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ADEQUACY IN SOCIAL SECURITY SERIES

RETIREMENT
BENEFIT PROVISION

Measuring multivariable adequacy
and the implications for social security institutions

Retirement benefit provision

Measuring multivariable adequacy and the implications for social security institutions

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Contents

Preface

The Adequacy Project of the International Social Security Association (ISSA) broadens the debate on the definition of social security benefit adequacy. The adequacy model presented in this report, which addresses specifically retirement benefit provision, seeks not only to define the different variables that contribute to adequacy but to quantify their role. The aim is to better reflect the reality of the multiple objectives of social security systems.

Demographic pressures and fiscal constraint are leading some countries to move from providing "financially" adequate towards reduced benefit levels. In some programmes this involves movement from the provision of universal benefits towards a greater use of targeting. Changes in programme design and the administration and delivery of benefits also carry the risk of impacting negatively on the wider adequacy of benefits. These trends may weaken public support for the principles that underpin social security, thereby threatening the sustainability of social security systems. Efforts to support the design and delivery of adequate benefits are therefore essential in this context. In addition, countries developing universal systems also need to ensure that the horizontal extension of coverage is not detrimental to the provision of adequate benefits. By recognizing that the concept of adequacy comprises more than financial considerations and by seeking also to quantify the respective roles and value of other measures, the ISSA project aims to support the goal of adequate benefit provision in its broadest sense.

The development and piloting of the adequacy model has shone important light on the importance for social security institutions of researching, organizing and managing data. The record-keeping procedures of social security institutions matter, facilitating the linkages between system design, programme management and the delivery of benefits. In this regard, I am sure you will find the results of the pilot phase both interesting and useful.

By creating a spreadsheet model that ISSA member institutions can apply, social security programmes can be assessed and measured in relation to the many different objectives of policy-makers and practitioners. The model also allows for comparison over time as well as for testing the impact of reform measures on different adequacy measures.

The adequacy model is openly available to all ISSA member institutions. A summary report of the project, including the results for studies on unemployment benefit adequacy and the model for disability benefit adequacy, will be prepared for presentation at the World Social Security Forum in Rio de Janeiro, Brazil in 2016.

Hans-Horst Konkolewsky
Secretary General

Executive summary

As the first in a series of reports promoting the findings of the Adequacy Project of the International Social Security Association (ISSA), this report summarizes results concerning the adequacy of retirement benefit provision and discusses the implications of these for social security institutions. Following an introduction that outlines the rationale for the project, the report presents results from seven piloted case studies[1] of the ISSA's retirement adequacy model and offers analysis for the improved design, management, administration and delivery of benefits.

The definition of an adequate retirement benefit has often focused on one measure alone – the replacement ratio. Given the multiple aims of social security systems, this focus can be considered too narrow. Under this project, the ISSA has developed a quantitative model which defines and assesses a multivariable measure of adequacy. The model incorporates seven parameters that aim to reflect the different aspects and objectives of adequacy, at both an individual and societal level. By attempting to develop a broader measure of all aspects of adequate benefit provision – such as labour market aims, security of benefits and interaction with other stakeholders and their benefit provision – the project seeks to place a value on the parameters of provision. While this concept is not new and a number of studies have addressed the subject (see, for instance, Gruat, 1997; Thomson, 1998; Gillion et al., 2000; ILO, 2004), the ISSA model seeks to add to the debate by including new elements in the assessment and measurement of adequacy.

The report highlights the important fact that improved adequacy does not necessarily come at the expense of affordability/sustainability, as improving adequacy is not simply a matter of increasing replacement ratios. Other parameters of provision – the type and form of benefit and how the benefit is accessed, communicated and delivered – also add value to the benefit and therefore should be considered when assessing adequacy.

The model seeks to measure the full value of benefit provision and also provide pointers for improving the adequacy of benefits through the administrative and management actions of social security institutions as well as through policy changes.

The project design involved two key stages, each of which contributes to the continuing debate and discussion regarding the issue of adequacy.

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1. Seven national institutions/systems were piloted from the ISSA's four regions. In this report, the piloted cases are cited and numbered according to region, their identities having been anonymized. The World Bank classifies these countries as follows: Africa-1 (Low income), Africa-2 (Lower middle income), Americas-1 (Upper middle income), Americas-2 (Upper middle income), Asia and the Pacific-1 (High income non-OECD), Asia and the Pacific-2 (Lower middle income), Europe-1 (High income OECD).

The first stage involved the design of the model and required decisions from social security institutions regarding five key questions:

- Which parameters of adequacy might and should be considered?
- How should the selected parameters be assessed?
- What are the appropriate indicators to assess the level of adequacy achieved under each parameter?
- Which data sources should be used to place a value on the indicators?
- What relative weight should be placed on each of the parameters measuring adequacy and which level of priority should be accorded to each?

The second stage of the project involved seven national pilot studies. The pilot studies revealed issues regarding how the concept of adequacy varies by country and by retirement benefit system and drew attention to the key challenges in measuring adequacy and accessing reliable data sources.

From the outset it was decided that the project should place no value judgement on the scores obtained by the social security systems. A score for any parameter has to be considered in the context of what is being measured, the resources available, the objectives of the retirement system and other priorities. Indeed, given the trade-offs between some of the broad parameters (e.g. the more generous a benefit, the earlier an employee is likely to leave the labour market), it is likely that a high score on one parameter will imply a lower score on another and potentially an overall result further away from the "desired" position for the institution.

The project's key findings are as follows:

- The concept of multivariable adequacy is accepted as appropriate and valuable. The key barriers to assessing adequacy on this basis were in defining and then measuring the different parameters in a reliable manner. The ISSA Adequacy Project was therefore welcomed by institutions as a systematic approach to this challenge.
- While the multivariable nature of benefit adequacy was validated, it was recognized that there were different approaches to its measurement depending on the system's characteristics and data availability. Assessments should vary by country and system and the use of different weights for the different parameters allows this distinction to be reflected in the final assessment.
- The structure of the model and the assessment of different parameters are necessarily driven by data availability, reliability and comparability. There is therefore a balance struck between relevance of the parameter and the quality of the data to assess it. One example is the measurement of benefits in kind for pensioners (Parameter 1). While the provision

of free or subsidized health care and public transport are important, information on the level of these elements was often not readily available or difficult to quantify.

- The process of measuring adequacy is beneficial in itself; the need to ensure data is available and measurable implies that certain management processes have to be in place. The model therefore also provides a checklist of certain record-keeping and administrative capacities within the institution.
- The importance of the distribution of adequacy (i.e. how adequacy varies by the income and wealth of the beneficiary, but also by other factors such as gender and employment status) was brought to the fore in relation to the model. The question of inequality in adequacy is increasingly important and reflects other underlying, often structural, inequalities in the labour market and society in general, which are directly reflected in benefit outcomes. While the model does include elements which assess this inequality element and the redistributive impact of systems, this would require analysis that is beyond the scope of this project.
- As expected, the results from the national pilot studies reflected different weighting for different parameters and different "desired" positions for adequacy. A key benefit derived from the model was the contribution it offered to the process of assessing an efficient and effective use of resources. For example, a relatively small increase in expenditure to improve communication and administration procedures can significantly improve both public understanding of benefits and ease of access to benefits and services and in turn boost administrative adequacy. In some instances, this may provide a more efficient use of resources than spending the same resources on increases in benefit levels.
- While comparison of adequacy across countries is difficult, the model does allow an assessment of one system's development over time. It is also a useful tool to assess the impact of retirement system reforms where the current system outcomes can be compared against those from proposed changes.
- Finally, the project's findings highlight the value to social security institutions, policy-makers, the public and other stakeholders of benefits and services provided by retirement systems. In a period of financial constraints faced by many social security systems, a quantification of these positive elements can strengthen their political and public support.

1. Project context: The importance of adequacy and its definitional challenges

1.1. The importance of adequacy

The extension of coverage to a greater proportion of the population and to provide protection against a greater number of risks remains the dual focus of many social security institutions. However, in extending coverage, it is crucial that social security administrations provide adequate benefits. There are a number of reasons for this:

- An adequate benefit better meets the needs of the covered population and therefore supports social security institutions in meeting their objectives to respond to life-cycle and labour market risks which are varied and include poverty, unemployment, illness and other economic risks. If the benefits provided are not adequate, then the multiple aims of social security will not be fully met.
- By providing adequate and not just minimum levels of benefits, public confidence in social security increases. This has subsequent positive impacts on political support for the social security system and should encourage increased levels of compliance to contributory programmes.
- Providing adequate benefits creates an important incentive effect. If the minimum cash benefits provided through a country's contributory and non-contributory (tax-financed) programmes are similar, there is a large incentive to avoid affiliation to the contributory programme. In countries that operate contributory and non-contributory retirement programmes, the perceived or real inadequacy of contributory benefits relative to non-contributory benefits may lead to an increase in disaffiliation and contribution evasion and thus a fall in contribution collection rates (Mesa Lago, 2012).
- Adequate benefits work in synergy with other employment and fiscal measures and support measures to reduce economic inefficiencies. Adequate benefits have positive feedback impacts on economic development.
- Providing benefits that are adequate supports other policy objectives such as meeting health goals, supporting families, and reducing social conflict and inequalities.

1.2. Defining adequacy

The design, financing, delivery, management and administration of a retirement benefit system have to respond to different and sometimes contradictory objectives. These objectives include ensuring sufficient income in retirement; supporting employment objectives; being sustainable while equitably sharing the financial burden between generations; being

straightforward to administer, communicate and deliver; ensuring interaction with other benefit programmes to better avoid duplication and disincentives; and to cover as many people as possible. These multiple aims imply that the definition and measurement of adequacy must also be multivariable.

The fact that adequacy is multivariable raises the issue of what weight should be placed on the different elements making up a measure of adequacy. In this regard, consideration must be given to possible trade-offs between conflicting aims and to the fact that many of the different elements are difficult to measure, lack data or are subjective. The importance of different elements of adequacy will vary by country as well as evolve over time. One important issue to consider is how to assess whether the design and delivery of old-age benefits interact appropriately with other benefit provision.

The understanding that a measure of the adequacy of a pension benefit is more than the replacement ratio alone is not new (Gillion et al., 2000; ILO, 2004; Chybalski, 2012). The use of the replacement ratio, however, does have a number of advantages and is used as part of the ISSA project's measure of adequacy. It is relatively easy to calculate and, in theory, comparable across countries, verifiable and simple to understand for participants. In practice, there are a number of questions regarding the methodology and assumptions used (for example, working career length) and whether an adequacy measure should consider current adequacy, historical adequacy or prospective adequacy. The use of the replacement ratio is therefore important, but should be analysed together with the other measures of adequacy used in the ISSA model. For example, aside from cash benefits, other elements of benefit provision are also valued by recipients and society. When there is a contradiction between the different objectives, such as the replacement rate and sustainability, trade-offs can be considered in relation to the value placed on different adequacy elements.

It is important to emphasize that the adequacy of benefits, including their delivery, should be viewed from the individual viewpoint and also from a macro-economic level. For example, the design of retirement benefits must be integrated with a country's labour market policies to ensure that their impacts are mutually supportive or, at a minimum, do not counter one another.

1.3. Inequality of retirement adequacy

The adequacy of a benefit for an individual will depend on that person's own situation – their income level, other resources, work history and contribution record as well as family situation. When assessing income adequacy, typically consideration is only given to average replacement ratios for average earnings. Even when replacement ratios are determined at other income levels,[2] these often assume a number of years of contribution

2. The project incorporates a parameter to test the sensitivity of outcomes to changes in income levels; (section 2.3.1.).

which are unrealistic for a large proportion of the population. Therefore the determination of adequacy will mask a wide variety of different situations – not only the question of replacement ratios at above and below average earnings, but also by gender, family status and wealth. Inequality in adequacy is also determined by the access to the benefit – an area where social security administrations play an important role. For example, those people who are better informed about their rights tend to be the better off in society. This issue runs across all types of benefits and services provided by social security programmes. For retirement benefits, this issue is particularly complex given that many systems provide salary-related benefits.

The majority of state pension systems include a redistributive element; however the benefit formula and rules regarding calculation typically result in outcomes which vary by gender, income group and health status,[3] amongst others. Using gender as an example, the Organisation for Economic Co-operation and Development (OECD) has reported that five of the 34 OECD countries have lower replacement ratios for women than for men, despite assuming the same working career. Moreover, among a sample of eight major non-OECD economies, seven had lower replacement ratios for women compared to equivalent male workers (OECD, 2013).

There are a number of reasons for this disparity:

- In many systems, the retirement age for men is higher than that for women, allowing the former to accrue superior benefits. Indeed a move to equalize retirement ages (i.e. increasing female retirement ages) may lead to an improvement in benefit levels for women (with the proviso that female employees continue in employment and contribute).
- Women tend to take a greater number of breaks from employment, most notably to have children, to provide childcare and to look after elderly relatives. Return to work might then occur on a part-time basis, thereby further reducing future benefit amounts. This may also have an effect later in life – as a consequence of career breaks, women may not be able to reach positions of greater responsibility or higher authority in organizations and, in turn, may be overlooked for future promotions with the accompanying salary increases that this implies.[4]

3. Those in poor health will receive pension payments for a shorter period than those in good health, but the financing mechanisms remain the same for both. This therefore implies a cross subsidy from those in poor health to those in better health unless other compensating mechanisms are put in place.

4. Many defined benefit systems imply a subsidy from those with lower increases in salary to those with higher salary increases.

- Where part of the retirement benefit is determined through the accumulation of contributions with investment gains then converted into an income, annuity rates tend to be less generous for women given their longer life expectancy.
- Women may have less access to information, may not be the holder of the bank account in the household or may have additional costs compared to men (for example, in divorced couples, it is more often the woman who has childcare responsibilities).

Policy measures addressing this gender issue include the equalization of retirement ages, pension accrual credits for career breaks, changes in benefit design and unisex annuity rates. When assessing the extent of the difference between female and male benefits, it is important to compare actual data rather than hypothetical prospective calculations. For example, under OECD calculations (OECD, 2013), the assumptions underlying the calculation of replacement ratios for women assume the same length of employment as for males. In reality, female careers are often shorter and the resulting inequalities even more pronounced.

But the reason for inequality can also be related to administration as well – for example, access to benefit information, affiliation procedures and the pay-out of benefits for women is often more challenging than for men. A number of measures of administrative adequacy (see section 2.3.3) can therefore also reduce gender, health and income inequalities. Despite a number of positive measures, inequalities remain. The pooling of risk can however lead to improved overall system outcomes although the impacts on different current beneficiaries always need to be assessed.

2. The ISSA retirement adequacy model

2.1. The model

The ISSA adequacy model consists of seven parameters that attempt to represent the different aspects of adequacy. Table 1 presents the parameters and summarizes the indicators used to assess their value.

This report should be read in conjunction with the operating manual of the ISSA retirement adequacy model (see ISSA, 2013).

2.2. Overview of model

The seven parameters aim to reflect the different aspects and objectives of adequacy, at both an individual and societal level. Together, they provide a tool to more fully consider the different aspects of retirement policy and how policy is put into practice. However they should not be considered as definitive measures and the scores obtained should not be taken as a value judgment of the system. In addition the objective of the model is not to compare scores across countries; the aim of the ISSA project is to provoke further debate and discussion surrounding the issue of adequacy.

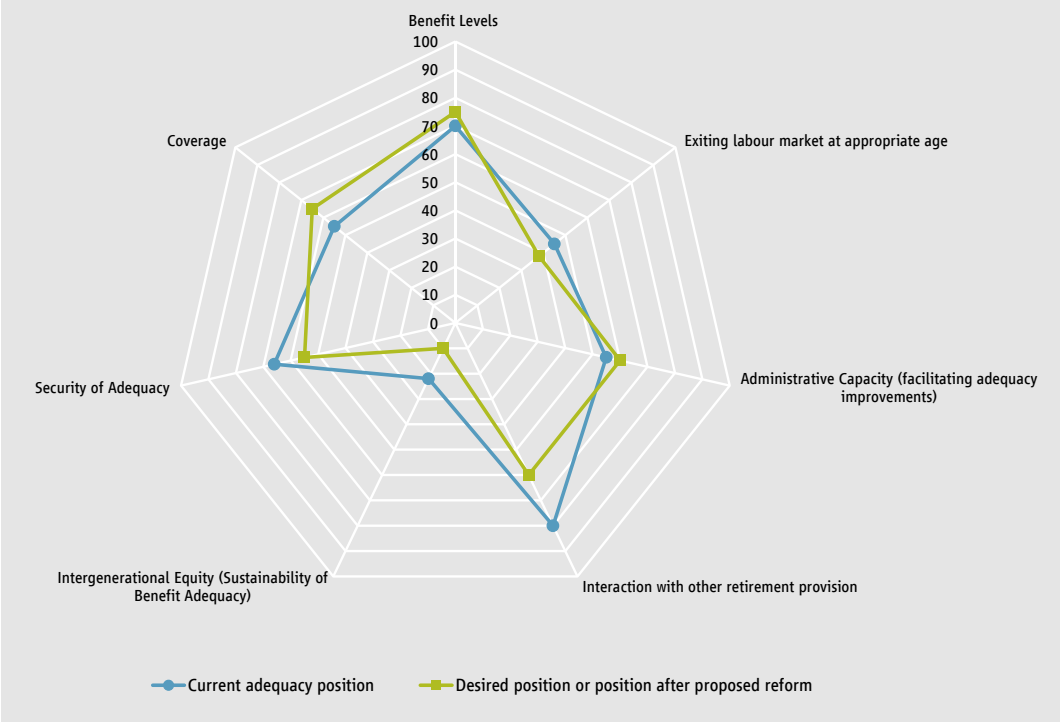
For each parameter, a number of indicators are adopted to assess the level of adequacy under each criterion. By definition, these are proxy measures and their choice is driven by the availability of data, objectiveness and ease of comparison. Scores obtained range from 0 to 100 but it is important to consider that a "high" score of, for example, 90 may not always be better than a score of 80 given the resources required to obtain such a score and a possible trade-off with other parameters.

The results obtained from assessing the indicator scores are plotted using a spider graph (see Figure 1 for a specimen example). This allows an immediate perception of the situation of the retirement system as well as possible trade-offs between parameters and objectives. The model also allows the opportunity to consider a desired position for the retirement system as well as "testing" different reform options and its impact on system objectives.

Table 1. *Summary of ISSA adequacy measures for retirement benefits*

Parameter	Indicators used
1. Benefit levels	1.1. Prospective replacement rate
	1.2. Current replacement rate
	1.3. Home ownership rates
	1.4. Historic replacement rate
2. Exiting the labour market at the correct age	2.1. Supporting late retirement: Can a pensioner receive a pension and continue to work?
	2.2. Are early and normal retirement ages consistent with the labour market exit age?
	2.3. Retirement system supports late retirement: Ability for a pensioner to defer pension and the terms on which this can be done
	2.4. Retirement system supports retention of working population close to retirement age
3. Administrative adequacy	3.1. Benefits paid on a regular basis
	3.2. Can additional contributions be paid to increase benefit levels?
	3.3. Information provided to individual to allow old-age planning
	3.4. Accessibility of benefit provision and contribution agencies
	3.5. Number of documents required to claim the pension
4. Interaction with other retirement provision	4.1. Social security and supplementary pension provision
	4.2. Spouse's benefits provided or independent entitlements exist
	4.3. Existence of third pillar/individual pension savings vehicle
5. Intergenerational equity (sustainability of benefit adequacy)	5.1. Increase in dependency ratio 2010–2050
	5.2. Increase in public pension spending 2010–2050
	5.3. Normal retirement age correlated with life expectancy
	5.4. Dependency ratio (absolute) at 2010 and 2050
6. Security of adequacy	6.1. Defined benefit provision for all or part of benefit
	6.2. Historic variability of average pension
	6.3. How benefit is affected if beneficiary misses ten years' service
	6.4. Pension amount payable on low income
	6.5. Pension or lump sum paid
	6.6. Can benefit be reduced depending on external factors (including automatic adjustment mechanisms)?
	6.7. Sharing of financing burden
7. Coverage	7.1. Legal coverage of active workers
	7.2. Active contributors to a social security old-age benefit (effective coverage)
	7.3. Effective coverage of pensioner population
	7.4. Coverage of self-employed workers and migrant workers
	7.5. Other conditions for eligibility

Figure 1. *Representation of a specimen retirement system*



2.3. The seven parameters

The following sections consider the rationale behind the choice of each of the seven parameters and their respective indicators.

2.3.1. Benefit levels

This parameter is measured through replacement ratio calculations and the level of home ownership in a country. The replacement ratio used aims to reflect the level of benefit payment as a percentage of the last salary and, in theory, facilitates comparison across countries and across time.[5] The scoring assumes that a replacement ratio of between 60 per cent and 80 per cent is adequate. In reality, this will depend on income levels. For example, a person earning the national minimum wage will need a higher replacement ratio than someone earning three times the national average earnings. In addition, the use of the replacement ratio is a proxy measure. In theory, the adequacy of cash payments should be assessed against the ability to use these to purchase a basket of goods and services. The parameter consists of three indicators measuring prospective adequacy (for those entering the workforce), current adequacy (benefit levels of those retiring now) and recent adequacy

5. In reality, the situation is clearly more complex and should be compared across different income levels and also different situations (e.g. shorter working careers). The issue of inequality in adequacy is discussed in section 1.3.

(those having retired in the last ten years). Gross replacement ratios are used for data availability reasons. The ISSA Adequacy Project therefore uses three types of measures to address the time element of the adequacy of benefit levels:

- A backward-looking measure of adequacy which considers the median income of those in retirement compared to the salaries of those close to retirement.
- A current measure which is a calculation of replacement ratios for those retiring now.
- A prospective measure of adequacy assuming current benefit rules (including future changes already agreed) for those entering the workforce and who will retire in the future.

Table 2 shows the three replacement rate elements for selected European countries. Although the usual caveats apply regarding consistency in assumptions and methodology across the three measures, it shows the relative differences over time and the magnitude of changes foreseen to retirement systems. The information appears to show that in most countries current pension amounts are relatively better than for those having retired in the last ten years, but for most countries an expected deterioration is expected in the years ahead. It also highlights the importance of increases to benefits once in payment, which maintain the purchasing power of pensions and is another element in the assessment of benefit adequacy (see parameter 6: Security of adequacy).

Table 2. *Selected European country gross replacement ratio calculations*

Country	Gross backward-looking replacement rates[1] (%)	Gross current replacement rates[2] (%)	Gross prospective replacement rates[3] (%)
France	64	64	59
Germany	51	42	42 (58)
Italy	55	80	71
Netherlands	46	85	91
Poland	55	65	49
Spain	56	87	74
Sweden	58	64	56
United Kingdom	48	65	33 (67)

Sources:

[1] EUROSTAT (2011). Figures sourced from *Ratio of pension income for persons aged between 65 and 74 compared to work income of persons aged between 50 and 59 years old.*

[2] The level of pension income the first year after retirement as a percentage of individual earnings at the moment of takeup of pensions in the year 2010. The calculations assume a full career from age 25 and all income from pension schemes that are "mandatory, typical or with wide reaching coverage". For example, in the case of the United Kingdom, it includes employer-sponsored pensions (with an assumed contribution rate of 8 per cent). See European Commission (2012).

[3] The calculations show the pension entitlements of a worker who enters the system today and retires after a full career. The main results are shown for a single person. A full career is defined as entering the labour market at age 20 and working until the standard pension-eligibility age, which, of course, varies across countries. For Germany and the United Kingdom, under "prospective" gross replacement rates, figures in brackets show the replacement rate including voluntary private-sector pension schemes (these are the only two countries in the survey where there is a difference to the first calculation). See OECD (2013).

The final element of benefit level adequacy analysed is home ownership. The aim of including this variable is to reflect the fact that housing costs may make up a significant proportion of living costs in retirement and that ownership of property thereby reduces the level of pension required for an adequate retirement income (after loan payments have been taken into account). Again, this is a general indicator.[6] This indicator is important as poverty rates depend greatly on home ownership status. The incidence of housing costs as a percentage of disposable income varies greatly by country, but whether an occupier owns or rents their home may influence whether a retirement benefit is adequate or not. For example, in the United Kingdom less than 30 per cent of home owners spend 40 per cent or more of their disposable income on housing costs, while the figure is 60 per cent for private renters (OECD, 2014). Retirement system policy and design should take this status into account.

2.3.2. Exiting the labour market at the correct age

This parameter reflects the role of the retirement system in supporting labour market policy objectives[7] and, in particular, whether workers leave employment at the "appropriate" age. While objectives will depend on the nature of the national labour market and also a value judgement regarding appropriate ages of retirement, the parameter is important as it attempts to assess how retirement systems interact with the behaviour of employees at, and close to, retirement as well as the objectives of employers regarding workforce planning. With population ageing, a number of governments have specific policy objectives related to participation rates of older workers; therefore retirement systems and the incentives they create for early retirement are increasingly under the spotlight. In addition, the notion of a fixed retirement age is changing. In Europe in particular, there is a trend towards no fixed end-of-contract age, which makes the incentives created by the retirement system particularly important.

The aim of this parameter is to reflect that there has to be sufficient consideration of the nature of the labour market when pension reforms are undertaken. At the same time, the impacts of systems and the incentives they create (e.g. exiting the workforce "too early") need also to be incorporated. Although there is some debate regarding the extent to which retirement systems influence employment patterns (e.g. the basis on which the early retirement age impacts on the age at which employees leave the workforce), there is clearly an impact. Further, retirement systems have to reflect the realities of the labour market. This not only includes the structure and delivery of benefits but the financing mechanisms. For example, to be considered is whether the contribution structure and levels paid by

6. For example, it should in theory reflect home ownership rates for pensioners as well as the amount of debt outstanding, but this data is not widely available. In such cases, overall home ownership rates may be included if home ownership rates among retirees is not available.

7. In fact, retirement systems have a range of employment market impacts and benefit and delivery structures can be used to support certain employment policies (e.g. part-time working). See Brimblecombe (2013).

employers and employees are consistent with the cost of benefit accrual? The aim here is to provide an indication of whether the financing structures lead to distortions in the cost of labour. However analysing this factor is complex.

The analysis looks at a range of measures that assess the link and impact between retirement systems and employment, including the age at which employees leave the workforce, and how benefit provision supports older workers' employment rates. Table 3 shows two such indicators for selected countries in Europe, highlighting the wide variation across countries.

Table 3 also highlights the youth unemployment rate in the same countries. While there is some debate regarding a linkage between retirement ages, labour market exit ages and youth unemployment, there appears to be no direct correlation as can be seen in the table. However the issue is complex; changes to retirement ages need to be transitioned in and youth unemployment figures are only one measure of the situation of the young. For example, the youth unemployment ratio, which takes into account the large number of those aged 15 to 24 in education or training and which arguably distorts youth unemployment figures, is much lower than the youth unemployment rate. On average in 2013 in the European Union, the youth unemployment ratio was 9.8 per cent compared to a youth unemployment rate of 23.4 per cent.[8] Indeed the NEET rate (young people Not in Employment, Education or Training) varies widely in Europe from less than 8 per cent in some countries in northern Europe to over 20 per cent in Italy and Ireland.[9]

Table 3. *Employment at older ages and youth unemployment: Selected indicators*

Country	Employment rate (%) (aged 55–64)	Effective labour market exit ages	Youth (aged 15–24) unemployment rate (%)
France	44.5	60	23.7
Germany	61.5	62	7.9
Italy	40.4	61	41.8
Netherlands	58.6	63	11.4
Poland	38.7	61	27.2
Spain	43.9	63	54.9
Sweden	73.1	65	22.6
United Kingdom	58.1	63	19.7

Sources: OECD (2013) for employment rates (aged 55–64), 2013 figures; OECD (2013) for effective labour market exit age, 2007–2012; Eurostat <ec.europa.eu/eurostat/help/new-eurostat-website>, for youth unemployment figures as at December 2013.

8. See Eurostat, Youth unemployment trends.
9. See Eurofound, Young people and 'NEETs' infographic.

2.3.3. Administrative adequacy

This parameter reflects that if benefits are straightforward to access (e.g. a minimum of form filling) and provided in an efficient manner, then this increases both the perception and the reality of an adequate benefit. The parameter of administrative adequacy is assessed using a number of criteria which aim to reflect how specific delivery measures support adequacy. These include whether benefits are paid on a regular and timely basis, whether additional contributions for increased benefits can be paid and the ease of doing this, the quality and timeliness of information provided to individuals to allow old-age planning, and the accessibility of contribution agencies and benefit provision to ensure that contributions can be paid and benefits claimed and paid. Good communication and administration therefore adds to the value of the benefit received and also has other related positive effects allowing current and future pensioners to better plan their future savings and risk-taking decisions.

2.3.4. Interaction with other retirement provision

Beneficiaries do not necessarily distinguish between different sources of benefit payments, but are instead interested by the total benefit received. At the same time, it is not possible to judge the adequacy of social security retirement benefits in isolation from what is provided by other sources, both formal and informal. For example, a state pension equivalent to 20 per cent of average salary may be deemed sufficient in a system with a compulsory second pillar pension and significant informal support structures, while a state pension providing an average of 40 per cent of average salary may be insufficient in the absence of other sources of retirement income. Therefore this parameter seeks to assess how social security benefits are consistent with other retirement benefits provided and to take into account second and third pillar provision as well as provision for a spouse. This reflects a growing tendency for adequacy to be assessed in relation to the pension system as a whole.

Whether a social security programme provides adequate old-age benefits also depends on the context in which it operates and the nature of the population it covers. Therefore, a certain level of cash benefit in a country with a tradition of strong family support will be more generous than the same benefit in a country where family structures are less supportive or more dispersed. However, such informal support is not always reliable and may reduce over time as family structures evolve in many countries.

The model seeks to assess how other sources of retirement income, from second and third pillar provision, are taken into account. In a number of countries, these elements may make up a large proportion of retirement income for part of the population. However, there is often a wide variation and volatility in the benefits received – benefits may depend on length-of-service periods but, increasingly, defined contribution provision means final pension amounts depend on investment performance, contribution record,

expenses and annuity rates. Therefore, there can be a large variation in the amounts received by beneficiaries, even with identical contribution histories. This is particularly true when provision is voluntary – a calculation assuming average contributions is likely to overestimate benefits accrued particularly for those on lower incomes. Such systems have generally seen a fall in contributions paid by both employers and employees. In addition, such plans only cover certain employees[10] and the generosity of employer plans varies, making it difficult to model.

This raises a number of questions about how to take into account compulsory and voluntary benefits. The approach taken is normally to consider compulsory provision only. But even in compulsory systems, the level of employee contributions may include a voluntary element – hence, in projecting the likely replacement rate, should the average contribution amount be assumed or should it be based on the minimum contribution? As an example, in studies undertaken by the OECD, the replacement ratios in both situations are modelled, but set out separately. In the calculation of replacement rates, mandatory second pillar pensions are included in the base case determination and replacement rate calculations including benefits from private voluntary plans are stated separately (OECD, 2013).

2.3.5. Intergenerational equity (sustainability of benefit adequacy)

This parameter seeks to address the issue of sustainability through the lens of intergenerational equity. The reason for this approach is twofold. First, an assessment of whether current levels of adequacy are likely to be sustainable in the longer term is subjective and difficult to measure without an understanding of other public spending commitments and the overall size, growth and characteristics of the economy. For example, pension expenditure of 12 per cent of gross domestic product (GDP) may be considered as sustainable if other government expenditure is lower or if the population of a country considers relatively high pension expenditure as "acceptable".[11]

Second, sustainability is dynamic. That which may not be deemed sustainable today may be so 30 years hence if appropriate reform measures are implemented. For example, pension expenditure of 10 per cent of GDP may be more sustainable in one country which is ageing relatively slowly – or which has already become a relatively mature society ("already aged") – compared to a country with a "younger" demographic profile but which is rapidly ageing and has current pension expenditure of 9 per cent. This parameter of adequacy therefore does not seek to place a judgement on what a system is doing, but indicates simply any possible inconsistency between the cost of benefits and the financing mechanisms (which has implications for intergenerational equity) as well as trends in key indicators.

10. In 2007/08 contributions to voluntary private pensions amounted to GBP 20.9 billion compared to under GBP 19.5 billion in 2012/13; see Personal Pensions Statistics.

11. However such a level of expenditure may be unsustainable in the context of an ageing population and therefore the trend in this figure is assessed as an indicator of the sustainability of benefit adequacy.

The analysis as a whole moves away from assessing sustainability as purely a "cost" of improving adequacy. While the financial sustainability of systems is important, and reflected in this measure, a wider consideration of sustainability is required to enable social security administrations and policy-makers to ascribe the relative importance of this variable. Therefore the analysis provides tools to move away from the concept of a simple trade-off between adequacy and sustainability, where an increase in the adequacy of benefits is considered to be at the expense of the sustainability of a pension system.

Not only does such a position not fully take into account the multiple aspects of adequacy described above but it ignores a wider consideration of the concept of sustainability.

Judging sustainability on a financial basis alone overlooks the fact that there is also a political and public support angle to what social security provides and delivers. The corollary is that a lower benefit level may improve financial sustainability per se but weaken the credibility of and support for a system, with subsequent effects on contribution collection for example, thereby reducing sustainability under this broader definition.

By providing adequate benefits, sustainability under this definition can be strengthened. Adequacy does not – as the analysis above underlines – simply require higher benefits; at the same time, a more sustainable system does not necessarily imply that benefit amounts have to be reduced.

2.3.6. Security of adequacy

Social security systems typically provide benefits and services at a time when people are, or become, more risk averse. In addition, when payment is made, individual risk appetite changes and, more importantly, the ability to manage risk reduces. This should be taken into consideration in the design and delivery of benefits and in the assessment of adequacy. Risk in life can be retained, reduced and transferred; but when sick or in retirement, a person's ability to reduce and transfer risk is significantly reduced due to a short time horizon and fewer risk transfer tools available. This means a greater proportion of risk must be retained. It is important therefore that social security systems provide benefits that take this into account.

This parameter therefore assesses the level of security in the benefits and services provided. Behind this is a recognition that, given the choice of a guaranteed benefit of 100, or a benefit expectation of 110 with an outcome probability of 70 per cent combined with a benefit expectation of 80 with an outcome probability 30 per cent, many people will prefer the former option even though the average expected benefit in the second case (101) is higher.

But this issue is important not only when benefits are paid. In order to plan properly for retirement (and other life events), a person benefits greatly from knowing the likely

benefits that he or she will receive. For example, if from age 50 he or she knows to expect a benefit of 50 to 70 per cent of final salary, then other life decisions can already be made (e.g. preparation for part-time work, the need for voluntary savings, etc.). Risk transfer tools are also more accessible at earlier ages. This aspect is also reflected in the administrative adequacy measure (for example, in the provision of information).

Traditionally, this issue may not have been considered as significant given the structure of benefits (typically, defined benefit) and the relative importance (in many countries, the major source of cash transfers) of social security benefits. However with a number of pension reforms moving to a mix of financing sources and design structures for retirement benefits (e.g. increasing prevalence of defined contribution provision and the use of automatic adjustment mechanisms), this element is becoming increasingly important (see Box 1). At the same time, even under traditional defined benefit systems, some governments have changed rules (e.g. indexation of pensions in payment) leading to a reduction in the certainty of benefit payments. Security of benefits is determined by the benefit design and also by the support of legislation and appropriate governance mechanisms. Although some retirement systems incorporate automatic adjustment mechanisms which seek to strengthen system sustainability in adverse times, these often impact negatively benefit adequacy (automatic stabilizers which adjust financing mechanisms may of course support adequacy). The assessment of "security" of adequacy in the model therefore takes these factors into account.

2.3.7. Coverage levels

Given that an assessment of the adequacy of a retirement system should be considered also at a societal level, then coverage levels are an essential parameter of whether a system meets its objectives. This should be considered not only for those active in the formal economy but for those in the informal economy and for specific groups (the self-employed, those on career breaks, etc.). Eligibility conditions can also be judged as a coverage criterion. In the ISSA Adequacy Project, this parameter is measured through both the legal coverage of active workers as well as the effective coverage (assessed as active contributors as a percentage of the economically active population and the share of those above the pension age receiving benefits).

Box 1. Notional defined contribution (NDC) pensions and their impact on adequacy

Some countries, such as Poland, Latvia and Sweden, have introduced an NDC pillar as a component of a reformed multi-pillar pension system. Often, one of the stated reasons for this move has been that a close link between contributions paid and benefits received will incite a greater rate of contribution payment and therefore higher effective support for adequate benefits as individuals are incentivized to pay contributions. At the same time, the fact that such systems are not funded and have no assets backing them can lead, and in some cases has led, to a reduction in benefit expectations owing to frequent changes in rules regarding indexation and conversion to a pension at retirement. While funded defined contribution plans are subject to falls in asset values, reduction in investment income, changes in fiscal treatment as well as reductions in conversion rates to pension income at retirement, NDC systems are arguably more subject to political interference and short-term government financing pressures. Even though such pressures also exist for defined benefit schemes, such changes to NDC systems go against one of the principal arguments used to support their introduction – transparency.

Although the current account "value" may be guaranteed for some people, for young and middle-aged contributors the majority of the retirement benefit depends on the increase in account value between contribution payment and retirement. For these people, the indexation rules are critical. But such rules are vulnerable to political decision-making as well as future financing realities and are often reduced or frozen for sustainability reasons.

3. Results from national pilot studies

As part of the project, an assessment of adequacy using the model was carried out by means of pilot studies.

The pilot studies were undertaken across the four ISSA regions and reflect different types of retirement systems in countries at different stages of development. From each respective region, the countries covered in this section are anonymized and referred to as follows: Africa-1, Africa-2, Americas-1, Americas-2, Asia and the Pacific-1, Asia and the Pacific-2 and Europe-1.

This section should be read in conjunction with section 2 and the operating manual which provides more detail of the assessment of indicator and parameter scores and what these represent. As referred to previously in this report, the aim of the project is not to compare scores between countries, but to provide institutions with indications of how their retirement systems meet different adequacy measures. Scores range from 0 to 100 for each parameter.

3.1. Africa

3.1.1. Africa-1

- **Overview of the retirement system**

The retirement system covers employed workers, temporary workers and apprentices, with self-employed workers covered on a voluntary basis. There is a separate civil service scheme.

Employees pay a contribution of 5.5 per cent of covered monthly earnings (the self-employed pay 11 per cent). Employers also pay a contribution rate of 5.5 per cent. Covered monthly earnings are subject to a minimum equal to the minimum wage and a maximum of around 20 times the minimum wage.

At least 180 months of contributory service is required for entitlement to benefits. Retirement age depends on the profession of the covered worker (age 56 for blue collar workers, age 58 for white collar workers, age 60 for managers or age 63 for doctors, judges and university lecturers).

The benefit paid out consists of a pension equal to 2 per cent of covered earnings for each year of service. If the minimum requirement of 180 months contributory service is not met, then a lump sum of 20 per cent of a 5-year average of monthly covered earnings for each 6-month period of service is paid instead.

Therefore, as an example, an insured person with 30 years of contributory service receives a pension of 60 per cent of covered earnings; someone with 10 years of service receives a lump sum of four times the 5-year average of monthly covered earnings.

There is a supplement paid for each dependant child up to a maximum of six and a spouse's pension of 50 per cent of the retiree's pension amount.

- **Results and comments on the model**

Under the model the retirement system scores particularly well for parameter 3 (Administrative adequacy) and parameter 4 (Interaction with other retirement systems). For parameter 4, the simplicity of the system targeting a maximum replacement ratio of 50 per cent means that it does not act as a disincentive for additional saving. Although opportunities for additional institutional retirement savings are presently limited, the benefit structure of the system will not act as a disincentive to save when or if a supplementary pillar develops. While the system does not allow retirees to continue working and receive a pension at the same time, a deferral of retirement is possible. In respect of parameter 6 (Security of adequacy), a number of positive measures improve this score – the defined benefit nature of benefits, the existence of a minimum pension, a sharing of the financial burden (employers and employees each contribute at the same level), the existence of pension increases and the lack of an automatic adjustment mechanism reducing benefits are all positive. However, it is recognized that pension increases are lower than inflation; this is a particular issue as food staples prices have increased significantly over recent years and such goods make up a large proportion of spending for poorer pensioners. Finally in respect of parameter 7 (Coverage), while there is legal coverage for all formal-economy workers, effective coverage is significantly lower reflecting the large informal economy and the fact that coverage is voluntary for self-employed workers (with a contribution rate of double the employee rate as the self-employed worker effectively pays both employer and employee contributions).

A number of interesting findings and positive elements emerged. Overall some key elements of an adequate system were identified in Africa-1. The lack of data for certain parameters, the existence of a significant informal economy and the current lack of supplementary provision opportunities are realities. The model allowed an identification of these and a measurement and analysis of other elements. In relation to specific parameters and indicators, the use of a measure of home ownership (indicator 1.3) is not totally appropriate due to the system of subsidized housing in the country which the model in its current form does not take into account. Certain data items are not available (such as employment rates for those aged 55–64; indicator 2.4) which means a score is obtained by pro-rating other

indicators. For the Administrative adequacy parameter, the administration has its own performance targets. For example, for indicator 3.1, the institution has a target of paying all pensions in 45 days (which is achieved in 90 per cent of cases).

3.1.2. Africa-2

- **Overview of the retirement system**

The retirement system covers the private sector but self-employed workers are excluded. There is a separate civil service scheme.

Employees pay a contribution of 6.3 per cent of covered monthly earnings and employers 7.7 per cent of covered monthly payroll.

At least 180 months of contributory service is required. Retirement age is age 60 with early retirement (with a reduced pension) possible from age 55.

The benefit paid out consists of two elements:

- A pension equal to 1.33 per cent of the best 10-year average of covered earnings for each year of service before 1 January 2000 and 1.7 per cent of the best 10-year average of covered earnings for each year of service from 1 January 2000. The maximum pension is 50 per cent of the best 15-year average of earnings.
- A lump sum based on average earnings and the number of years of coverage is paid.

There is a spouse's pension of 50 per cent of the retiree's pension amount.

- **Results and comments on the model**

Under the ISSA adequacy model, the system scores highly on most measures, with only one parameter (Coverage) scoring less than 50. In respect of parameter 1 (Benefit levels), results are similar to Africa-1, with a target replacement ratio of 50 per cent for men and women and a system of subsidized housing which reduces the need for pension income. A relatively high employment activity rate of those aged 55 to 64 contributes to an overall score of 67 for parameter 2 (Exiting the labour market at the correct age) while the measure for parameter 3 (Administrative adequacy) is lower due to the lack of individual statements provided. The measure for parameter 4 (Interaction with other retirement provision) also reflects the relatively low level of supplementary provision. Finally, and again similar to Africa-1, a favourable demographic situation means the score for parameter 5 (Intergenerational equity) is high, but given the relatively low retirement age there is likely to be a worsening of the dependency ratio by 2050 if no other changes to the system are made. In respect of the parameter 6 (Security of adequacy), while regular pension increases improve security and employer and employee contributions broaden financing sources, the fact that pension increases depend to some extent on the financial situation of the scheme reduces the scores.

However the relatively low replacement ratio for those whose earnings are, for instance, half average earnings works in the opposite direction. Finally, for parameter 7, coverage is high for formal-economy workers, but taking into account the large informal economy significantly reduces the effective coverage rate.

In respect of Administrative adequacy, it can be argued that the provision of regular individual statements setting out entitlements in a defined benefit system is less critical than having access to the information itself and less important than annual statements in a defined contribution system. Overall, the defined benefit system operates with a number of instruments to ensure benefit stability is positive; covering the informal economy under existing structures remains however a challenge.

3.2. The Americas

3.2.1. Americas-1

- **Overview of the retirement system**

The retirement system covers employed workers in the private sector with voluntary coverage for self-employed workers and certain other categories of workers. Public-sector workers have separate schemes.

Provision depends on the year the covered person first entered the system. All private-sector employees who were first covered before July 1, 1997 receive benefits from the social insurance pension. Those entering the workforce after this date can choose whether to join the social insurance pension system or the mandatory individual account system.

Employee contributions are 1.125 per cent of covered monthly earnings for old-age benefits and 0.625 per cent for disability and survivor's benefits with employers paying 5.15 per cent and 1.75 per cent respectively. The state also pays a contribution as a percentage of salaries. The retirement age is 65 for men and women.

At least 1,250 weeks of contributions are required for eligibility to an old-age pension under the individual account system, with at least 500 weeks of contributory service required for social insurance benefits.

Benefits under the individual account system (subject to a minimum pension amount), that can be taken as an annuity or programmed withdrawals, depend on contribution history, investment performance and expenses. The benefit paid from the social insurance element is a percentage (inversely proportional to salary level) of a calculated 5-year average salary.

- **Results and comments on the model**

The Americas-1 system scores relatively highly on parameter 1 (Benefit levels), with current and prospective replacement ratios around 46 per cent and a higher score for retrospective

replacement ratios. For parameter 2 (Exiting the labour market at the correct age), a number of measures are in place to support employment measures (e.g. the ability to defer the pension and the possibility to continue working and receive the pension). The effective labour market exit age is age 70, which leads to a maximum score on indicator 2.2. Parameter 3 (Administrative adequacy) scores highly, and for parameter 4 (Interaction with other retirement provision), the inexistence of supplementary provision and a replacement ratio of around 46 per cent reduces the overall score. For parameter 5 (Intergenerational equity), the significant projected increase in expenditure and, to a lesser extent, the dependency ratio is outweighed by the reality of a relatively young population and low current spending rates on pension provision. For parameter 6 (Security of adequacy), a number of measures support stability and security of benefit provision (e.g. pension increases that have kept up with inflation, the defined benefit nature of the system and a minimum pension providing higher replacement ratios for those on lower incomes are all relevant). In respect of parameter 7 (Coverage), while migrant workers and self-employed workers are covered, effective coverage levels reduce the score for this final parameter.

3.2.2. Americas-2

- **Overview of the retirement system**

The retirement system covers employed workers in the public and private sector, temporary workers, self-employed workers and household workers. Provision consists of two elements:

- Social insurance element: employees pay 9.25 per cent of gross monthly earnings of 500 national currency units or less. Employers pay 4.25 per cent of gross monthly payroll if the employee has gross monthly earnings of 500 national currency units or less.
- Individual account: employees pay 8.16 per cent of gross monthly earnings above 500 national currency units. Employers pay 4.25 per cent of gross monthly payroll if the employee has gross monthly earnings of 500 national currency units or more.

The retirement age is 62 for men and age 57 for women, with at least 20 years of contributions (10 to 15 years of contributions for seasonal agricultural and construction workers).

The benefit paid consists of two elements:

- Old-age pension (social insurance): 60 per cent of the insured's average earnings in the best 10 years of earnings plus 1.25 per cent of earnings for each 12-month period of contributions exceeding 20 years. A spouse's survivor benefit of 50 per cent of the retiree's pension is paid.
- Individual accounts: The insured's contributions plus accrued interest is divided by an actuarial value linked to life expectancy and the resulting income is paid. If the pensioner

lives beyond the estimated life expectancy and the individual account is depleted, collective insurance tops up the accumulated capital in the individual account to finance the old-age pension. A spouse's benefit equal to the account balance is payable on the death of the member.

- Results and comments on the model

The analysis looked at a retirement system with one of the two elements consisting of defined contribution individual accounts. For parameter 1 (Benefit levels), this adds uncertainty to forward-looking measures of benefit levels (prospective replacement ratios), but also complicates comparison with backward-looking measures (indicator 1.4), which are based on benefits received from the old system and therefore under different benefit rules. Therefore in the case of Americas-2, indicator 1.4 is not scored. The results for parameter 1 reflect a relatively high replacement rate for both prospective and current pensioners. The system scores relatively highly on parameter 2 (Exiting the labour market at the correct age) due to the ability to continue working and to draw a pension, the possibility to defer the pension and a relatively high senior employment activity rate, although the retirement age particularly for women is low given the country's average life expectancy. The scores for other parameters in the model have similar values reflecting high scores for certain indicators and lower scores for others. For example, it presents a relatively high score for effective coverage (indicator 7.3), although migrant workers and self-employed workers working in Americas-2 are not included in the system.

3.3. Asia and the Pacific

3.3.1. Asia and the Pacific-1

- Overview of the retirement benefit system

Asia and the Pacific-1 provides retirement benefits to its employees on termination of service. The system provides defined benefit pension income and both employees and the employer pay contributions to fund the system. The retirement age is 60.

- Results and comments on the model

This was the only pilot that looked at a retirement system for a certain group of employees and not for a social security system as a whole. The model therefore had to be amended to reflect this reality. The analysis was facilitated by having much of the data already in the administration system of the retirement scheme and this was also reflected in a high score for parameter 3 (Administrative adequacy).

Population-wide home ownership data is available and was used for indicator 1.3 of parameter 1 (Benefits level) as scheme specific information did not exist. The aim of

this indicator is to reflect benefits in kind, which reduce the need for retirement income; therefore, in countries where this data does not exist, an alternative could assess the existence and level of free or subsidized health care, public transport or housing costs or an approximation concerning home ownership rates.

The lack of late retirement possibilities and generous early retirement means a relatively low score for parameter 2 (Exiting the labour market at the correct age). Retirees are allowed to work after the pension age for other employers/organizations, which was partially reflected in the scoring of this parameter. However, the fact that they cannot work for their former employer after retirement age reduces the score.

The retirement scheme scored highly on parameter 4 (Interaction with other retirement provision) because the pension after a full career is between 60 per cent and 90 per cent. The fact there is no vehicle for additional savings within the plan means that there is no additional score achieved for indicator 4.3.

Parameter 7 (Coverage) scores highly, given the compulsory nature of the plan for employees. In this case, while the model remains relevant for a pension scheme covering a certain employee group only, and not the entire population, it needs further amendment to fully reflect the different realities in retirement plans serving specific groups of employees. The issue of coverage could be assessed through the existence and length of waiting and vesting periods. If a vesting period of 10 years exists but 25 per cent of workers leave with service inferior to this, the system would score a coverage indicator of 75 per cent of the maximum score. A shorter vesting period would score a higher mark. Alternatively, the consistency of a pension system with labour market aims is easier to assess within such a scheme; indeed a number of supplementary second pillar plans already closely assess the dynamic between the incentives created by the benefit structure of the plan and the employment aims of the employer. In addition, interaction with other coverage (i.e. integration with state coverage, either directly or indirectly) and administrative adequacy are also easier to assess but perhaps require different indicators, particularly for the former.

3.3.2. Asia and the Pacific-2

- **Overview of the retirement system**

The retirement system covers private-sector employees, household workers and self-employed workers. Employees pay 3.33 per cent of gross monthly earnings categorized into 31 different salary brackets. Employers pay 7.07 per cent of employees' monthly earnings. The normal retirement age is 60 for men and women, with at least 10 years of contributions paid to be eligible for benefits.

The amount of pension income paid is the sum of the old-age pension and the dependant's pension. The old-age pension is a maximum of:

- 300 national currency units plus 20 per cent of the average monthly earnings plus 2 per cent of monthly earnings for each year of service above 10 years, or
- 40 per cent of the insured's average monthly earnings, or
- 1,200 national currency units with a minimum of 10 years of contributory service or 2,400 national currency units with at least 20 years of contributory service.

The dependant's pension is equal to 10 per cent of the monthly pension or 250 national currency units, whichever is the greatest, for each child up to a maximum of five.

On the death of the pensioner, a spouse's pension equal to 100 per cent of the retiree's pension is paid subject to certain minimum amounts.

▪ Result and comments on the model

Under parameter 1 (Benefit levels), the score was determined using a hypothetical replacement ratio of 84 per cent for those now entering the workforce and a range of historical data measurements for the other three indicators; scoring 59 per cent for pensioners retiring in 2011, 72 per cent for home ownership and a replacement ratio of some 65 per cent when comparing the average pension for those aged 65 to 74 with the average salary of those aged 55 to 64. Parameter 2 (Exiting the labour market at the correct age) also scored highly, reflecting the relatively high employment rates for those aged 55 to 64, the possibility to continue working and receive a pension, and the possibility to defer receipt of the pension.

For parameter 3 (Administrative adequacy), high indicator scores are achieved for excellent access, regular payments of pensions and the ability to increase benefits through the payment of additional contributions as well as the fact that records and benefit statements are available online. The parameter scores less well on the number of documents required and that while records are available online they are not sent out on a regular basis.

Under parameter 4 (Interaction with other retirement provision), the score of 100 per cent reflects the fact that the social security system alone provides between 60 and 90 per cent of final salary as a replacement ratio. The scoring under parameter 5 (Intergenerational equity) reflects a low dependency rate and pension spending at present. On parameter 6 (Security of adequacy), the score was lower than the maximum due to three main factors. There have been no pension increases over the last five years, those with 10-years' fewer service than the requirement for full pension lose an average 19 per cent and that the replacement

ratio on half average earnings is 88 per cent. Finally, for parameter 7 (Coverage), there is excellent legal and effective coverage of active workers, but the score for effective pensioner coverage is lower.

The following points were raised by the member institution in relation to the assessment, measurement and scoring of adequacy under the model:

- In respect of parameter 3, the question of the importance of the sending of documents such as benefit statements and individual records compared to having access by Internet was raised.
- The score of 100 per cent under parameter 4 reflects a relatively generous level of social security benefits. There is some argument that greater "space" for second and third pillar benefits in the future may be required to ensure disincentives are not created.
- For the assessment of parameter 6 (Security of adequacy), there is an argument that the model could be adapted to the situation where inflation is low, as the absence of automatic increases in a low inflation environment is not necessarily a significant threat to benefit security. In addition, a value judgement of the appropriate replacement ratio on low earnings (50 per cent average earnings) is reflected in the scoring of this parameter; as referred to in the introduction, this measure does not take into account other sources of support, both formal and informal, for low earners.

3.4. Europe

3.4.1. Europe-1

▪ Overview of the retirement system

The pension consists of three components: a social insurance pension, notional defined contribution accounts and mandatory individual funded accounts.

Employees contribute 7 per cent of earnings and employers contribute a total of 31.42 per cent of payroll to social security benefits, of which 15.73 per cent is specifically in respect of old-age, survivors and disability benefits.

The retirement age is flexible and benefits can be paid from age 61. Benefits depend on the contribution record and there is a minimum pension payable if certain conditions are met.

▪ Results and comments on the model

For both of the first two parameters, the score is close to 100. For parameter 1 (Benefit levels), both retrospective and current replacement ratios indicators score highly. Future replacement ratios and home ownership scores are slightly below the maximum. For parameter 2 (Exiting the labour market at the correct age), the possibility to receive a pension

and continue to work and high employment-activity rates for those aged 55–64 result in a maximum score. Despite a flexible system, the inability to pay additional contributions for additional benefits reduces the score to 90 on parameter 3 (Administrative adequacy). In respect of parameter 4 (Interaction with other retirement provision), the system includes the spouse, individual entitlements and credits for non-working time, which according to the model results in a score of zero for indicator 4.2. In respect of parameter 5 (Intergenerational equity), while between 2010 and 2050, there is an envisaged increase in the old-age dependency ratio from 31 per cent to 46 per cent, public pension spending is expected to remain relatively stable over the same period. Finally, while all indicators for the coverage parameter (both legal and effective as well as coverage for migrant workers and self-employed workers) are high, the scores for parameter 6 (Security of adequacy) are more mixed reflecting the existence of an automatic adjustment mechanism and changes in the average pension amount since 2008.

4. Conclusions

One of the key aims of developing and applying the adequacy model is that the process lends itself to a greater reflection on what adequacy is, how it should be assessed and measured and whether the data and information are available to meet these objectives. The seven pilot studies therefore gave rise to a number of comments and suggestions on the model itself, with associated implications for social security institutions. This section summarizes the key conclusions. Presented in three sections, the first considers general issues and challenges, the second offers specific comments on individual parameters and indicators, while the third addresses the implications of the project results for social security institutions.

4.1. General issues and challenges

This section sets out a number of general issues and challenges related to the measurement and assessment of adequacy.

- Selecting the appropriate parameters to define adequacy

As discussed, there is no definitive answer to what comprises an adequate benefit and this varies considerably by country. However, the model allows each system to reflect on the differing importance of each of the seven chosen parameters and select the appropriate weighting for the measures from the indicators making up each parameter score.

- Cause and effect – do retirement benefit systems influence employment patterns or do employment patterns influence retirement benefit systems?

For example, high employment rates for older workers may not be due to retirement benefit structures but to other factors such as active ageing policies at work, anti-age discrimination legislation, etc.

- Availability of data

Data may be limited, may not necessarily be up to date and may not be accurate. Data proxies may be required. This reinforces the fact that the model's main aim is not for cross-country comparison but a tool to assist each institution to assess its own retirement system. However, if proxies are used consistently across time, then the model is useful for measuring adequacy trends over time as well as being able to assess the impact of reform measures on system adequacy.

- **Comparability of data**

The cross-country comparability of data and, therefore, of parameter and indicator scores is a challenge; definitions may be different, availability and accuracy will vary and the method of collection will depend on realities in each country.

- **Assumptions and methodology**

The assumptions used and the methodology underlying calculations will vary. For example, while average career length and salary increases will have to take into account local realities to accurately reflect each country's situation, this makes comparison across countries difficult.

- **Defined contribution**

Where part of the retirement benefit is, or will be, provided through a defined contribution financing mechanism, the question of appropriate assumptions, notably regarding investment return, salary increases and annuity rates, will impact on the prospective replacement ratio calculated, as well as on the measure assessing interaction with other benefit provision. The choice of the appropriate assumptions to use is beyond the scope of the project, but the issue should be considered in a wider assessment of adequacy (see also section 1.2).

- **Trade-offs**

The model proved useful to institutions in considering the different trade-offs in retirement systems. Policy and management measures have to address such trade-offs, but this is often done in an ad-hoc manner. The model allows explicit consideration of the value of the two elements in any trade-off, which can add to the factors to take into account in the decision made regarding design and delivery choices. Such trade-offs include:

- Benefit levels (parameter 1) versus interaction with other retirement provision (parameter 4). An appropriate balance between providing a benefit that does not create a disincentive for additional savings and provision is required.
- Benefit levels (parameter 1) versus labour market issues (parameter 2).
- Security of benefits (parameter 6) versus sustainability issues (parameter 5). For example, indicator 6.6 (automatic adjustment mechanisms) arguably improves sustainability at the expense of making benefit payments less secure and predictable.

- Multi-pillar retirement benefit system

A key challenge is defining social security adequacy in a multi-pillar retirement benefit system; what elements of second pillar provision need to be taken into account and how? Whereas some studies and calculations only include income from schemes that are mandatory, others include "typical" second and third pillar pension amounts. This approach may be more appropriate for the better off, but less so for those on lower earnings actually in the system. In addition, in a number of countries, there is a range of other formal and informal support mechanisms (cash and in-kind benefits), which may be difficult to assess but which will impact on the living standards of older persons.

4.2. Specific parameter and indicator issues

This section sets out a number of issues specific to the chosen parameters and indicators.

- Benefit levels

A number of caveats relating to the calculation of replacement ratios have been referred to above. These include the assumptions used for prospective calculations for defined contribution provision, which may be over-optimistic, and also for defined benefit provision (e.g. assumed length of contributory service). In respect of defined contribution projections, the range of outcomes could also be reflected as an indicator in parameter 6 (Security of adequacy).

Where second pillar provision is not compulsory, a key question is how to take into account supplementary pensions. While the OECD does assess an "average" replacement ratio arising from such provision, the results may be over-estimated particularly for those on lower incomes where takeup rates and the contribution levels paid are lower than for those on higher incomes.

In respect of home ownership levels, attention should be given to the existence of subsidized rented accommodation (and often other in-kind benefits provided to pensioners). In addition, even for home owners, a more accurate indicator would be one that assesses the score according to the outstanding loan.

Finally, there is a strong argument to use net replacement ratios; gross replacement ratios were used for data availability reasons, but the use of net figures is probably more appropriate.

- Exiting the labour market at the correct age

One of the key challenges related to this parameter is that the indicator scores reflect a range of different factors. For example, a high effective exit age leads to a high score, but

this may also be a negative issue because pension levels may be so low that retirees have to continue working. In addition, the extent to which retirement systems support the retention of older workers in employment is assessed by indicator 2.4. However, a number of other factors will also impact on the indicator. The other two indicators (2.1 and 2.3) are, however, indicators that unequivocally seek to assess the support retirement systems provide to labour market policies and are easy to measure.

- Administrative adequacy

A number of institutions had scores under this parameter that were negatively impacted by the absence of the automatic provision of benefit statements sent by mail. There is however an argument that such provision has become less important in systems where there is now continuous access to benefit information for the member (online and/or by telephone). Although in principle this is a valid argument and may justify reducing the weight on this indicator, access to the Internet is not universal, particularly for the elderly population.

- Interaction with other retirement provision

This is arguably the most challenging parameter to assess given the myriad other provisions in most countries, both formal and informal, involving benefits in cash or in kind. In addition, one of the indicators arguably penalizes a generous social security system (indicator 4.1). However, the three indicators do make an assessment of some of the factors that encourage a holistic view of provision (e.g. consistent spouse provision and the existence of additional pension vehicles which are not only important to increase pension amounts but provide an important means to diversify retirement income).

- Intergenerational equity

Two of the four indicators used to assess this parameter are the dependency ratio and its projected increase from 2010 to 2050. However it could be argued that the importance of these indicators is overstated. A high dependency ratio in itself is arguably not an issue as long as the benefit design and financing mechanisms as well as labour market measures exist to ensure a system is sustainable. A more appropriate measure would therefore be the public spending level and increases in public pension spending as a percentage of GDP. In addition, the dependency ratio should be calculated assuming an effective normal retirement age/effective labour market exit age to more accurately reflect the situation in a country.

The level of public pension spending should not be considered in a vacuum, but should be compared with other social security spending and the extent and level of supplementary pension provision.

- Security of adequacy

This parameter was valued by participants and was found to be generally easy to measure and verify. In particular, the model assesses how pension values have kept up with inflation rather than mapping the existence of regular pension increases as such. In a low inflation (or deflationary) environment, there is less need for regular pension increases although a measure to assess whether ad-hoc increases exist is required (and included in the model).

- Coverage

The key issue arising relating to this parameter was the effective coverage indicator and the challenges relating to its measurement. Covering the informal economy in many countries remains a challenge, not least because the numbers of workers in the informal economy has tended to increase over time in many. How such workers can be covered is the subject of other ISSA work (ISSA, 2012; ISSA, 2014), but there is a strong argument for increasing the weighting of indicators 7.2 and 7.3 in such a situation.

4.3. Implications of the project results for social security administrations

A multivariable assessment, used as a yardstick against which social security objectives can be measured, implies the need for a different approach by administrations to the delivery of benefits and services. This means a move away from considering social security administrations as simply providing the benefits decreed by law towards one where they are capable of adopting a more proactive and innovative approach to ensuring populations receive adequate benefits.

These requirements relate to two areas. First, there is a need to secure and manage the appropriate information and data with which to assess and measure adequacy on this multivariable measure. Second, there is a need to put in place the administrative measures (as set out, for example, under parameter 3; Administrative adequacy) that are to be used as criteria to improve adequacy on this multivariable measure.

The main considerations that social security administrations should take into account are therefore:

- Ensuring information and data are available, up to date and accurate to enable the measurement of adequacy (e.g. waiting times, coverage levels, historic variability in pension amounts, etc.).
- Social security administrations should ensure that the benefits provided are those specified by law. This also implies good record keeping and monitoring.

- The tailored communication of benefits and services to the population, with emphasis given to non-financial elements as well as replacement rates, will become increasingly important.
- Access to benefits must be maintained and improved (for example, the claims process should be as simple as possible).
- Administrations need to coordinate with other agencies and institutional actors. The interaction of retirement benefits with other benefits and services often requires collecting and analysing information from different government departments or social security agencies.
- Supporting employment objectives requires coordination with other stakeholders, including employers.
- Appropriate instruments, including those permitting the mapping of "desired" adequacy and gap analysis, should ensure the ongoing measurement of the adequacy of benefits.

In a number of countries, benefit systems have become more complex (e.g. transition to new retirement ages and benefit structures) and the issue of effective administrative support is increasingly important. Hence, there is a need to consider the element of administrative adequacy as a key element of this broader assessment of adequacy.

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