

A Discussion of Retirement Income Security for Men and Women¹

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Introduction

Over the life cycle, all individuals will face periods when they are not able to support themselves through work. The causes will vary: sickness, unemployment, disability, child rearing, and old age. Not everyone will experience every event but with increasing life expectancy across countries, the share of individuals that reach retirement age is increasing. The purpose of this chapter is to examine retirement income security for men and women and how retirement systems can be organized with a focus on women.

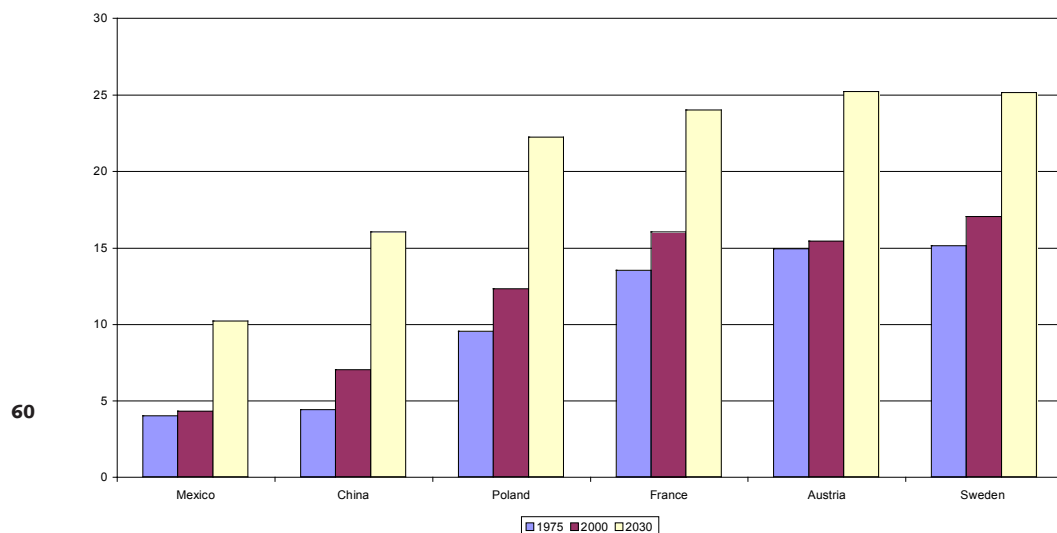
The main objective of a retirement system is to relieve poverty in old age through adequate income provision but also to offer insurance against an unexpectedly long life. Support to the elderly can be organized in various ways. Most commonly, support is provided through the family, the market, or the state. In almost all countries all three solutions exist but with one being dominant.

Irrespective of which solution a country relies on, it is under pressure from population ageing. Dependency ratios are increasing and fewer workers have to support more retirees putting pressures on pension systems provided by the market and the state. Population ageing is even faster in the developing world than it ever was in the industrialized world. In addition, changing family patterns and urbanization in the developing world put a

1 This discussion draws on *Retirement Income Security for Men and Women* by Ann-Charlotte Ståhlberg, Agneta Kruse, Annika Sundén and Marcela Cohen Birman presented at the 28th General Assembly of the ISSA in Beijing.

heavy strain on the family model and make informal retirement support systems less reliable. Figure 1 shows the share of the population aged 65 and older in six countries.

Figure 1: Share of population aged 65+ in 1975, 2000, and 2030



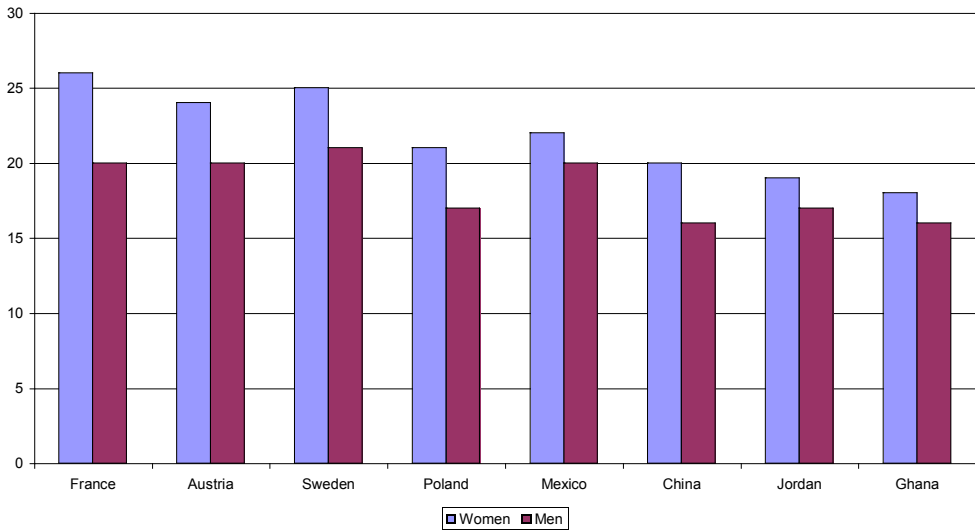
Source: United Nations 1999 and U.S. Census Bureau 2000 (from *An Aging World 2001*).

In 1975, the share of the population aged 65 and over was between 10 and 15% in European countries and less than 5% in China and Mexico. By 2000, these shares had increased somewhat but they are expected to skyrocket by 2030 when almost one fourth of the population will be 65 and older in the European countries and between 10 and 15% in Mexico and China.

Retirement income systems are of particular importance to women because throughout the world women are living longer than men (Figure 2). For example, in Austria the remaining life expectancy at age 60 is four years longer for women compared to men.

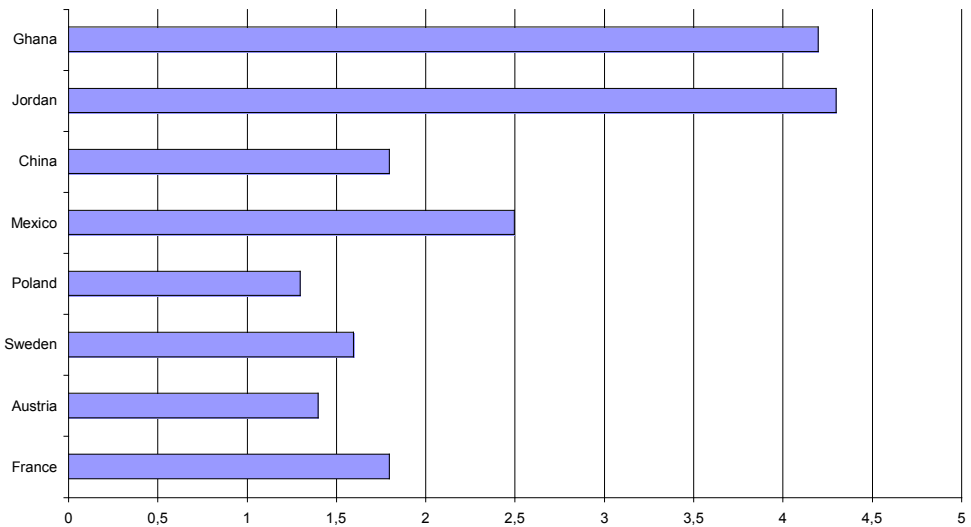
But increasing life expectancy is not the only reason that the age structure is changing. Fertility is low in many countries, contributing to the development that fewer workers have to support more retirees. In Austria and Poland the fertility rate stands at 1.3 while Sweden has a fertility rate of 1.6 (Figure 3).

Figure 2: Remaining life expectancy at age 60



Source: United Nations.

Figure 3: Fertility rate



Source: The World's Women 2000: Trends and Statistics.

Because of this demographic shift, reforming pension systems is on the top of the political agenda around the world and many countries are discussing reform. For example, Sweden transformed its pension system in 1998 when the pay-as-you-go defined benefit plan was replaced by a Notional Defined Contribution plan.²

In this chapter we analyse different ways of organizing pension systems. We give the pros and cons of different features with special reference to gender aspects. An aspect of special interest here is that men and women have different patterns of work history, with women having a lower participation rate in the formal labour market, interrupted careers in response to child rearing, and lower wages. Also, women have longer life expectancy than men and more often become widows than men become widowers. These differences may influence the consumption possibilities in old age depending on how the pension system is designed. Pension benefits will reflect labour market behaviour. But it is important not to compensate for gender differences on the labour market in pension systems, as that would merely reinforce traditional gender roles and preserve discrimination in the labour market.

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Women and Pension Reform

When discussing pension reform, the role of women is of particular importance for several reasons. Across countries, women have different lives than men. Women are less likely to work and if they work they often have lower wages. This means that pension systems that link contributions to benefits, also translate into lower benefits for women. For example, in Austria 64% of women aged 15-64 are in the labour force, compared to 77% in Sweden (Table 1). Women have interrupted careers and often take time out to care for children. They are more likely to work part-time. And because women live longer they need to support themselves longer and living longer means that many women will spend time as widows.

2 For an overview of the Swedish pension reform see Sundén (2005).

Table 1: Labour force participation and part-time work 2003, persons aged 15-64 years, in per cent

	Labour force participation			Share of part-time work in employment		
	Men	Women	Total	Share of women's employment	Share of men's employment	Women's share of all part-time work
Austria	79.4	63.9	71.6	26.1	3.2	87.3
France	73.8	62.5	68.2	22.8	4.7	80.0
Sweden	80.8	76.9	78.9	20.6	7.9	70.8
Poland	70.2	58.4	64.2	16.8	7.1	66.2
Mexico	84.2	40.5	61.2	25.7	7.0	65.7

Source: OECD Employment Outlook 2004.

The design of pension systems is important because these differences in work patterns between men and women will be reflected by the pension system. They will influence the level of pension benefits and thereby consumption possibilities in old age. Will a certain design favour women more than another design? In the following we describe pension systems by their design features and analyse the expected effects on incentives, pension benefits and income distribution for men and women.

Public – private, mandatory – voluntary

The choice of public-private, mandatory-voluntary has in itself no gender effect on incentives and redistribution. However, if the intention is to have a common risk pool of men and women, i.e. to use unisex life tables, then the system has to be public and mandatory. Because the premiums are the same for men and women, they will be set to reflect women's longer life expectancy. This means that men on average will pay more into the system than they receive in benefits. In this respect a public mandatory system favours women.

A mandatory system poses a restriction on consumption in early years which is more binding in low income groups; a disadvantage for women.

Pay-as-you-go – funded

Pay-as-you-go (PAYG) or funded has by itself no gender effect. The effect depends on the link between contributions and benefits. If for example pensions are closely tied to contributions, incentives to work in the formal market will be strong and not much redistribution will occur.

If women are more dependent than men on the public pension system (the public pension is a greater share of their assets), women are more exposed to the risk of low economic growth (the rate of return in a PAYG) and, vice versa, less exposed to the risk of low rate of return and the higher volatility in returns in the capital market. If a funded system has individual accounts and women choose low-risk investments, this may lead to lower pensions for women.

Means-tested, fixed benefit, minimum guarantee – earnings-related

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Basic pensions independent of previous income provide a social safety net for the old, particularly the old whose lifetime income was low. To accomplish this, the benefit formula could be flat or means-tested or could provide a minimum pension guarantee.

A basic pension with a flat benefit favours low earners, i.e. mostly women, because they will get a higher rate of return and sometimes also a replacement ratio greater than 100%. The benefit is associated with marginal effects; individuals in the lower part of the income distribution may not supply labour to the market, which in turn could create a poverty trap.

Means-tested benefits can be targeted to those in need, thus favouring women as a group. But it also means that women are exposed to high marginal effects (i.e. the sum of the tax rate and the rate of withdrawal of the benefit), which affects their labour supply and savings. Women's labour supply may be more sensitive than men's since net wages may influence women's allocation of time between market work, which is taxed, and home work, which is not taxed.

A means-test in which only the individual's own pension counts as "means", i.e. a minimum pension guarantee, creates less disincentives for voluntary personal savings and transfers from members of the extended family compared to a means-tested flat benefit.

Earnings-related benefits make paid work an attractive option. By creating an obvious link between reported incomes and future benefits,

employment-based social insurance schemes encourage people to participate in the formal economy.

Earnings-related and defined benefit

A weak link between contributions and benefits subsidizes non-market activities. This reduces work incentives especially among women. Low incomes result in low pensions. If the system subsidizes non-market work, women get a higher rate of return on their contributions than men do. If benefits are based on final wages men are favoured as they have steeper age-earnings profiles.

Earnings-related and defined contribution

A defined contribution (DC) plan implies a tight link between contributions and benefits and thereby strong incentives for work in the formal market. There are no redistributions. Low incomes result in low pensions.

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Redistributional – actuarial

To study distributional effects it is necessary to consider both the benefits and the way they are financed. The basis for evaluating interpersonal redistribution is an actuarially fair insurance. An individual's lifetime contributions are compared with her or his expected lifetime benefits.

Women's life expectancy is higher than for men. An actuarially fair insurance must therefore have higher contribution rates or lower pensions for women than for men. Systems that treat men and women equally (rely on unisex life tables), as public systems often do, redistribute income in favour of women. Life expectancy also varies between different income groups.

An actuarially fair pension system is neutral when it comes to redistribution. But usually the link between contributions and benefits is not perfect, particularly not in defined benefit plans. Certain rules favour certain women while putting others at a disadvantage. If an individual's pension is determined by the income during the best or final years, while pension contributions are proportional to lifetime income, women who alternate between non-market work and market work are at an advantage. If the number of years required to qualify for a full pension is less than the number of potential years of contribution, for example women who take a break from gainful employment while they have young children are at an

advantage. Women who continuously work part-time or have low wages throughout their working lives, on the other hand, are at a disadvantage under these rules. These rules favour high earners. A ceiling on benefits but not on contributions puts high earners (mostly men) at a disadvantage.

Although few empirical studies have examined how defined benefit (DB) pension systems with earnings-related benefits and contributions systematically redistribute lifetime income between women and men, one study of the Swedish public pension prior to the 1998 pension reform found that the average ratio between expected lifetime benefits and lifetime contributions was higher for men than for women, that is men had a higher rate of return on lifetime contributions than women. Female unskilled blue-collar workers had the lowest benefit-cost ratio of all because this group includes women who both work for many years and have a weak wage progression over time. Female low-wage earners therefore get the least benefit out of their contributions to the earnings-related scheme (Ståhlberg, 1989).

Retirement age

In DB plans, women are often permitted to retire earlier than men. When benefits are not adjusted in an actuarially fair manner, women could increase their lifetime benefits by retiring early. A higher retirement age would add to the supply of older workers and yield fiscal saving.

In DC plans that function on an actuarially fair basis, lifetime benefits do not increase if women retire early. Actuarially fair benefits will induce women (men) to postpone retirement voluntarily compared to a DB system with early retirement subsidies.

Indexation

Indexation before and after retirement is crucial for both men and women. Women as a group gain more from indexation of annuities since it especially benefits long-lived individuals and groups. If the real wage growth is positive, it is especially important for women to have a system with wage indexation. Because they have a longer retirement period, price indexation makes them fall behind the standard of living of the working generation to a greater extent than men do.

Survivor's pensions

Most social security systems pay a survivor's benefit. The majority of the recipients are women, because women's life expectancy is higher than men's, and husbands are often a bit older than their wives. However, this is not redistribution in favour of women. If there were no survivor's pension, a couple would have to safeguard the income of the surviving spouse on their own. Any private protection of the surviving person reduces the current consumption possibilities of the husband as well. The survivor's pension is therefore redistribution in favour of couples. Single men and women subsidize one-career families. Two-career families subsidize one-career families who get the same benefit from only one contributing member. This gives incentives to wives to stay at home or to work in the informal sector. In certain social security systems women have to give up their own pension when they receive the widow's pension. This greatly impacts women's incentives to work in the labour market.

The DC pension allows a choice of joint-life pensions (with spouses) and also allows pre-retirement transfers of pension rights between spouses. This means that married men could buy joint-survivor annuities. The payout to the husband would be reduced in order to leave a reserve to fund a survivor's benefit. Single men would receive a higher annuity relative to their married counterparts. But if households are myopic, or if the husband places greater weight on consumption when he is alive, the widow may not have an equivalent amount in a voluntary system.

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Pension credits for child rearing

In PAYG-systems' families with an above-average number of children create benefits for the rest, particularly for those without any children: everybody benefits from the labour of the next generation. Families with children could therefore be entitled to some support for raising children, regardless of their income.

Annuities

Workers who are myopic might spend their retirement savings long before they are dead. Annuities that provide lifetime insurance are important especially for women who are expected to live longer than men. Because the

voluntary nature creates more of a problem for women, mandatory annuities favour women more than men.

Conclusions: pension design

Three aspects are of importance for women when evaluating pension systems: work incentives, distribution, and the level of annual benefits. Women's participation in the labour market contributes to their independence and equality in society. Distribution and annual pension benefits are important because women earn lower wages resulting in lower benefits. At the same time, they live longer and have to support themselves longer. Therefore, it matters how a pension system distributes benefits between men and women and also, to avoid poverty, the level of annual benefits. However, pension systems should not compensate for gender differences in the labour market since it will merely reinforce traditional gender roles and preserve discrimination.

68 In particular, women's longer lives have implications for pension benefits and the design of pension systems. Because women's contributions on average have to pay for a longer retirement period, an actuarially fair insurance – that is if the private market provided benefits or if people saved on their own – must have higher contribution rates or lower benefits for women than for men. As a result men and women with the same earnings and years in the labour market will receive different annual benefits. Because living longer is a "risk" women cannot affect, they will have a lower standard of living in retirement than men.

On the other hand, if the contributions for men and women were pooled and distributed according to the average life expectancy for men and women together (unisex life tables), annual benefits would be the same for men and women with similar backgrounds. Because women live longer, they would receive more in total benefits than what they have paid into the system so benefits will be redistributed from men to women. To achieve this result, the system has to be public and everyone has to be included.

Hence, a first important principle of pension design is that the scheme should use unisex life tables. Such a system has to be public and mandatory. The effects on distribution are positive – benefits are distributed from men to women. But a public and mandatory system has no effects in itself on work incentives or annual pension benefits

An important objective of pension systems is to keep the elderly out of poverty. Women have low lifetime earnings, thus a second important principle is to provide a minimum guaranteed benefit. Such a benefit will have a negative effect on work incentives because it will be paid out irrespective of work effort. But, the effect on distribution and annual benefits is positive.

Sometimes minimum guarantees are means-tested, i.e. they are reduced if an individual has other income, e.g. from work. This will have an even stronger negative effect on work incentives but still positive effects on distribution and annual benefits.

And a final principle is that a pension system should provide income replacement.

Earnings-related schemes can provide positive incentives to participate in the labour market by establishing a strong link between contributions and benefits. The effects on distribution and annual benefits depend on the link between contributions and benefits.

In a defined benefit plan, the effect on distribution depends on how benefits are determined.

A defined contribution plan is neutral with respect to distribution and level of benefits because of the link between contributions and benefits. The effects are summarized in Table 2.

Table 2: Pension design: consequences for women

	Work incentives	Effects on distribution	Annual pension benefits
Public	=	+	=
Mandatory		+	
Minimum pension guarantee	-	++	+
– means-tested benefits	--	+	+
Earnings-related benefits	+	?	?

Country Experiences

Next, we examine the pension systems in seven countries: China, Jordan, Ghana, Mexico, Poland, Austria, and Sweden. Table 3 shows the extent to which the pension systems reflect the three principles.

Table 3: Pension design in selected countries

	China	France	Ghana	Austria	Mexico	Poland	Sweden
Mandatory, public	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Coverage	10%	All	10%	All	All	All	All
Minimum pension	Yes	Yes	No	Yes	Yes	Yes	Yes
Earnings-related	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pension age Men/Women	60/55	60	60	65/60	65	65/60	65

Coverage in developing countries is in many cases restricted to urban workers and certain categories of workers such as civil servants and military personnel. Rural workers have little or no pension coverage in much of the developing world. Informal (usually family) systems provide the bulk of social support for older persons in these countries, particularly in Africa and South Asia. Most developing countries have public social security systems although they are far less important than existing family-based systems.

All the selected countries have a mandatory public pension. However, the coverage varies from 10% in China and Ghana to 100% in countries like Austria and Sweden. Using unisex life expectancy tables is crucial for women. Unisex tables favour especially women in Austria, France, Sweden and Poland. At age 60 they are expected to live 5-6 years longer than men. In Ghana and Mexico the differences in life expectancy are small.

Most countries have some form of minimum pension. The marginal effects vary. In Mexico, the minimum pension is designed so that workers get a uniform amount for every day that they work, thus creating incentives to participate in the labour force. In other instances, minimum pensions have stringent eligibility rules reducing the benefit for women.

All the countries' schemes also include an earnings-related component. The schemes in China, Mexico, Poland, and Sweden have a tight link between contributions and benefits while the other countries have defined benefit schemes with a non-actuarial design. These pension systems are DC plans with actuarial design. In the remaining countries the pension systems are DB plans with non-actuarial design. Benefits are linked to contributions, but the link is weak. Benefits are determined by the best or final salary, which means a subsidy to all kind of non-market activities. It reduces work incentives, favours certain women by giving them a high rate of return on lifetime

contributions but disfavours other women giving them a low rate of return. Women (men) with an uneven life cycle income pattern win while women (men) with a flat life cycle income pattern lose under these rules.

The Swedish system provides a child credit regardless of income and it is not restricted in the sense that the parent has to abstain from market work. France gives pension credits for more than 3 children.

Only Mexico's pension system requires men and women to purchase joint-survivor annuities that cover their wives (husbands). In reality this imposes an implicit cost on married men that takes the form of a lower monthly payout while they are alive. The state-financed survivor's pension in China, France, Ghana, and Poland is a redistribution in favour of couples, especially one-career families, and gives incentives for wives to stay at home or to work in the informal sector. In Poland, the widow must choose between her own pension and the widow's pension which further depresses the wife's incentive to work.

And women have earlier retirement ages than men in China, Austria and Poland. This has negative effects on work incentives and is not reasonable because of women's longer life expectancies.

Pension Reforms and Gender Issues³

Few empirical studies have examined how pension systems systematically redistribute lifetime income between men and women. James et al. (2003) have estimated gender effects of the pension reforms in Chile, Argentina and Mexico. We add our own estimates of the Swedish pension system. The pension reform in 1998 transformed Sweden's pension system into a notional defined contribution plan, i.e. a defined contribution plan financed on a pay-as-you-go basis. In addition, a second tier of funded individual accounts was added. Crucial features in the Swedish pension with reference to gender aspects are:

- Benefits are closely tied to contributions and consequently there is not much redistribution.
- Pension credits for child rearing favour women.
- The ceiling (indexed by wages) on benefits but not on contributions (above the ceiling half of the contributions are paid) redistributes income in favour of low earners and thereby in favour of women.

3 For a more comprehensive study see Ståhlberg et al. (2004b).

- Unisex life tables redistribute income in favour of women.
- The (pension-tested) guarantee pension redistributes income in favour of low earners and thereby in favour of women.

The tight link between contributions and benefits encourages market work from early age and continuously. The child credit is not restricted in the sense that the parent has to abstain from market work.

A simulation model

In order to illustrate how the Swedish pension system affects women's pension benefits, we calculate benefits and contributions for groups of "typical" women. In constructing the groups, we build on James et al. (2003).

The groups include:

- A. Full-career woman: same labour force participation and retirement age as men – works full-time for most or all of her career.
- B. Full-time / part-time woman: working full-time until having children, alternates between parental leave and part-time as long as the children are small and then goes back to full-time work.
- C. 10-year woman: participates in the labour force during 10 years early in life, before marriage and birth of children.
- D. Part-time woman: woman who works part-time for most of her career.

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For each case, a wage profile is constructed using earnings data from Statistics Sweden for five levels of education (no upper secondary school, upper secondary school, undergraduate education ≤ 2 years, undergraduate education > 2 years, postgraduate education).

Our measures are:

- (1) Annual own annuities.
- (2) Replacement rates calculated as the annual benefit as a percentage of final salary.
- (3) Rate of return calculated as present value of expected lifetime benefits divided by present value of lifetime contributions.

In all these measures we calculate the ratio between women / full-career men. A gender ratio of 1 means that men and women have the same replacement rates, annual annuities, etc. A gender ratio greater (smaller) than 1 means that women have a higher (lower) replacement ratio, higher annual annuities, etc. than men.

Results

Table 4 presents the women/men ratio of annual own annuities, replacement rate and rate of return on lifetime contributions for typical earnings profiles.

Table 4: The ratio between typical women's and full-career men's annual own annuities, replacement rate and rate of return on lifetime contributions

	Women / Full-career men			
	<i>Full-career woman</i>	<i>Full-time/part-time woman</i>	<i>10-year woman</i>	<i>Part-time woman</i>
Annual own annuities	0.83-0.99	0.79-0.84	0.35-0.41	0.62-0.67
Replacement rate	1.00-1.22	0.96-1.17	1.22-1.45	1.04-1.25
Rate of return	1.15-1.28	1.17-1.23	3.07-3.92	1.19-1.32

The results show that women on average get lower pension benefits than men. Despite this, women have a higher replacement rate and a higher rate of return on lifetime contributions than men. Part-time women's annual pension is 62-67% of full-career men's. However, they have a replacement rate 4-25% higher than men's and a rate of return that is 19-32% higher than men's. If, for example, men's rate of return would be 3%, part-time women would have a rate of return of 3.6-4.0%. Full-time / part-time women have a rate of return that is 17-23% higher than men's. The 10-year woman gets the minimum pension guarantee. Her rate of return on lifetime contributions is 300-400% higher than men's.

Despite lower benefits women have higher replacement rates and higher rates of return on pension contributions than men. This is due to the unisex life tables, the minimum pension guarantee and the pension credits for child rearing.

The distributional effects of unisex tables are high whereas the child credits have less influence on women's pension amounts.

Conclusion

Old-age support comes from many sources. In this chapter we focus on public pensions. We have identified the following features being important to prevent poverty among women and to secure income replacements. The pension system should

- be public and mandatory in order to make unisex life tables possible,
- provide economic incentives for women to work in the formal sector,
- not punish women by giving them a lower rate of return on lifetime contributions than men,
- not punish child rearing,
- provide a minimum guarantee,
- index pensions,
- provide joint-and-survivor annuities, which provide continued benefit payments to a surviving spouse,
- allow accrued pension rights to be divided in the event of a divorce.

These features are important because women's labour market behaviour differs from men's. In particular, women work more part-time, have more interrupted careers and are lower paid. Furthermore, women have longer life expectancy and are more likely to become widows. It is important to provide adequate pensions and income replacement but a pension system should not compensate for gender differences in the labour market, as that would reinforce traditional gender roles and preserve discrimination in the labour market.

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