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The Swedish Annuity Market: Where It Is and Where It's Headed

1. Introduction

A common thread running through the past decades' writings on annuities is that, although economic theory predicts that rational individuals should demand annuities during the dissaving phase of the life-cycle (Yaari 1965), in practice countries' annuities markets are small (e.g. Impavido, Thorburn and Wadsworth (2003). Sweden is no exception (Palmer 2008). To date the voluntary demand for annuities in Sweden has been low, just as in other high income countries. On the other hand, as this paper establishes, the picture is in the process of changing, owing to changes in the design and structure of public and occupational pensions in the past decade and a half, which, for various reasons elaborated on in this paper, can be expected to lead to a substantial increase in the future demand for privately provided annuities. The questions addressed here is, what does the demand for annuities presently look like, what are the products the market is presently offering to meet this demand and in what directions can the market develop in the future?

Strikingly, whereas financial innovations have driven development in the private market for saving during the working and accumulation phase of the life cycle, the Swedish market for retirement products has not changed much in the past half decade. What is still patently absent are products that are designed to accommodate the needs associated with the income support and care of the elder elderly population. Although the extensive Swedish safety net for the elderly is likely to be in place even in the future, it is doubtful that the basic coverage provided by the public sector will be sufficient in scope and design to meet the

demands of the elder elderly. Given this perspective, the case is presented here for innovations that can meet the needs of the older population in the near future.

The paper begins with a concise overview of the Swedish pension landscape. This is followed by an analysis of what lies behind the present demand and market for annuities and what is likely to drive future demand. The last section concludes with some final remarks.

2. The Swedish Pension Landscape

Beginning with legislation in 1994, Sweden transformed the earnings-related component of its public pension commitment from defined benefit (DB) to defined contribution (DC). The earnings-related public system was transformed into an NDC component, with a contribution rate of 16 percent, and a mandatory financial defined contribution (FDC) 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. The move to DC in the public system spear-headed a similar move within all major occupational schemes, which provide a small supplement to mandatory benefits below the ceiling in the public scheme and provide full benefits above the this ceiling up to a higher ceiling. As a consequence of these reforms, all public and practically all occupational earnings-related benefits have been transformed from DB to DC.

The NDC scheme is designed to be self-financing and is autonomous from the general budget, as is the FDC scheme by definition. A partial or full benefit can be claimed at any age from age 61. With the reform of the public system, the financial responsibility for the survivor and disability benefits was moved to the state budget, to be financed by general revenues. For distributional purposes, non-contributory rights were created for parents, in conjunction with child birth, for time devoted to higher education and for time spent in military conscription. In addition, contributions are paid to the NDC and FDC plans to finance spells of parental leave,

sickness, unemployment and disability covered by mandatory public insurance. These are all financed by money transferred from the general budget to individual FDC accounts and to the NDC fund, the latter to back rights granted on NDC accounts. Together with the guarantee, to be described in the next paragraph, these constitute the social policy components of the new system.

The public system also incorporates a minimum guarantee, which is means-tested against the NDC and FDC schemes, can be claimed from age 65 and is price indexed. All benefits, including the guarantee, are taxed and with the same tax scale as earnings from work. By itself, the after-tax guarantee is not sufficient to provide the level of income required to reach the minimum standard of living for a pensioner. An additional benefit, also financed with revenues from the general state budget, the housing allowance, which is also means-tested against after tax income from all sources and wealth, is the final component in the Swedish public system. Generally speaking, for a pensioner with no or practically no other resources, the combination of an after-tax guarantee and housing allowance will be sufficient to bring total income up to the minimum standard for pensioners.

About 90 percent of employees in Sweden are covered by occupational schemes, which provide a small supplement to the benefits under the ceiling for the mandatory schemes and cover earnings above the ceiling up to a higher ceiling. Shortly after the passage of the legislation in 1994 to transform the public scheme to DC, the scheme for all blue-collar workers, covering over 40 percent of all employees, was also converted to DC in 1996. The conversion to DC soon spread to the two major schemes covering public employees (1998 and 2003), and, finally, the scheme covering privately employed white-collar workers converted in 2007. As a consequence, not only all commitments to private sector workers, but also commitments to most public sector employees are pre-funded for new entrants and following transition rules for current workers at the time of introduction.

As a result of the introduction of the mandatory FPC component of the public plan and the transformation of the occupational plans, the typical worker now pays 7 percent in of wages in contributions to the pre-funded mandatory and occupational schemes (2.5 and 4.5[1] percent, respectively). The mandatory public FDC scheme differs considerably from the typical occupational FDC scheme during the accumulation period. In the public plan workers choose from among a large number of funds registered with the clearinghouse that administers the plan, the PPM (Premium Pensionsmyndighet). Within the occupational framework workers choose freely among a limited number of insurance companies offering two basic choices, traditional or unit-linked insurance. If the participant chooses traditional insurance, the insurance company administers the money on the participant's account. If the choice is unit-linked insurance, the participant chooses from among funds managed by the insurer and additional funds managed by other fund market participants.

At retirement, in both the PPM managed scheme and occupational schemes the participant's account balance is converted into either a traditional or unit-linked annuity. The traditional annuity is based on the account value at retirement, including the guarantee rate of return to which we have just alluded, and cohort life expectancy at retirement. If there is a profit-sharing arrangement, to be discussed in greater detail below, which there is for the PPM annuity and generally for the occupational benefits, then the size of the annuity may be increased over time. A unit-linked annuity gives a variable rate based on the annual performance of the participant's investment portfolio. The annuity is recalculated annually, based on the participant's account value at the time of recalculation, normally using a cohort life expectancy estimate fixed at retirement.

It follows from this introduction to the pension landscape in Sweden that the typical Swedish worker has considerable income coverage in old age through the combined

[1] In the initial years, this rate was 3.5 percent for a large percentage of occupational scheme participants. In particular, it was 3.5 percent in the initial years of the blue-collar scheme.

mandatory public and occupational benefits. A career worker, born around 1970 and who entered the labor force at the age of 22 and works to age 65 can expect a replacement rate of around X percent (Table 1). With postponement of retirement until age 69 the replacement rate increases to Y percent, mainly due to shorter life expectancy from this higher age. The mandatory FDC scheme and the occupational schemes together provide a considerable supplement to this amount, the extent of which depends on the financial rate of return, as is evident from the table. Assuming real wage growth of 2 percent and a financial rate of return of only 2 percent, a career worker born in 1970 who enters the labor force at age 22 can expect an income replacement rate of around 55 percent at age 65 and 70 percent at age 69. It is likely that real financial returns, which historically have been higher than this will continue to be so in the future, and hence the replacement rates at these ages are likely to be better than this.

In sum, Swedes have a substantial annuity base in the form of the mandatory public NDC scheme and the mandatory and occupational financial schemes. In the latter, substantial financial saving is transformed into annuities, which suggests a large potential for this market in the future. In addition, there is still room at the top for voluntary options. The remainder of this paper is devoted to analyzing the present demand and market for annuities and to identifying factors that will determine future demand and the capacity of the market to develop to meet this demand.

3. The Current Structure of Demand for Annuities

In Sweden, as in other high-income countries, the demand for voluntary annuities has been held back by the existence of comprehensive public and occupational pensions. Prior to the reforms of the public and occupational pension schemes, it was generally believed that the

public pension replaced 65 percent of income at age 65 and the occupational pension an additional 10 percent.[2] With the expectation of such significant income replacement the perceived need for annuitizing remaining wealth was – and still is - not strong.[3] Especially persons in the age group up to age 75 may be more interested in consumption "now "rather when very old. In addition, in Sweden, the public sector provides all medical care and medicine, with only a small copayment as well as basic home help and long term care.

Table 1 shows that in 2005 households' assets constituted a larger percentage of GDP than in 1980, perhaps owing to an older population (the first generation of post-war babyboomers were approaching the pension age albeit to some extent counterbalanced by a second wave of babyboomers from the 1960s). More interestingly for an analysis of the potential demand for annuities, the financial assets of households consisted to a much larger extent of individual voluntary insurance and investments in equities and mutual funds in 2005 compared with 1980. Voluntary insurance constituted about 25 percent of total assets in 2005 – and also about 25 percent of GDP. The remaining 75 percent of household saving was held in more liquid assets.

The change in the composition of household assets from 1980 to 2005 can be presumed to reflect a change in both the market and individual preferences. By the mid-1980s the Swedish financial market had become completely deregulated and, after a decade or so of stagnation the equity market had begun to grow. The market became deeper as more companies offered public stock, derivatives developed and share prices became buoyant. At the same time, mutual funds gained a sure footing. Around a decade later, unit-linked

[2] This was only the case in a situation with no real economic growth. With real growth in earnings of 2 %, in 1994 at the time of the reform the initial replacement rate for the public scheme was about 57.5 percentage points, because the public earnings-related DB benefit was calculated on the basis of an average of the best 15 years of earnings and not the final salary.

[3] In fact, studies of the effect of the introduction of the universal earnings-related public scheme in 1960 (Markowski and Palmer (1979), Palmer (1981) and Berg (1983) indicated that the personal saving rate during the period 1960-1980 would have been 4 percentage points higher on average in the absence of this public scheme. This is evidence that the promise of a public pension in the future contributed significantly to crowding out private saving for some time.

insurance was introduced in 1993 and individual retirement saving (IRS) accounts came to the market in 1994.

Table 1. The Financial Portfolio of Households, end-of-year figures

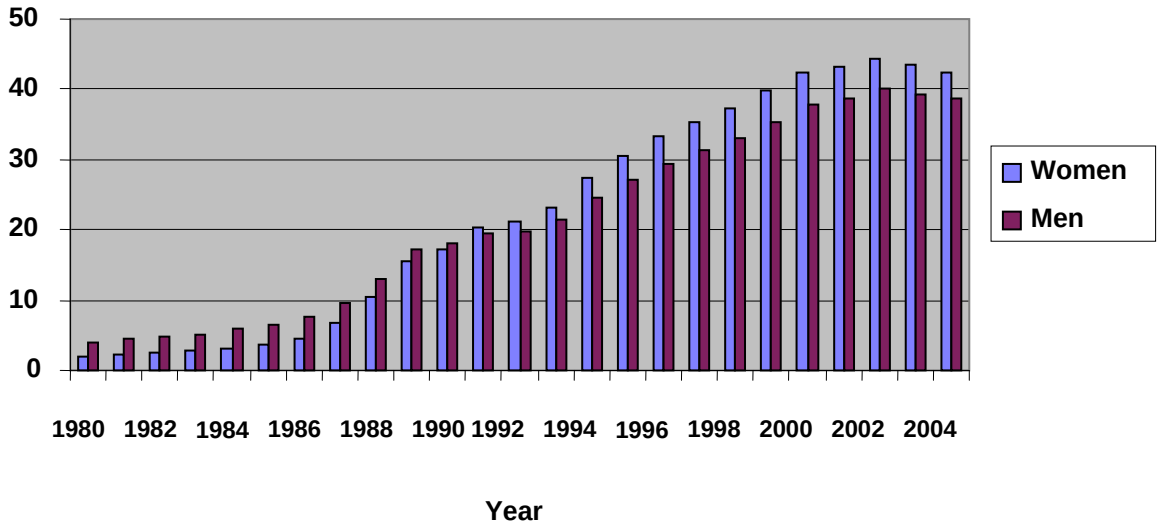
	1980		2005	
	Billions of SEK	Per cent of total assets	Billions of SEK	Per cent of total assets
Individual insurance	34	9 %	657	26 %
Equities	36	10 %	565	22 %
Mutual funds	**	**	484	19 %
Bank deposits	182	50 %	619	25 %
Bonds	43	12 %	107	4 %
Currency	28	8 %	87	3 %
Other	44	12 %	2	0 %
Total financial assets	367	100 %	2521	100 %
All financial assets as a percent of GDP		67 %		94 %

Sources. Palmer 2008.

Three events occurring around 1990 were important for the growth of voluntary insurance. The first was a first step in the reform of the public pension system, taken already in legislation passed in 1988. This was the abolishment, from 1990, of the publicly provided widow's benefit, beginning with the cohort of women born in 1945. The effect of this change in the legislation was dramatic, as we see in Figure 1. In the early 1980s the demand for private insurance was relatively low, as is indicated by the percentage of the working age population claiming a tax deduction for this purpose. In addition, almost twice as many men as women utilized a tax deduction for payment of insurance premiums and in a market with sluggish growth. With the abolishment of the widow's benefit, the number of persons claiming a deduction for insurance premium payments rose sharply - by almost 50 percent between 1987 and 1990 - and since 1992 more women than men have utilized a deduction.

Also, this clearly indicates that the public benefit had crowded out voluntary insurance and, given a chance demand manifested itself. The question is whether it should be much stronger, given that women are expected to outlive their spouses by 4-5 years and on average are two years younger.

Figure 1. Persons utilizing a tax deduction for voluntary insurance. Percent of the population 20-64, 1980-2005.



Source. Statistics Sweden

The second important event was the introduction of unit-linked insurance in 1993. Only seven years after its introduction, by 2000, unit-linked insurance had grown so rapidly that the proportion of assets in voluntary insurance was about equally divided between traditional and unit-linked insurance (Palmer 2002). It is likely that this form of saving, which carries a tax deduction, provides an attractive substitute for other forms of saving. Unit-linked insurance was introduced at a very opportune time, as the following seven-year period was characterized by strong growth in equity prices. Figure 1 also shows a fall in the percent

of the population claiming a deduction shortly after the dot.com bubble burst, affecting the demand for both categories of insurance.

The third event likely to have affected the demand for voluntary pension insurance occurred in 1995, when the amount of the allowable deduction was cut from the equivalent of 9 000 to 4 500 USD (exchange rate of 7.5 SEK per USD). Nevertheless the share of women claiming the deduction continued to increase unabatedly. With the relative increase in the number of female deduction claimants and the decrease in the deductible amount, the average nominal amount of the yearly deduction decreased from the equivalent of 1250 USD in 1980 to 800 USD in 2003 a decline that was considerably greater in real terms (Palmer 2008).

We now turn to the question of how voluntary pension insurance is used among today's pensioners, to get a picture of the present demand for life annuities. Table 2 presents data for payments of benefits from public, occupational (contractual) and voluntary benefits by age group for the year 2004. Generally, the data,[4] presented in Table 2, suggest that public, contractual/occupational[5] and voluntary individual benefits fulfill different needs.

The first group of pensioners is a group of beneficiaries aged 55-60. By law, age 55 is the minimum age at which an occupational or private voluntary benefit can be claimed and 61 is the minimum age to claim a public benefit. In 2004, this group constituted six per cent of all beneficiaries and consisted of two subgroups, a group with occupational pensions and a group with private voluntary benefits. The information on the total number of pensioners in this age group together with the number persons with an occupational or voluntary benefit indicate that those claiming occupational and voluntary insurance at this age are largely separate groups. There is no information explaining *why* people claim benefits, but clearly there is a group that claims private voluntary insurance as soon as or shortly after this is

[4] Presented and discussed in greater detail in Palmer (2008).
[5] Occupational and contractual are to be taken as synonyms in the context of this paper. We call them contractual benefits because there are four large contractual groups in Sweden, where benefits are determined by negotiations between central union representatives and central management representatives.

legally possible at age 55. In addition, the amounts are relatively small, however, less than half of the official minimum standard for a single person. Hence, this benefit is not the sole source of income.

Table 2. Number of Recipients and Average Value of Benefits from Public, Contractual and Individual Old Age Insurance, 2004.

	All persons with some form of pension	Average amount 1000 SEK	Of which							
			Public old age pension				Contractual benefit		Private individual pensions	
					With a guarantee benefit					
Age			Number	Average amount 1000 SEK	Number	Average amount 1000 SEK	Number	Average amount 1000 SEK	Number	Average amount 1000 SEK
All	1 863 855	135,5	1 571 252	113,8	1 563 149	112,1	1 461 832	40,4	370 547	40,1
55-60	143 788	58,6	0	0	0	0,0	110 588	59,4	50 291	36,8
61-64	178 470	105,0	36 207	63,1	28 569	55,0	137 264	100,6	55 825	47,6
65-69	404 411	167,8	397 646	118,0	397 442	111,0	358 079	42,8	150 624	37,3
70-74	345 153	156,3	345 128	125,1	345 128	125,1	288 900	28,7	59 959	41,5
75-79	312 167	140,9	312 154	117,5	312 154	117,5	242 082	25,8	25 047	41,6
80-84	264 352	130,0	264 349	108,9	264 349	108,9	189 950	25,9	15 840	42,5
85-89	143 187	122,3	143 183	101,3	143 183	101,3	94 249	27,9	8 764	42,9
90-	72 327	107,6	72 324	88,6	72 324	88,6	40 720	29,8	4 197	37,9

Source. Palmer 2008.

A second group is the group aged 61-64 with, on average, large occupational benefits. Also in this age interval the data indicate that people tend to have either an occupational or voluntary individual benefit, but relatively seldom both. Those who have benefits from voluntary insurance have on average the largest average voluntary benefit of all age groups. 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 public 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, continued employment required an agreement between the employee and the employer.

The data for this age group reflect the fact that 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 the employee voluntarily choose to leave the labor force in their early sixties deferring their claim on their public benefit until later, usually 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, except for the few occupations for which early retirement is still specified by contract, occupational pensions are normally reduced from age 65 to compensate actuarially for the early retirement benefits.

The data in Table 2 show that the age group 65-70, during which public pensions are first drawn, constitutes a third significant group with regard to payments from occupational and individual voluntary schemes. In this age group the data suggest a clear tendency to claim both occupational and voluntary benefits for the statutory minimum five-year period, where this is permitted by the conditions of the contract.

Finally, the data in Table 2 show also that only seven percent of persons 75 and older have a benefit from individual voluntary insurance, whereas 30-35 percent of all persons in the age interval 55-70 receive a payment form an individual voluntary pension. The pattern of payments reflects two characteristics of the market. The first is the increasing tendency for younger cohorts to purchase individual voluntary insurance, which in part can explain the significantly higher incidence of payments from voluntary schemes to younger cohorts of pensioners. Secondly, the data can reflect a preference to utilize the possibility to make either a 5 or 10 year withdrawal 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 alternative suggests that adverse selection, in the

present context the knowledge that one will have a shorter life than normal is already prevalent in younger years, which is hardly believable. Although available data are not sufficient to draw a 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 seven percent figure for persons 75 and older indicates.

What about the future demand for private voluntary annuities? The age, income and gender distribution of taxdeductions for premiums paid for private voluntary pensions is in Table 3 provides us with a good indication of the answer to this question. Whereas about 20 percent of present pensioners receive a payment from voluntary insurance, forty percent of the population 20-64 claimed a deduction 2003 for premiums paid to a private voluntary plan. Whether this will lead to 5/10 year withdrawals or life annuities is impossible to say because there is presently no data on the types of contracts. For defined benefit schemes this is usually specified but for defined contribution, usually unit-linked, plans it is not.

Table 3 also shows several dominant characteristics of persons age 20-64 presently claiming a tax deduction for voluntary private pension or life insurance. The first important observation is that for both men and women the percentage of the age group claiming a deduction increases with income. Secondly, the amount claimed also increases with income. The log increase in the size of deduction is slower than the log increase in income, however, with an estimated elasticity of 0.71. Thirdly, more women than men claim a deduction in all ages from 25-64. In 2003, for which we have data, average annual income was around 190 000 (ca 180 000 for women and 200 000 for men). Fourthly, we see that the average deduction of women was greater than that of men for all income classes above the average, up until the highest income class.

The main conclusion is that forty percent of present workers claim a deduction for private insurance. This can be compared with the fact that presently only about 20 percent of all pensioners have a benefit from private voluntary insurance. This means that the demand for private voluntary retirement products will double in the future.

Table 3. Distribution of tax deducted pension saving, 2003.

	Percent of persons utilizing a deduction			Average amount of premium deduction, 1000 kronor		
	Men and Women	Men	Women	Men and Women	Men	Women
Age						
20-24 years	7.50	7.60	7.40	1.90	2.00	1.70
25-34	38.50	36.40	40.80	3.20	3.50	2.90
35-44	45.50	41.30	49.80	4.80	5.40	4.30
45-54	45.20	38.90	51.70	7.10	8.10	6.40
55-64	38.60	33.40	43.80	9.60	10.80	8.60
65-	2.40	3.20	1.90	12.60	14.60	9.90
20-64	39.40	35.30	43.50	6.00	6.70	5.50
Income class, 1000 kronor						
1 kr - 99.9	5.90	4.60	6.80	3.60	3.80	3.50
100.0 - 119.9	10.50	7.00	11.90	4.10	4.30	4.00
120.0 - 139.9	14.10	6.80	18.40	4.10	4.40	4.10
140.0 - 159.9	18.50	7.60	26.40	4.20	4.40	4.20
160.0 - 179.9	25.10	11.90	34.90	4.30	4.40	4.20
180.0 - 199.9	31.00	17.90	40.70	4.30	4.30	4.40
200.0 - 219.9	36.20	24.90	46.00	4.40	4.20	4.50
220.0 - 239.9	40.90	32.40	49.90	4.60	4.20	4.80
240.0 - 259.9	43.50	37.10	52.40	4.90	4.40	5.30
260.0 - 279.9	45.90	40.50	54.90	5.30	4.70	5.90
280.0 - 299.9	47.50	42.20	57.00	5.90	5.30	6.70
300.0 - 339.9	50.00	45.30	59.40	6.90	6.30	7.70
340.0 - 399.9	52.20	48.20	61.80	8.00	7.70	8.60
400.0 - 499.9	54.00	50.90	63.60	9.90	9.80	10.40
500.0 - 999.9	56.80	54.70	66.20	15.00	15.00	14.90
1000.0 -	45.90	46.70	40.50	26.40	26.90	22.20

Source. Statistics Sweden. Calculations performed for this paper.

A second conclusion is that all the evidence indicates that the legislation abolishing the publicly provided widow's benefit for persons born 1945 and later in 1988 has led to a strong upswing in the demand for private insurance for both men and women, as is indicated by tax deductions claimed for insurance premiums. The abolishment of the widow's pension was probably also important for the development even of men's demand for private insurance, as their plans can and probably usually do include a survivor's benefit.

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 especially for women relative to men, however in Sweden this is generally not the case. Periods of up to four years are covered in conjunction with birth of a child through state-budget subsidized transfers to the FDC accounts in the mandatory FDC scheme. Credits are noted on NDC accounts and the underlying money is transferred from the general budget into the NDC reserve fund. This transfer is generally sufficient to compensate for the fact that, on average, men work a couple years more than women.[6] Similar compensation is not provided within the occupational schemes, however, which suggests that spouses with income above the ceiling on contributions in the public system have an extra incentive to be interested in voluntary insurance. The data in Table 3 do not refute this possibility, as the average size of a deduction increases with income, although there is no pronounced threshold jump.

In sum, in the not so distant future around forty 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 (ages 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 – 6 percent - of retirees age 80 and older have a voluntary benefit. On the other hand, the need to finance consumption after the age of 80, especially for widows, should change this picture dramatically.

[6] In addition, women are favored through the application of unisex life expectancy in the mandatory NDC and FDC schemes, as well as the occupational schemes.

4. The Market for Annuities

Individual demand for market retirement products in Sweden comes from two sources: the occupational plans that provide a supplement under the ceiling in the public scheme for about 90 percent of all employees and the entire benefit above this ceiling up to a new ceiling for high income employees, and individually contracted voluntary insurance. Although the public mandatory benefit is presently provided by a public monopoly provider, the PPM,[7] it is reasonable in the present context to view this component of the individual's insurance portfolio as one of many forms of accumulated saving that in the future can be transformed into one or more privately provided retirement products that can be designed to satisfy many goals for retirement saving.

Overview of the Market's Current Status

In 2006 there were 44 life insurance companies operating in Sweden, and 95 percent of the business of these companies is life and pension insurance. The remaining five percent is health and accident insurance. In spite of this relatively large number of companies, seven companies receive 95 percent of individual premium payments and hold 97 percent of the total assets of life insurance companies.[8] The same seven companies are the major providers of both individual voluntary insurance and occupational group schemes. There are also two companies with a limited area of activity. One administers the occupational plan for private white-collar employees, but does not sell individual voluntary insurance. The other reinsures the pension liabilities of companies retaining the premium payments of employees covered under this plan. There is one more company specializing in only the administration of the civil servant fund. It is noteworthy that the same seven large private insurance companies (three

[7] From 2010, a new authority, the Swedish Pension Authority, will be created that administers all public benefits in Sweden, replacing the PPM.
[8] Palmer 2008.

owned by three of Sweden's largest banks) that dominate the provision of occupational and voluntary products also together manage about 45 percent of the assets in the mandatory FDC scheme. Another 27 percent of the mandatory scheme's assets are managed by a publicly administered default fund. In sum, most of the insurance business, and associated fund management, is dominated by only a handful of large companies.

The future demand for annuities, as shown by the level of assets and yearly premium payments, is substantial, as Table 4 shows. In 2006 premium payments for occupational and voluntary plans together amounted to 6.8 percent of GDP and total assets to about 80 percent of GDP. Premium payments to private voluntary insurance constituted about 15 percent of total premium payments for occupational and individual insurance. PPM assets were about 9 percent and yearly premium payments (contributions) about 0.9 percent of GDP, where they have been since the second year of operation.

Table 4. Assets and premium payments to occupational, individual voluntary and PPM plans, 2006

	Assets	Premiums
All occupational and individual voluntary insurance, billions of kronor	2 270	193*
Percent of GDP	80 %	6.8 %*
PPM	267	26
Percent of GDP	9 %	0.9 %

*Voluntary individual insurance accounted for about 15 %.
Source. Palmer (2008), based on data from the PPM and Financial Supervisory Authority

The transition to DC also means that the profile of risk bearing was fundamentally altered. It also means that it has become much easier to open the market for moving between providers of accumulation and annuity products and perhaps even between products themselves. To see the significance of the effect on risk bearing consider that in a DB plan the benefit and premiums necessary to pay for it are contracted at the outset. All the parameters are set when the worker enters into the contract, usually as a new entrant into the labor force.

This leaves considerable uncertainty for the insurer. The result of this is evident in the composition of portfolios of Swedish insurance companies (Palmer 2008), with a clear tendency towards a lower ratio of risky assets (equities) to liabilities in voluntary insurance plans compared with occupational insurance schemes. In the voluntary schemes, it is the insurance provider who bears the risk, which can be substantial in the DB framework.

In the occupational schemes, which are still dominated by pre-reform DB arrangements, it is the employer who bears the ultimate risk, in accordance with the central contractual agreements that support these schemes. Clearly, because DB contractual schemes have been built up in this way, from the point of view of the employer, elimination of risk to the insurer is the obvious attraction of DC schemes. In a DC scheme there is neither longevity nor investment risk for the insurer during the accumulation phase and little or no risk during the payout period. For this reason, the market is likely to continue to develop in the direction of DC schemes.

In DC schemes, there are two main investment alternatives. In the first the participant contracts one among many possible providers, who manages the participant's savings. The alternative is that the participant contracts a provider who offers a large number of market funds, from which the participant chooses one or more. In the first case the insurer and in the second case the participant determines the portfolio composition. The latter alternative is that provided by the monopoly clearinghouse in the Swedish mandatory public financial DC scheme, where participants can choose from among ca 800 market funds. Swedish occupational and private insurance providers offer the same arrangement, but with a much lower number of fund choices.

In both of these alternatives the participant bears both the investment and longevity risks during the accumulation phase. The individual participant can "manage" the investment risk through his choice of insurer in the first case and in the second case through his choice of

fund(s), normally with the opportunity to switch funds over the course of time. In the Swedish market environment, for contracts entered into from mid-2008 freedom to move between insurers is specified by law. For older contracts it is possible to change providers where this is not explicitly prohibited by the terms of the existing contract.

In the Swedish context, in the payout phase in a DC scheme, the participant can choose between two alternatives: "traditional" and unit-linked insurance. In unit-linked insurance, the participant manages his or her own investments and bears the longevity risk, in addition to the investment risk. The value of life expectancy used to compute an annuity is set by the insurer and the result is a variable rate product, with an annually recalculated benefit based on the participant's end-of-year account balance. The forms of insurance and risk bearing are summarized in Table 5.

Table 5. Forms of Insurance on the Swedish Market

Type of plan	Who bears the investment risk?	Who bears the longevity risk?
1. Financial defined benefit	The insurer	The insurer
2. Financial defined contribution		
a. Accumulation phase		
- Traditional	The insured	The insured
- Unit-linked	The insured	The insured
b. Payout phase	The insured	The insured
- Traditional	The insured	The insured
- Unit-linked	The insured	The insured

What do we mean more exactly by traditional insurance, in the Swedish framework? To begin with we can establish that the administrators of the public insurance scheme, the PPM, the occupational and private voluntary insurance providers all provide the option of traditional insurance. In the traditional insurance framework, the annuity can be associated

with either a DB or DC accumulation phase. What they have in common is that the insurance provider creates an annuity at retirement, either in accordance with the DB contract or in DC using the participant's account balance at retirement. In both cases the provider manages the participants' assets within the country's legal and regulatory structure. A main difference between the DB and DC formats, as has already been established, is that in DB the terms of the commitment were established already when the participant entered the plan at the outset. In the DC format the terms are established when the annuity is created.

In traditional insurance in the Swedish context the annuity is formulated as a profit-sharing arrangement, with a guaranteed rate of investment return plus a bonus rate of return. Insurance providers compete on the basis of both of these components. The guaranteed rate of return is a component of liabilities in the solvency ratio, the ratio of assets to liabilities that the insurer must meet to fulfill the regulations governing the private insurance industry.

The regulations applying to companies providing life and pension insurance specify limits for the portfolio composition of the technical reserves that cover guaranteed insurance commitments, *i.e.*, liabilities taking the company's guaranteed rate of return into consideration. For these reserves companies are allowed to have up to 25 percent of their assets in equities, an additional 25 percent in real estate, 10 percent in lending with other security than real estate, and a maximum of 3 percent in cash. The remainder of the portfolio is to be held in bonds, with a possible maximum of 100 percent. Companies are free to invest all assets in excess of these technical reserves free of any quantitative restrictions, but following prudent investment principles. In general, the greater the guarantee offered up front to customers, the higher the bond content of the overall portfolio will have to be, with a lower bonus as a result.

Insurance providers can attract participants by offering a higher return, which can be achieved either by minimizing the guarantee rate to free more capital for investing in the equity market or by taking on greater risk in its equity investment portfolio, or both. Note that

the bonus component also provides an opportunity for the insurer to cover the longevity risk. If longevity is underestimated this reduces the size of the possible bonus. This means that the insurer is more or less freed from carrying the longevity risk, although a poor mortality estimate can indirectly influence results by drawing down the bonus and making the company less attractive compared with competitors.

By way of illustration we note that until April 2007, in the mandatory FDC plan, managed by the PPM, the guaranteed rate of return on annuities was 2.75 percent. In 2007 the PPM changed both its policy regarding the guarantee and with regard to how the funds of pensioners should be invested. In order to enable it to increase its solvency ratio and thereby invest a greater portion of assets in equities, the guarantee was decreased the level needed to cover only the nominal value of individual balances. This meant in practice that the entire return would be provided in the form of a bonus – through the profit-sharing segment of investment returns. Obviously, the motivation for doing this is the hope that this will give a better return to policy holders in the long run.

Insurance providers in Sweden offer three types of products under the umbrella of traditional or unit-linked insurance. These are five or ten year withdrawals or life annuities. Each of these can be combined with a survivor product. Private voluntary and occupational benefits can be claimed from age 55 and public mandatory benefits from age 61. Benefits are taxed as normal earnings, and premium payments are deductible, to a limit. Lump sum arrangements have usually been used to avoid taxes on inheritances, and since the inheritance tax was abolished in 2005 the demand for this product has dwindled. Lump sums have only been available within private voluntary insurance. Whereas phased withdrawals are possible within the occupational schemes, along with life annuities, it is only possible to contract a life annuity within the mandatory public FDC scheme. The clearinghouse for the public FDC

scheme, the PPM, is the sole provider of retirement products for the public scheme. Table 6 provides a summary.

In addition to the individual voluntary insurance and the standard collective agreements governing occupational schemes, it is also possible for the employer and employee to agree on other retirement arrangements than the standard arrangements. These benefit packages can be associated with such diverse objectives as enhancing the contracts of top managers and providing severance pay. Employer payments for insurance in this connection are tax deductible, while benefits when claimed are taxed as normal income. Employers use this sort of arrangement to create a stronger incentive to retire than is possible through use of the standard collective agreement possibilities and in times of downscaling of staff this becomes one of the options offered older workers. Individual agreements falling under this category can compensate for a combination of either lost earnings or lost pension rights in the standard schemes resulting from earlier retirement. Eklöf and Halberg (2006) estimate that individual probabilities to exit the labor force prior to age 65 would fall by 14-25 percent, depending on the year examined, if the possibility for employers to give a ”golden handshake” of this kind were to be eliminated.

Table 6. Overview of products by category of provision

	PPM	Occupational	Individual
Lump-sums	No	No	Yes
Phased withdrawals	No	Yes	Yes
Annuities	Yes	Yes	Yes

A final remark in concluding this discussion of the present market for retirement products in Sweden, is that not much product innovation has occurred during the past half century or more. The single important innovation was the introduction of unit-linked insurance in the beginning of the 1990s, which in effect, only really added a new dimension to

the accumulation phase of insurance and an opportunity for holders of private and occupational insurance to manage their own investment portfolios, even after the "normal" age of retirement, in Sweden more or less still viewed as age 65.

Future Direction of the Market

As surveys of the current demand for annuities in many countries has shown, consumers do not purchase life annuities to any significant extent (*e.g*. Impavido, Thorburn and Wadsworth 2003). As we have seen, Sweden is no exception. The literature is full of discussions of why we observe this result. We begin by summarizing the most frequently cited reasons for why individuals do not annuitize and then discuss these in the present context.

The first and most obvious reason for not purchasing private voluntary annuities is that the mandatory system in a country is sufficient to fulfill the needs of most individuals. This has certainly been the case for Sweden. Public annuities have provided a consumption smoothing device and, as we have seen, private insurance has tended to be availed to supplement consumption in the early years of retirement.

A second reason often cited for for the low demand for annuities is that the bequest motive is strong. Annuities can come into conflict with the bequest motive and self-insurance within families. The more general desire to save in liquid assets, which provides flexibility, is a third reason. A fourth, obvious reason is that individuals may not be informed about or understand the benefits of annuitization. A fifth reason is that with both a desire to protect against the longevity risk and to provide bequests, individuals are constrained in trading across states because financial markets are incomplete. This prevents individuals from creating an optimum portfolio. Impavido, Thorburn and Wadsworth emphasize the potential of this shortcoming.

Finally, much of the literature has emphasized that annuities, when and where provided, may be too expensive (*e.g*. Warshawsky 1998, Mitchell, *et al*. 1999, Brown 2007). Demand is

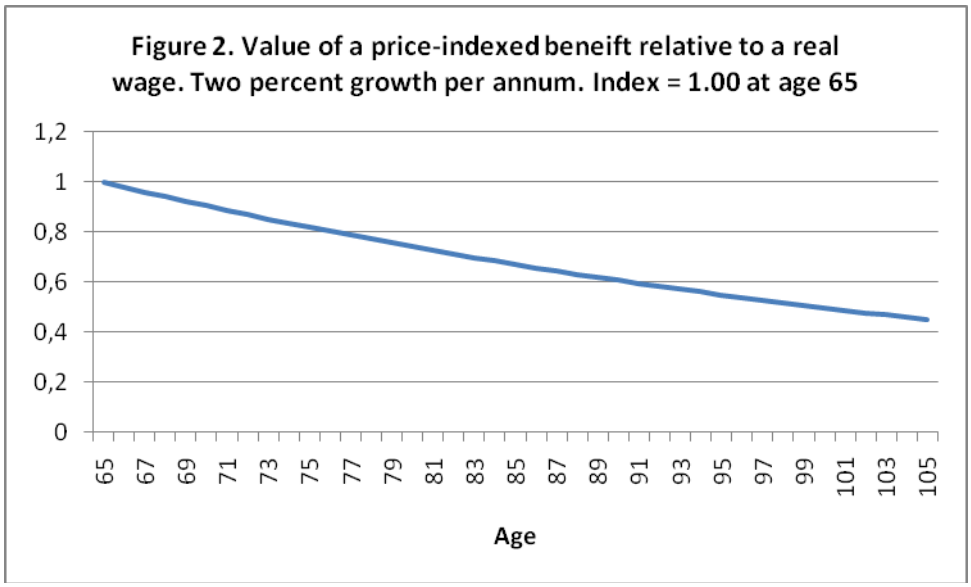
impeded, then, if potential annuitants can not expect to get their money's worth in the existing markets.

One of the dilemmas confronting the potential annuitant is that the "normal" pension age is too young an age to move money from active investment in the equity market to a "risk free" investment policy associated with the purchase of a market annuity. Given that individuals can invest in money market funds that outperform the "risk free" investment return plus the inheritance transfer from the deceased in the insurance collective, it is reasonable to defer annuitization until after a decade or so from age 65. For example, 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, the tendency of Swedes to contract 5-10 withdrawal plans, both within private voluntary and occupational insurance supplements to the public mandatory scheme is rational, especially if they avail the unit-link alternative where they 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.

This proclivity to transform saving into consumption during the younger years of retirement is the result, one may argue, of a poor understanding of what the future has in store. In Sweden, both the previous public non-financial pay-as-you-go DB scheme and the NDC scheme that has replaced it share the common feature of price-indexed annuities, which is also generally true of most mandated pay-as-you-go pension schemes around the world. This of course has the advantage of maintaining the purchasing power of pensions, but at the same time, as workers experience real wage growth, the ratio of a pension to an average wage will fall. This decline in the relative living standard vsi á vis a contemporaneous workers becomes dramatic with increasing age. The effect is illustrated in Figure 2 for an annual rate of real

wage growth of 2 percent for workers. For example, the relative well-being of a 90-year old is 60 percent of what it was when he or she was 65 years old.

In spite of the many good reasons to do so, there is no evidence at all that Swedes transform their 5-10 year retirement benefit withdrawals, which they could continue to invest, and other sources of financial saving into annuities purchased at a more advanced age of say 75-80, to provide for older, old age. Instead, the examination of the data for current pensioners in this paper indicates that the older, older population relies almost exclusively on payments from the mandatory public scheme for income support. In addition, they rely on the public provision of long term home and health care to cover disability and poor health in old age.



There are two reasons to believe that in spite of the pervasive support of the public sector in Sweden in covering needs in old age, this coverage is not sufficient for all already today and is likely to be perceived as even less sufficient in the future. The first reason is that the coverage of the public sector is already too shallow for more frail persons living at home. Public assistance in home care is more or less at a minimum guarantee level for the elderly who want to remain at home. For those who cannot remain at home, institutional care is also

far from satisfactory in the sense that assistance with more than basic daily activities is minimal. There is a lot of room to improve the daily standard of both home and institutional care.

At the same time, there is a clear trend towards increasing relative affluence among a large segment of the pensioner population (Gustafsson, Johansson & Palmer 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. The demand for services will certainly depend on other factors, too.

For Swedes, one of the uncertainties is the extent to which the public commitment will develop in the future. Other unknowns, as outlined for example in Mitchell *et al*. (2006), are developments in health and service technology and the length of time people can expect to be frail. These authors also point out that one of the deterrents to providing LTC insurance is the possibility of adverse selection, but that the little empirical evidence that exists on this, suggests that there is no tendency for correlation between holding LTC insurance and utilizing services. 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. The dilemma is that a mandate will not be able to cover the demand for even better services of the higher-income segment of the market.

It seems reasonable to suppose that the alternative that could emerge on the Swedish market would be one that appeals to the higher-income segment and that would provide either regular life annuities from higher ages, for example 75-80, LTC products or some combination of these.

It would also seem reasonable to enable individuals to convert balances on account in private voluntary, occupational as well as public FDC accounts to this form of “new” product. Within the context of unit-linked insurance this is no problem technically, as has already been

noted. Within the context of traditional insurance, this would require some rethinking. Another possibility often discussed in the literature is a reverse mortgage market. There is an the embryo to such a market in the US, for example (discussed in *e.g.* McCarthy *et al.* 2002, Creighton *et al.* 2005).

It is not clear why these products have not yet emerged in Sweden, although, to the extent that anyone has considered them, I suspect that it is a question of insurer difficulties in determining the risks and pricing these products so that they are attractive to presumptive customers. This is the same dilemma confronting an emerging annuity market has in general. Clearly the evidence in this paper indicates that the potential to convert account balances in the growing DC schemes will be there in the not so distant future. In the final assessment, whether demand will emerge will depend on the propensity of the market to offer saleable products on the scale necessary to create viable risk pools.

5. Final Remarks

This paper has analyzed the present structure of demand and market for retirement products. With the important exception of the emergence of unit-linked insurance in the beginning of the 1990s, the paper argues that little has changed in terms of product provision in the past half century. The market is dominated by a few large providers, all providing the same limited number of products.

Three factors may contribute to open up the market in the not so distant future. The first is the move from DB to DC plans, beginning with the reform of the mandatory public scheme and moving largely through the entire spate of occupational schemes. This clearly sets a limit on the commitment of the public sector. This in turn may increase awareness of the need to annuitize from age 75-80, which in turn would lead to the emergence of annuity products enabling this.

Second, what remains is a delineation of responsibility between the government's provision of care services for the elderly and the individual's responsibility within the area of long term care. Presently, it is very unclear what one can expect from the future public commitment in this area, although just as in the case of the pension system, it is likely that the "defined benefit" approach to long term care will prove to be too expensive. This would result in the public sector striving to a minimum guarantee, leaving the remaining commitment to private initiative. Given the extent of the development of DC schemes, and especially the emergence of unit-linked insurance, it should be easier to combine a retirement income benefit through age 75-80 with products more geared to cover the needs of the older, older population thereafter.

Finally, if and when pensioners realize that their price indexed mandatory benefits will yield a substantial relative deterioration in their standard of living in older old age, this too may inspire an increased interest in shifting more personal resources to the future.

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