this population relies almost exclusively on payments from the mandatory public scheme for income support. Indirectly, the evidence that most utilize their private insurance before reaching the age of 75 suggests a reliance on the public sector to provide sufficient health and home care in the terminal years of life.

There are two reasons to believe that future coverage will not be considered sufficient, despite the public sector pension in Sweden. The first reason is that coverage is already less than what many people would desire. Public assistance in home care is more or less at a minimum guarantee level for the elderly who want to remain at home, and it is likely to be even less in the future. For those who need it, institutional care is provided but even this care has a basic minimum guarantee character, with little room for individual choice. Second, there is a clear trend toward increasing relative affluence among a large segment of the pensioner population (Gustafsson et al. 2009). This suggests that there is a growing segment of the elderly that could afford long-term care (LTC) insurance if it were to be provided. Indeed, individuals could save on their own to meet 'extra' LTC needs, but in principle, it would be most efficient to purchase insurance.

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For Swedes, one of the uncertainties is the extent to which the public commitment will develop in the future. Other more general unknowns, as outlined for example in Mitchell et al. (2006), are both future developments in health and service technology, and the length of time people can expect to be frail. As these authors point out, one of the deterrents to providing LTC insurance is the possibility of adverse selection. Of course, if prudent actuaries suspect adverse selection, they may price an insurance of this kind unfavorably, further reducing demand. This is a frequently cited reason for mandating insurance. A mandate would, however, also have to have a ceiling, which given the sheer scope of aging must be low. For a market to develop, it is important that the extent of the public commitment be made clear. This seems to be the present challenge for policy.

It would also seem reasonable to create legislation that enables individuals to freely combine their balances from the three separate sources of pension saving they presently have – their mandatory FDC account, the ‘quasi-mandatory’ occupational account, and their private voluntary account – to purchase one or more insurance products with potentially different features. These features could be as simple as a life annuity, combining two or three of these balances, a deferred annuity, or a combination. Our evidence indicates a potential demand for such products in the not-too-distant future. Ultimately, whether demand does emerge must depend on the ability of the market to offer saleable products on the scale necessary to create viable risk pools (Mitchell and McCarthy 2004).

Conclusion

This chapter has analyzed the structure of demand for retirement products in Sweden. While there is no good database with information on products chosen by whom, we rely on a longitudinal income database from Statistics Sweden for about 103,000 persons who claimed their benefits first in 1992. Choosing this early date made it possible to follow individuals for fifteen years, through 2007, the last year for which data were available. Our multinomial Logit model helps identify which individuals elected shorter or longer withdrawals of their private voluntary pension accounts, focusing on the five-year benefit (the minimum possible withdrawal time in Sweden), a withdrawal of more than five years but less than life, and a life annuity. We find that most workers, except for white-collar workers, are more likely to choose the five-year withdrawal, as are women and the least-educated.

Nevertheless, the pattern of usage of private insurance could already be in the process of changing, since deductions for premium payments to private insurance have been high for two decades leading up to 2010. This sets the stage for a structural change, though there is no indication yet that this has

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occurred. It is also important to recognize that the future ability of the public sector to pay for LTC is unknown. Currently, the average individual tends not to buy insurance to cover this risk, without knowing more about the future limit of public coverage and how the coverage will be financed. In fact, if future coverage were to be based on ability to pay, as it is today, it might be inefficient for people to save to cover this contingency. Accordingly, the present state of uncertainty is unlikely to drive a large demand for and accommodating supply of annuity products for the oldest old phase of the life cycle.

Notes

- ¹ Individuals working at places of employment covered by one of the major employer–labor agreements are automatically covered by the agreement, regardless of whether they are affiliated to the union covering their specific occupation.
- ² In fact, studies of the effect of the introduction of the universal earnings-related public scheme in 1960 indicated that the personal saving rate during the period 1960–80 would have been four percentage points higher on average in the absence of this public scheme (Markowski and Palmer 1979; Palmer 1981; Berg 1983). This is evidence that the promise of a public pension in the future contributed significantly to crowding out private saving for some time.
- ³ Financial assets exclude individuals' assets in occupational plans and the mandatory premium pension scheme, as well as shares in the value of apartments owned by individuals, all of which are counted as household financial assets in the national accounts. The source for this data is Statistics Sweden (2009).

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