



issa

INTERNATIONAL SOCIAL SECURITY ASSOCIATION

Working paper

Extension of social insurance coverage: A review of statistics and some country experiences

Pascal Annycke
ISSA Consultant

This paper is one of the studies produced under the ISSA Project on
"Examining the Existing Knowledge on Social Security Coverage Extension"

Working Paper No. 13

International Social Security Association, Geneva, 2009

The International Social Security Association (ISSA) is the world's leading international organization bringing together national social security administrations and agencies. The ISSA provides information, research, expert advice and platforms for members to build and promote dynamic social security systems and policy worldwide. An important part of ISSA's activities in promoting good practice are carried out by its Technical Commissions, which comprise and are managed by committed member organizations with support from the ISSA Secretariat.

This document is available on <http://www.issa.int/Resources>. For terms and conditions, please consult the ISSA website. The view and opinions expressed do not necessarily reflect those of the publisher.

First published 2009.

© International Social Security Association, 2009.

Contents

Introduction

1. Social insurance coverage: Definitions and concepts

2. Review of sources on social security coverage

2.1 The ILO Social Security Inquiry (replacing the Cost of Social Security) and the European System of integrated Social Protection Statistics (ESSPROSS)

2.2 Social Security Programs Throughout the World (SSPTW)

2.3 Social Protection Expenditure and Performance Reviews (SPER)

2.4 Subjective indicators: Perception of social security coverage in household surveys

2.5 Estimating theoretical coverage by combining SSPTW, KILM and Laborsta

3. Experiences of social security extension

3.1 Extension of old-age pension coverage in the Republic of Korea

3.2 Extension strategy for health care in the Republic of Korea

3.3 Extension through micro-insurance or community-based insurance schemes: The ILO-STEP strategy

3.4 Extension of health care in Rwanda

4. Conclusions

Annex I: Potential old-age pension coverage as measured by the ILO Social Security Inquiry

Annex II: Actual old-age pension coverage as measured by the ILO Social Security Inquiry

References

Summary

The paper examines the state of social security coverage and gaps, and presents experiences of reforms that have enabled access to social security benefits, and social insurance benefits in particular, for an increasing proportion of the population. After providing a general framework on social security coverage and extension issues, a review of statistical sources and available indicators on social security is presented. Despite the existence of data-collection initiatives to measure social security coverage, a lack of regular and comparable data is an obstacle for many social security schemes. The paper also presents a number of case studies on social security extension, including from the Republic of Korea, Senegal and Rwanda.

Introduction

"Between 70 and 80 per cent of the global population live in a state of more or less severe 'social insecurity', i.e. have no access to formal social security" (Cichon and Hagemeyer, 2007, p. 173). This information, commonly used both by the International Labour Organization (ILO) and by the International Social Security Association (ISSA) is a "guestimate", without detailed evidence to support it.

This "guestimate" enables us to be roughly aware of the tough reality of social security coverage, but is not based on any accurate statistical estimation due to the lack of data available in developing countries. Better data collection and information system are necessary to improve knowledge on social security coverage and gaps. What is the existing information available on social security coverage? And what are the main trends in the extension of social security coverage?

As the financing methods of social security are diverse, this paper will focus in particular on the most common one, which is social insurance. However, this does not mean to imply that social assistance, universal tax-financed schemes or other social security provisions cannot provide adequate coverage or benefits.

Traditional social insurance is often perceived as a work-related provision, part of a work contract. This approach presents limitations particularly in developing countries, where the formal employment, symbolized by a work contract, can be marginal. However, social insurance has also been developed outside work-based groups, with mandatory or voluntary memberships based on community or geographical criteria.

Micro-insurance will be included in this study as such schemes are based on the insurance principle. As a starting point, social insurance can be considered as a mechanism covering a social risk (such as ageing, health and so on), financed through contributions and paying out cash or in-kind benefits. Insurance-based mechanisms have been developed by entities with their own bodies and rules, independent or state-related. These entities have their own legal existence and present separated accounts from the state, even though they may be dependent on state subsidies.

Insurance-based schemes and administrations may also be used to develop non-contributory or subsidized schemes. Based on these administrative infrastructures, the government, donors or other organizations may subsidize part of the contributions of certain target groups or subsidize the benefits. Social insurance schemes may also administer benefits financed by a non-contributory source. Therefore, these "mixed" approaches between contributory and non-contributory social security benefits will also be reviewed.

This paper also makes an attempt to combine different data sources to estimate the coverage for some key aspects of social security.

1. Social insurance coverage: Definitions and concepts

Being the most common social security provision, the concept of social insurance coverage is examined in this paper and refers to at least two periods related to a social risk. A person may be potentially protected by a social security provision when the risk does not occur, and this same person will receive benefits when this social risk does occur. There are therefore two fundamental types of coverage: the "potential" and the "actual" coverage (Behrendt et al., forthcoming). The potential coverage refers to the population protected against a risk where the risk has not yet materialized; the actual coverage relates to the population receiving benefits when this risk has materialized.

The ILO Convention No. 102 concerning minimum standards of social security (1952) deals with coverage provisions related to both the potential and the actual coverage, with respect to prescribed categories of protected persons and some minimum benefit levels for each contingency.

In terms of benefit levels, Convention No. 102 defines some minimum levels for periodical payments. For example, a man with a wife of pensionable age should receive 40 per cent of his previous earnings, and a working woman should get at least 45 per cent of her previous earnings during her maternity leave. These minimum levels of benefits could be used as indicators to consider whether or not a country provides a "decent" benefit level.

In addition to Convention No. 102, there is at least one more recent Convention covering each of the contingencies included in Convention No. 102 with higher social security standards than these minimum ones. Forty-four countries have ratified Convention No. 102, but fewer countries have ratified the more recent Conventions on social security.¹

It should also be noted that the application of Convention No. 102 generates a large amount of social security coverage statistics. All countries ratifying the Convention have to provide information on population coverage information on a regular basis. With some geographical limitations, the European Code of Social Security and its Protocol generates also a large amount of detailed statistics on social security coverage. The European Code of Social Security is largely based on the ILO Convention No. 102 and provides information for a growing number of countries, even for countries which have not ratified the ILO Conventions on social security.²

Convention No. 102 places the overall responsibility for the long-term viability of the schemes on the State, and it emphasizes the independence of social security institution management. As the member States also have the responsibility to order "the necessary actuarial studies and calculations concerning financial equilibrium (to be) made periodically" (Article 71.3 of Convention No. 102), these studies should generate a large amount of statistical information on coverage.

2. Review of sources on social security coverage

2.1 The ILO Social Security Inquiry (replacing the Cost of Social Security) and the European System of integrated Social Protection Statistics (ESSPROSS)

Following the questionnaire called "The Cost of Social Security" (1990–96), the ILO Social Security Department launched in 2005 a more complete questionnaire called the Social Security Inquiry (SSI). "The Cost of Social Security" collected information on receipts and expenditure of pension schemes. In addition to this information, the SSI also collects information on the number of beneficiaries and on benefit levels. This recent initiative is very relevant for the review of information on coverage extension. However, there has been only one round of data collection; it is therefore not yet possible to measure trends in extension.

Concerning the information available on old-age pension schemes, the SSI provides ratios both for the "actual" and "potential" coverage by comparing beneficiaries (also called recipients) to the population over retirement age. This ratio is particularly relevant for mature pension schemes, i.e. when the scheme is old enough to have generations of workers reaching retirement age.

Recent old-age pension schemes based on insurance mechanisms are not paying out significant pensions either in terms of benefit amount or in terms of number of recipients. Eligibility conditions may require a certain number of years of contribution, which excludes old workers contributing only a few years before retirement. For recent schemes, it is more relevant to analyse their potential coverage measured by the number of contributors related to the working age population.

The maturity of a pension scheme could be an important element to consider in the choice of indicators to evaluate the coverage extension in a country. However, there is a majority of countries with multiple pension schemes implemented at different dates.

Out of the 135 countries for which the SSI has collected information, only 30 countries can provide statistics on potential coverage. For the other countries, some information is available, but incomplete and often unreliable. In several countries, statistics are available for one scheme, where three or four other basic pension schemes exist in the country with no data available in SSI. Therefore, the coverage ratio cannot be estimated due to the lack of complete information.

For the countries presented in Annex I, there is a slight upward trend on the changes in the potential social insurance coverage between 2000 and 2007. For 11 countries, data are only available for one year, so that a trend cannot be established. There are nine countries where an increase in coverage is observed, whereas a decrease is observed in another three countries. Finally, the remaining seven countries display a stable level of coverage during the period.

With regard to actual pension coverage, SSI data enable the calculation of the percentage of the number of old-age pension recipients in the population over retirement age. This percentage is available for more countries than for the percentage of potentially covered people. Data for 68 out of 135 countries have been used to calculate this coverage percentage (see Annex II). For other countries, information is incomplete and the lack of data for some pension schemes does not permit the calculation of the actual coverage percentages. Among these 68 countries, 14 of them show actual coverage percentages that are higher than 100 per cent. Such high values do not necessarily mean full coverage because a number of pensioners

may receive their pensions from several schemes. In addition, some pensioners may receive a pension before retirement age, which is inconsistent with the population being taken into consideration.

Collecting similar statistics to the SSI, the European Commission has developed data collection on social protection statistics common to its 25 members called the European System of integrated Social Protection Statistics (ESSPROSS). The data collected on pension beneficiaries are quite complete, but the restriction of data collection to European countries presents a significant geographical limitation. In general terms, European countries are reaching a full coverage of the old-age population, but gender inequalities can be noted: a higher number of recipients among men than women, while there are usually more women than men among the elderly.

2.2 Social Security Programs Throughout the World (SSPTW)

The ISSA has a major information system called Social Security Worldwide (SSW). Within this information system, "Social Security Programs Throughout the World" (SSPTW) gathers a large set of legal information from countries on eight branches of social security (old age, disability and survivors' pensions, cash sickness and maternity benefits, work injury benefits, unemployment benefits and family allowances). This information system is quite significant as it collects information for more than 180 countries, with an update every other year by ISSA members. As of April 2009, the ISSA had 346 member organizations spread over 152 countries providing updated information for the SSPTW publication.

Almost all the information available in SSPTW concerns cash benefits. Major social security branches such as health care and social assistance consist mainly of benefit in kind and are not included in this publication. Nonetheless, in the social security architecture, social assistance programmes usually have a complementary role to the social insurance provisions, as these means-tested programmes tend to cover population excluded from the tight eligibility conditions of social insurance.

Given that the ISSA is in this unique position with regards to its access to worldwide social security institutions as its members, additional information could be collected from them. In addition to the legal provisions collected in SSPTW, questions related to coverage data could be added.

Another limitation of the SSPTW is that it describes only one main scheme per branch, while several schemes often coexist in a country: it is common to have one scheme for the private sector employees, another one for the public sector and possibly another one for the self-employed. If schemes other than the main one exist, they might be mentioned in SSPTW even if no detailed provisions could be included.

To face these limitations, questions related to contributors and beneficiaries could be included in the SSPTW template. The ISSA launched such a pilot project collecting social security statistics in Africa, Asia and the Pacific in 2005 with information on contributors, beneficiaries and benefit levels. However, this pilot data collection was not continued in spite of its relatively successful initial pilot exercise.³ Tables 13.1 and 13.2 present data per scheme, which could be included in each branch of the SSPTW.

Table 13.1 *Information per scheme in the SSPTW template*

	Scheme X	Scheme Y	Scheme Z	Total
Number of contributors				
Number of beneficiaries				
Total contributions				
Total benefits				

Based on the Social Protection Expenditure and Performance Reviews (SPER) report for Senegal, table 13.2 illustrates the type of information which could be collected by country and by social security branch. To avoid cases of double counting, it would be recommended to collect data for the active contributors. Concerning the benefits, a pensioner may receive more than one pension in case of changes during his/her career. At this initial stage and as a source of double counting, data on complementary schemes would be recommended not to be collected.

Table 13.2 *Example of information collected by SSPTW for old-age pension in Senegal*

Old-age pension coverage indicators in Senegal in 2004			
	Scheme "Régime général"	Scheme "Fonds national de retraite"	Total
Number of contributors	177,777	56,476	234,253
Number of beneficiaries	61,167	19,372	80,539
Total contributions	42,916 million XOF*	38,417million XOF	81,333 million XOF
Total benefits	27,538 million XOF	33,114 million XOF	60,652 million XOF

Source: Annycke (2008).

* Senegal CFA franc

Although such improvements of the SSPTW database would represent a significant investment both in the design and in data collection, the extension of the current database to the points mentioned above would definitely increase the interest in and use of such a database and would provide one more asset to ISSA as the key centre of excellence in the global social security realm.

Similar information systems to SSPTW have been developed, such as the Mutual Information System on Social Protection in the European Union (MISSOC) and Mutual Information System on Social Protection of the Council of Europe (MISSCEO). These information systems collect data similar to SSPTW and include health-care and social assistance provisions. However, they do not provide information on the number of beneficiaries and affiliated members.

SSPTW and the other sources providing legal information on social security provisions enable the development of indicators related to coverage issues without gathering direct information on the number of persons covered. An analysis of the trends of these provisions showed that eligibility conditions are getting tighter with both an increase in retirement age and an increase in the number of years of contribution required to be eligible to a pension during 1989 and 2003 (tables 13.3 and 13.4) (Annycke, 2006). These so-called "proxy" indicators show that the eligibility requirements are getting harder to reach, in particular when broken careers are becoming more common.

Table 13.3 *Years of contribution to be eligible for a minimum pension between 1989 and 2003*

	1989		1999		2002/2003	
	Male	Female	Male	Female	Male	Female
N*	91	91	91	91	91	91
Mean	12.40	11.66	13.01	12.46	13.47	13.02
Std. Dev.	8.04	7.07	8.99	8.33	9.01	8.44

* N: common cases for years 1989, 1999 and 2002/2003 on minimum period of contribution to be eligible for a pension

Source: Annycke (2006).

Table 13.4 *Legal retirement age for males and females between 1989 and 2003*

	1989		1999		2002/2003	
	Male	Female	Male	Female	Male	Female
N*	116	116	116	116	116	116
Mean	60.24	57.69	60.74	58.61	61.13	59.06
Std. Dev.	3.55	3.98	3.59	3.86	3.51	3.75

* N: common cases for years 1989, 1999 and 2002/2003 on minimum period of contribution to be eligible for a pension

Source: Annycke (2006).

2.3 Social Protection Expenditure and Performance Reviews (SPER)

The ILO has launched a series of reports called SPERs analysing the extension of social security coverage and the level of benefits, based on available social security statistics.⁴ At the moment, nine SPER reports have been produced, mainly in Africa (Benin, Senegal, Zambia and Tanzania), South America (Chile, Argentina and Uruguay) and Central Europe (Slovak Republic and Poland).

These reports present quite a complete picture of the social security situations in these countries with information as detailed as possible in relation to the population covered for each of the existing branches in the country and in relation to benefit levels. SPERs identify coverage gaps for each of the contingencies. The quality of the coverage is assessed by the level of protection such as the benefits and the replacement rates. Gender analysis is made on the basis of available statistics disaggregated by sex. SPERs also attempt to measure other aspects of performance such as the effects of social security programmes on poverty, by comparing cash benefits with poverty lines, the governance and administrative performance of social security programmes, measured by indicators such as the share of administrative cost in the scheme expenditure.

Each of these SPER reports presents relevant statistical information on coverage. But information available varies from one country to another and not every report can provide information on the trends in social security extension. The interest in SPER reports is partly reduced by the fact that they are only ad hoc reports and that cross-country comparisons are limited by the creation of domestic indicators depending on national data available.

Concerning old-age benefits, data available for Chile show a growth in the number of contributors (male and female). The coverage rate of the occupied population increased from 58.7 to 63.6 per cent between 1990 and 2000, while the labour force coverage rate increased from 54.4 to 58.4 per cent during the same period, among both men and women.

Statistics show an opposite trend in Uruguay with a regular decrease in the labour force coverage between 1990 and 2001 from 77.6 to 66.3 per cent. On the other hand, Lagomarsino found that since 2005 coverage has been going up considerably in Uruguay (Lagomarsino, 2009). Argentina does not present statistical time series information on old-age pension coverage. (However, it was estimated that 64.2 per cent of the population over 60 was covered in 2001).

For African countries, coverage rates are much lower. Only 4 per cent of the employed population contributed to a pension scheme in Tanzania in 2006, whereas 11.6 per cent of the labour force contributed to a pension scheme in Zambia in 2005. Data presented in SPER for Benin are outdated and do not provide a basis for computation of a coverage rate. But it could be estimated that 5.3 per cent of the working population contributes to a pension scheme. A Senegalese SPER provides a pension coverage rate of 10.8 per cent among those over 65, and a rate of 16.6 per cent for survivors' pension in 2004.

The statistics mentioned above provide information on coverage but not necessarily on coverage extension. Also, they are not always comparable as the coverage ratios may have different numerators and denominators for different years. In any case, the results on coverage from the various SPERs show that the coverage gap is much wider in Africa than anywhere else.

2.4 Subjective indicators: Perception of social security coverage in household surveys

Household surveys are usually designed to combine different types of indicators with both subjective and objective information. Objective indicators on old-age pensions are collecting information such as the pension amount received or the other sources of income of the elderly. Subjective indicators try to get the household's perception of their situation. Therefore, subjective indicators will ask the pensioners or future pensioners how they feel about their financial situation in old age, and if they would rely on their pension during old age or on other sources of income.

Among other surveys, the ILO developed the People's Security Surveys (PSS) combining both objective and subjective indicators (Bonnet, 2004). Concerning the perception of pension benefits, it can be interesting to examine the results of these subjective indicators in developing countries. The PSS results related to old-age pensions mentioned below both in Tanzania and Ghana clearly show that the population do not rely on any pension benefits for their old age.

Table 13.5 *"When you think of your old age, how do you feel about your likely financial situation? Do you feel that it is likely to be good, adequate or inadequate?"*

	Frequency	Percentage	Expressed percentage
Good	10	3.9	8.3
Adequate	22	8.6	18.2
Inadequate	89	34.9	73.5
Don't know/not sure	134	52.6	–
Total	255	100	100

Source: ILO PSS Tanzania, 2001.

The answers to this question indicate that in Tanzania the majority of the respondents did not know what their financial situation would be in old age, which could mean that they are not aware of any financial security mechanism linked to old age. Among those who expressed an

opinion, about three-quarters of them considered that their old-age income would be inadequate. The expression of income insecurity at old age by the Tanzanian population reflects both the large old-age pension coverage gap and the expectation of low and inadequate pension benefits paid out when eligible to one (Annycke, 2004).

Table 13.6 *"What will be your main source of income in your old age?"*

	Frequency	Percentage
Children	1,510	50.8
Other relatives	91	3.1
Savings	270	9.1
Income from work	378	12.7
Assets	246	8.3
Pension	104	3.5
Other	54	1.8
Don't know	320	10.8
Total	2,973	100

Source: ILO PSS Ghana, 2002.

The Ghanaians say that they do not rely on any pension benefits in old age, or only a small minority of them. The strong reliance on family-based support during old age expressed in table 13.6 not only indicates the existence of family solidarity in which adults take responsibility for their parents who can no longer work, but also reveals the lack of reliable pension benefits. The Ghanaian population relies much more on informal social security mechanisms.

This type of question on the perception of pension benefits shows that the large majority of the African population is not expecting pension benefits from social security programmes. The lack of formal social security provision for the majority reinforces the need for traditional family support in Africa. These indicators provide a great source of information on the impacts of pension schemes and other social security provisions on the population.

Such living conditions surveys can also be developed by national institutes, but there are also many international organizations designing such surveys for international comparison purposes. So many international organizations have developed their own living conditions surveys that an International Household Survey Network (IHSN) was created in 2004.⁵ Major national living conditions surveys such as Household Budget Survey (HBS), Demographic and Health Surveys (DHS) or Labour Force Surveys (LFS) are part of this network, financed by different international stakeholders. The objective of this network is to improve data access and its quality. Although each of these household surveys provides different views of living conditions, higher coordination is also expected from this initiative among organizations to collect household information in a more organized and regular way and with more consistent data sets.

2.5 Estimating theoretical coverage by combining SSPTW, KILM and Laborsta

While SSPTW is not collecting data on contributors and beneficiaries yet, an estimation of the coverage can be undertaken by combining legal information provided by SSPTW and labour statistics collected by the ILO (Laborsta). The ILO data on employment status provide the number of workers by job categories. On the basis of job-related legal information from SSPTW, an assessment of legal (which could also be called theoretical) social security coverage can be developed by employment status.

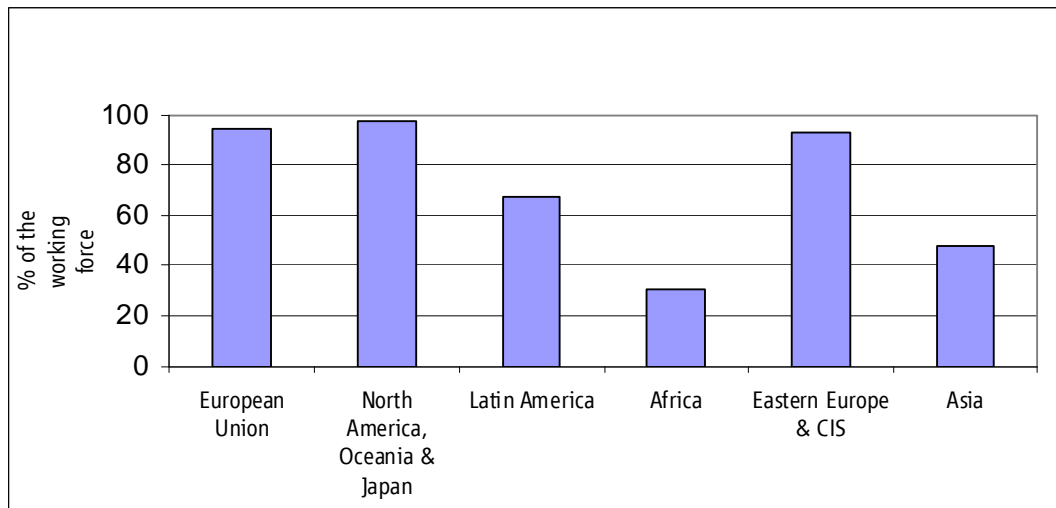
ILO data are used for 61 countries by combining Table 3 on "Status in employment" from Key Indicators of the Labour Market (KILM) and the Laborsta database on public sector employment. Based on these two sources, a theoretical old-age pension coverage can be assessed for three categories of workers: the public sector employees, the private sector employees and the self-employed. The relevant split in KILM between "own account" workers and "employers" was not workable with the information we have on social security coverage in SSPTW. Therefore, the aggregation of both was used to set up the "self-employed" category. It represents a very mixed group largely dominated by the informal economy in low- and middle-income countries, whereas most of the self-employed would be part of the formal economy in high-income countries. "Self-employed" status is treated in this exercise as the aggregate of the two subcategories "employers" and "own-account" (see KILM, Table 3, Status in employment).⁶

For each of these working categories, a group is either considered as covered or not (0/100 per cent) based on the national legislation reported in SSPTW.⁷ Not surprisingly, almost all the public sector employees in the world are supposed to be covered. Only a few public sector employees in Ecuador can join the pension system on a voluntary basis as well as some employees of state and local government in the United States. As the "private sector" is considered here as formal employment, the theoretical pension coverage level is also very high, around 96 per cent. Finally, the "self-employed" category has the lowest theoretical pension coverage, with about half of them covered. The coverage gap on pensions is therefore much bigger for the self-employed.

As this coverage is only a theoretical one and over-estimates the real coverage, it is interesting to compare the categories in relative terms. The self-employed are relatively less protected for old-age income than public and private employees. That could be explained by the weaker bargaining power of this group and higher labour informality for that group, particularly for the own-account workers. These workers may not be interested in being protected for a long-term risk (i.e. retirement), when they often have difficulties in responding to their daily basic needs.

At the two extremes of the theoretical social security coverage, a worker is much more likely to have social security coverage if he or she is working in any public sector of the world in comparison to being self-employed in developing countries.

The results can also be presented by regions. Significant regional disparities exist. Not surprisingly, Africa has the lowest theoretical coverage level and it is respectively followed by Asia and Latin America. This is confirmed by the rare African data available on social security coverage in Annex I and II. For Organisation for Economic Co-operation and Development (OECD) countries and the former Soviet Union the theoretical coverage level is over 90 per cent, that is to say that almost the whole working population is supposed to be covered by a social security programme. However, elderly Russians have had to face pension arrears. Among these regions, countries with a universal approach such as Nordic countries as well as New Zealand and Australia get optimal results.

Figure 13.1 *Theoretical social security pension coverage in 2003*

The results presented above have to be used cautiously for several reasons. For example, a minimum number of years of contributions are required to be eligible for an earnings-related social insurance pension. But these eligibility conditions have not been taken into account. Implementation difficulties of national laws are common in developing countries.

Also, a strong bias is likely to occur with this methodology: information is available usually when a scheme exists and there might be a bias due to the fact that countries with no schemes are more likely not to answer. Finally, India and China are not among the 61 included in this study, which naturally significantly reduces its global representativeness.

3. Experiences in social security extension

3.1 Extension of old-age pension coverage in the Republic of Korea

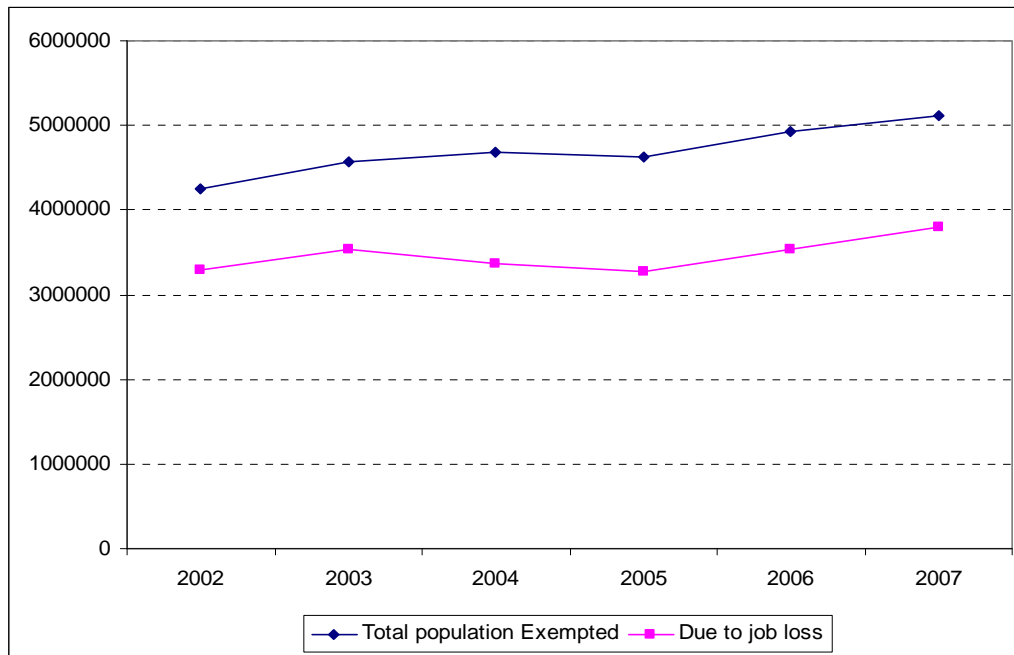
Taking the example of the Republic of Korea (ROK), a social insurance coverage extension case, old-age pension coverage has been progressively extended from the late 1980s. The main ROK old-age pension scheme, the National Pension Scheme (NPS), was implemented in 1988 and initially covered workers in companies with ten employees or more. Then, the compulsory coverage was extended to companies with at least five employees in 1992. From 1995, the self-employed in rural areas have also had to contribute to the NPS and finally from 1999 the social insurance scheme was extended to self-employed workers in urban areas. The extension of old-age insurance coverage in one decade resulted in a very sharp increase in the number of contributors, from about 4.5 million in 1988 to 16 million in 2000 and more than 18 million in 2007.⁸

However, it has to be noted that about 5 million of these members are exempted from mandatory contributions. Cases of exemption have increased in recent years for various reasons, as shown in figure 13.2, with unemployment as the principal reason accounting for approximately three-quarters of the cases. Other reasons are related to economic difficulties of the contributors, lack of permanent residence, or postponement of their work activities for educational purposes.

The ROK government subsidizes some of the contributions in particular for low-income self-employed and for mothers with at least two children. As mentioned in SSTPW 2008, the minimum monthly earnings to calculate contributions are Korean won (KRW) 220,000 and

the government adds up an amount of 50 per cent of the contributions for farmers and fishers with average earnings from 220,000 to 620,000 KRW (about US\$444 at the 11 Feb. 2009 exchange rate).⁹

Figure 13.2 *Contributors exempted from the Korean National Pension Scheme (NPS)*



Source: Lim (2008).

To have a complete outlook of the ROK pension system, it has to be noticed that three other schemes exist. The Government Employees Pension Scheme (GEPS) and the Military Personnel Pension Scheme (MPPS) were introduced in the early 1960s and cover about 1 million civil servants and about 150,000 military officers respectively. The third one is the Private Schoolteachers' Pension Scheme, which was introduced in 1973 and covers about 200,000 persons. In total, these three separate old-age insurance schemes cover less than 1.5 million contributors and play a marginal role in terms of coverage and in terms of extension in comparison with the NPS.

As a more recent social insurance scheme, the Korean NPS is not mature yet and by comparing the "potential" and "actual" old-age pension coverage, a significant gap can be noticed between both (table 13.7).

Table 13.7 *Old-age pension coverage extension in ROK between 2000 and 2005¹⁰*

	2000	2001	2002	2003	2004	2005
Potential coverage (contributors/working age population) ¹¹	51.6%	51.5%	52%	53.8%	53.3%	53.8%
Actual coverage (Recipients 65+ /Total population 65+) ¹²	27.5%	26.6% ¹³	n.a.	n.a.	33.5%	n.a.

Source: ILO Social Security Inquiry.

As the main old-age pension scheme in ROK is quite recent, the proportion of the elderly receiving a pension is much lower than the proportion of workers covered by a pension scheme. However, the number of workers receiving a pension has increased significantly at

the beginning of this century with a rise of six percentage points of elderly receiving a pension between 2000 and 2004. During this period, the ratio measuring the actual coverage is increasing faster than the ratio on the protected persons, and that shows a trend towards a growing maturity of the schemes.

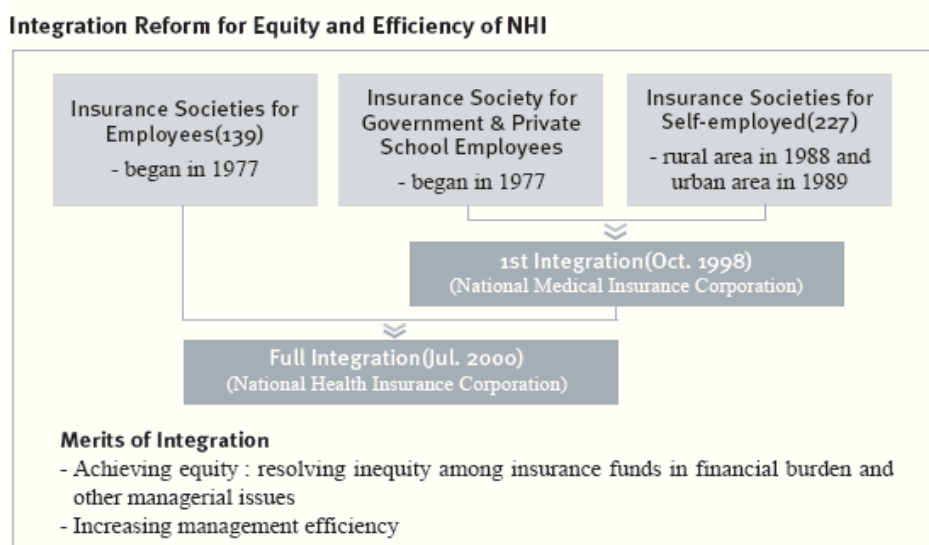
In general terms, the extension of old-age pension coverage in ROK seems to be a relative success with a higher proportion of workers covered and a higher proportion of elderly receiving a pension too. In spite of these positive trends, it should also be noted that there are still two-thirds of the elderly without any old-age social insurance benefits and almost half of the working age population do not contribute to any scheme. This uncovered population is more likely to include women, as female labour force participation is still much lower than for men. It would also concern young workers who have difficulties accessing formal employment.

3.2 Extension strategy for health care in the Republic of Korea

The Republic of Korea has often been quoted as a social insurance extension example for its health-care system (Kwon, 2002). The health insurance coverage extension took place from 1977 to 1989 with old-age insurance reform benefiting from that previous experience.¹⁴ An initial compulsory health insurance programme called the National Health Insurance (NHI) was developed in 1977 covering employees of large companies with more than 500 employees. The NHI was phased in to other groups and in 1979 it covered government employees, private schoolteachers and employees in firms with more than 300 employees. In 1981, the NHI got extended to firms with more than 100 employees; in 1983 the extension concerned companies with more than 16 employees and in 1988 to those with at least five employees. After the experimentation of a pilot project on medical insurance for the self-employed workers in three rural areas in the early 1980s, the NHI was also extended to all rural and urban self-employed categories between 1988 and 1989.

The health-care extension reform was completed in 2000 with the merger of the other health insurance schemes into a national one as shown by figure 13.3. A first integration between the self-employed schemes and the government and teachers' schemes took place in 1998 and a full and final merger extended the integration to the employees' scheme with the creation of the National Health Insurance Corporation (NHIC).¹⁵

Figure 13.3 *Reform process of the Korean National Health Insurance*



Source: http://www.nhic.or.kr/eng/nhic_sub3/nhic_sub3_1/nhic_sub3_1_1/nhi.html

It can be noticed that public and private sector labour unions have been rather passive on the extension of health insurance to Korean employees, not only because of the military political dictatorship, but also because Korean labour unions were focusing more on wage issues than social benefits. While the mandatory health insurance extension coverage was relatively smooth for public and private sector employees, the self-employed were reluctant to pay their contributions. The Government introduced some subsidies for the self-employed to finance administrative costs and funded part of the contribution for the self-employed in low income brackets. As shown by Soonman Kwon, it is interesting to note that the share of government subsidies has decreased in the total revenue of health insurance for the self-employed since the extension of health coverage to this group (Kwon, 2002). The government subsidies decreased from 44.1 to 25.6 per cent of the total health insurance revenue for the self-employed between 1988 and 1998.

This trend continues with government subsidies falling to 19 per cent of total revenues in 2004 (Park, 2007). And merging of the three main schemes into one common national scheme also created solidarity mechanisms among working groups, which in fact resulted in automatic transfers from formal sector employees and civil servants to self-employed categories. With this regular decrease in subsidies, insurance mechanisms are generalizing as a larger part of contributions are financing the benefit costs.

Furthermore, the contribution compliance rate is also increasing among the self-employed, who were originally the most reluctant to participate in health-care coverage. The contribution compliance rate has increased significantly from 83.6 per cent in 1989 to 92.7 per cent in 1999, although the economic crisis in 1998 had a negative impact on the collection of contributions from the self-employed.

In 2007, the NHIC presented a full coverage of the Korean population for health care. About 96.3 per cent of the population is covered by the NHIC, while the remaining 3.7 per cent are covered by the public social assistance programme (Medical Aid) developed for the indigents and population with very low-income.

3.3 Extension through micro-insurance or community-based insurance schemes: The ILO–STEP strategy

The major difficulty in extending coverage in developing countries is related to the informality of their labour markets. As traditional social insurance schemes are usually reserved for formal public and private sector employees, some initiatives have been undertaken to develop social insurance schemes for communities excluded from any social security coverage.

These initiatives are commonly called micro-insurance or community-based insurance schemes. They cover various social risks, but health care is the most common risk that these non-profit-making organizations cover. These community-based health insurance schemes are developed to reduce out-of-pocket payments from households directly to health-care providers. Such out-of-pocket payments are usually too expensive in comparison with standard income and households do not have access to health care and services.

Surveys of micro-insurance schemes were undertaken by La Concertation and the ILO–STEP programme in 2003, 2007 and 2008.¹⁶ However, data sets are not really comparable as micro-insurance schemes may have replied to one survey and not to the others. Many health micro-insurance schemes have been created very recently. For instance, the 2008 STEP–Concertation inventory lists 29 micro-insurance schemes created in 2006 and 29 in 2007 out

of the 92 currently registered micro-insurance schemes, which means that more than half of the schemes would be two years old or less. This shows the dynamism of this relatively recent health insurance instrument. Memberships in micro-insurances included in both surveys have slightly increased between 2003 and 2006.

Membership and health-care coverage seems to progressively increase in Africa, and many initiatives have been developed. However, membership to micro-insurances still represents a marginal coverage of the population. For instance, it has been estimated that only 1.2 per cent of the total population of Senegal was covered by a health-care provision provided by a micro-insurance scheme in 2004, while Senegal has been active in the development of such provisions since the late 1990s (Annycke, 2008). A health-care coverage by micro-insurance of 78 million people throughout the world has been estimated for 2006 and this coverage level should double by 2012 (Schmitt-Diabaté, 2008).

In the strategies to extend social security coverage, it is very common that micro-insurances develop partnerships and linkages with existing structures: either work-related unions, cooperatives, local authorities or financial institutions. Not only can these partnerships reduce the administrative cost of the micro-insurance, but they can also help to reach a community of people with some common interest. For example, the UM-PAMECAS network (Union of Mutual Organizations in Partnership for the Mobilization of Savings and Credit) has been developing microcredit since 1995 in Senegal. Since 2003, micro-health insurances were linked to existing microcredit institutions and all the members of the UM-PAMECAS could join a community-based health fund on a voluntary basis.

3.4 Extension of health care in Rwanda

Rwanda is an interesting and original experience in terms of coverage extension in health through micro-insurance. After a devastating civil war in 1994, there has been a strong political will to develop health care as a priority to rebuild the country. While two main health social insurance schemes were implemented in 2001 for the formal sector with La Rwandaise d'Assurance Maladie (RAMA) for public and private sector employees and L'Assurance Maladie des Militaires (MMI) for the military, the large informal economy (about 90 per cent of the working population) was still uncovered.

For the coverage of this population the Rwandan government has developed a health system and mandatory health insurance membership. A network of health mutual micro-insurances (*mutuelles de santé*) covers the whole country, which is split into 30 health districts. In each of the health districts there is one mutual micro-insurance with smaller units (*sections de mutuelles*) all over the district. There are 403 of these smaller units of mutuals, which correspond to 403 health centres in 2007. At an even more decentralized level, there might be local units at the village level (*Imidugudu*) to inform the population and to identify indigents eligible for free health care (Musango et al., 2009).

The membership is materialized by an individual contribution of Rwandan francs (FRW) 1,000 (about US\$2) a year. This minimum health-care package (*Paquet minimum d'activités (PMA)*) provides access to the health centres. A co-payment of 200 FRW has to be paid when a treatment is required.

There is also a complementary health-care package (*Paquet complémentaire d'activités (PCA)*) covering expenditures at the hospital level. The PCA insurance premium should be 1,000 FRW per person a year, but it is currently financed via district and national risk pooling mechanisms.

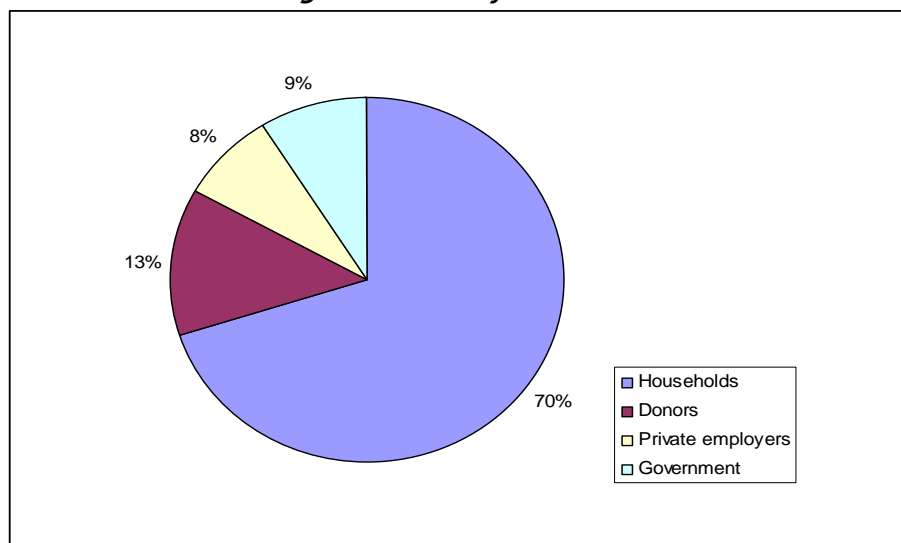
In terms of health-care coverage, it seems that this new system has had surprisingly fast success. Mutual micro-insurances covered 7 per cent of the population in 2003, and this coverage rate rose to 27 per cent in 2004, 44.1 in 2005, 73 per cent in 2006 and up to 85 per cent in 2008.¹⁷

This significant coverage extension is a very relevant experience for targeting basic health-care coverage. A specific study on the determinants of this coverage extension could examine the key elements explaining such a "success-story". How would it be feasible to duplicate this experience in countries using mutual micro-insurances to extend health-care coverage?

One of the key points is related to the fact that the political authorities have made membership to the fund compulsory. This is a major difference from the other health-care micro-insurance experiences of coverage extension in Africa, where membership is voluntary. Implementing a compulsory community-based health-care system in Rwanda shows that there is a strong political will. Between 2003 and 2007 the number of small health centres grew from 88 to 403. With the help of the international community (the Global Fund, the World Health Organization (WHO), GTZ and others), Rwanda has initiated a consistent strategy increasing both the supply and demand for health care. Would this system be sustainable if the international subsidies were phased out?

In 2006, the main source of funds of the community health insurances was households as shown in figure 13.4 (Health Systems 20/20, 2008).

Figure 13.4 *Sources of financing of community health insurances in Rwanda in 2006*



Source: Health Systems 20/20 (2008); National Health Accounts Rwanda (2006).

However, these community health insurance schemes represent only about 5 per cent of the total health-care expenditure in Rwanda in 2006, and out-of-pocket payment has been evaluated at 23 per cent of the total health expenditure in Rwanda, with an average health spending of Rwandan francs (RWF) 4.228 (about US\$8.5) per capita. In spite of the fact that a large majority of the population is covered by community-based micro-health insurances, a wider coverage seems to be needed with a larger health package. This is probably the next challenge for Rwanda in further extending health-care coverage.

Although mutual micro-insurance schemes have decentralized management at the health district level, national legislation set up rules which apply to all of these mutual organizations.

4. Conclusions

The extension of social security coverage (including social assistance) is now recognized as an instrument to tackle poverty and to reach the Millennium Development Goals. A strategy related to coverage extension requires effective instruments to measure the changes over the years and among countries, implying the need for a better information system for many developing countries.

The ISSA has a substantial network of social security institutions throughout the world and regularly collects information on social security provisions. Based on the current questionnaire (SSPTW), information on social security coverage could be integrated. Coverage data collected through this questionnaire would provide a unique and strategic position for this organization. The 2005 ISSA pilot project on social security statistics was a promising first attempt, which could be used as a new starting point in this complementary data collection.

Among other sources of information on coverage, additional information may exist in the regular reports provided by ILO member States which have ratified ILO Conventions on social security.

Data on social security coverage are not yet being collected on a regular basis. Some initiatives may focus on limited cases such as the ad hoc ILO SPER reports or the European Commission ESSPROSS database. The ILO Social Security Inquiry is a new initiative of data collection on both social security coverage and updating this database system should become part of the ILO regular data collection activities. A closer collaboration in data collection activities between the ISSA and the ILO could contribute to improving the available information on social security coverage, by taking advantage of both the unique ISSA network on the one hand and ILO expertise on social security standards and data collection on the other.

On the basis of a few case studies on social security extension in developing countries, schemes which are made compulsory seem, not surprisingly, to be much more successful than voluntary schemes in terms of coverage extension.

Among these social security extension initiatives, insurance mechanisms have been developed through private or public bodies and prevent people from being unprotected against social risks. The major social security risks are related to health and ageing. Therefore, both public and private initiatives which enabled people to face such risks would contribute to poverty reduction. From micro-insurance programmes based on local initiatives to national social insurance programmes, the positive impacts of social security extension could justify the support of such programmes and of the use of subsidies (United Nations Department of Economic and Social Affairs, 2008, pp. 161–165). Most of the successful schemes which have contributed to an extension of social security coverage have received some kind of subsidies. Examples of subsidies are many, from the subsidization of contributions, to part of the benefits financed from different sources, to health care structures supported by other budgets. Is the target to extend social security coverage feasible without appropriate subsidy mechanisms?

Annex I

Potential old-age pension coverage as measured by the ILO Social Security Inquiry

Potential old-age pension coverage: Contributors to pension schemes related to working age population (15–64), 2000–2007, in percentages								
	2000	2001	2002	2003	2004	2005	2006	2007
Argentina				67.9				
Armenia					24.5			
Aruba				68.0				
Azerbaijan			22.8	23.0				
Belize	48.0		47.5	48.4	47.5	44.5		
Bhutan					3.0			
Burkina Faso				3.4				
Burundi						2.0		
Cameroon				4.1	3.9	4.2	4.2	
Chinese Taipei	50.6	49.3	49.4	50.5	50.0	50.8		
Côte d'Ivoire	3.8	3.8	3.9	3.6	3.5	3.2	3.2	
Dominica					35.8			
Guinea		10.1	10.3	10.5	10.5	10.8		
Indonesia				14.1				
Jamaica					12.7			
Jordan	12.7	12.8	13.5	14.6	15.8	18.0	20.1	
Kazakhstan				61.8	71.7			
Maldives						14.1		
Moldova, Republic of				49.0				
Morocco		8.6		8.6				
Niger		0.8		0.8	0.7	0.5	0.6	
Rwanda		3.0	5.0	3.9	4.1			
Saint Lucia	43.7	42.5	40.6	39.6	39.7	40.8		46.2
Samoa		20.4	21.3	21.1	21.4	22.3	22.4	
Saudi Arabia	15.0	15.8	17.1	18.8	20.0	21.0		20.7
Senegal				4.3	4.5			
Sierra Leone			3.3	3.9	3.7	3.8		
Sudan				3.6	2.8	2.9		
Togo		5.7	5.7	5.7				
Uganda			8.3	10.1	9.3			

Source: Social Security Inquiry, ILO.

Annex II

Actual old-age pension coverage as measured by the ILO Social Security inquiry

Actual old-age pension coverage ratio: Old-age pension recipients to population over 65, 2000–2007, in percentages								
	2000	2001	2002	2003	2004	2005	2006	2007
Armenia	92.6	90.4	F.C. ¹⁸	F.C.	98.7	96.6	93.1	
Aruba	93.0	93.3	92.3	92.3	91.5	90.4	89.5	
Australia	68.0	78.9	80.3	80.8	81.3			
Austria							F.C.	
Azerbaijan	F.C.		F.C.	F.C.	F.C.	F.C.	F.C.	F.C.
Bahrain		F.C.	F.C.	F.C.				
Bangladesh				11.8	17.9			
Barbados	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	
Belize		0.5	0.3	0.4	0.4	0.3		
Bhutan						0.5		
Brazil	66.7	62.1						
Bulgaria			F.C.	F.C.			91.5	
Burkina Faso					1.6			
Burundi				10.9	11.0			
Cambodia						3.0		
Cameroon			8.0	8.2	8.0	8.2	9.1	
Chad		1.1						
China						38.4		
Congo		10.9				12.5		
Cook Islands						F.C.		
Costa Rica	40.3	40.2	41.8	39.5	39.5	37.2	34.1	35.2
Côte d'Ivoire	5.7	6.7	6.5	8.6	8.8	8.7	8.3	
Cyprus		85.5	85.7					
Czech Republic		F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	
Denmark							F.C.	
Estonia							88.2	
Guinea		2.6	2.6	2.8	3.0	3.1		
Indonesia				22.9				
Iraq					79.5			
Jordan			25.5	28.0	29.2	32.6	37.3	
Kuwait				42.7	42.0	41.4	43.1	
Kyrgyzstan						F.C.		
Maldives				26.6	26.8	27.0		
Malta	79.7	79.6	79.3	78.3	79.7	84.3	91.4	
Marshall Islands						62.9		
Mauritius	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	
Moldova, Republic of				88.1				
Mongolia				57.6	59.7			
Montenegro				85.3				
Nauru						64.5		
Nepal				67.1				
Netherlands	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.
New Zealand							F.C.	
Niger		4.8	1.3	4.4	4.7	4.9	5.2	

Pakistan				37.8	37.0			
Rwanda		6.9	8.0	9.1	12.1			
Saint Kitts and Nevis			35.2	37.2	39.2	39.9		
Saint Lucia	18.4	19.1	20.6	22.3	23.4	26.2		
Saint Vincent and the Grenadines		31.4		39.3	43.8	45.6		
Samoa	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.	F.C.
Senegal					11.2			
South Africa		79.8	78.0	79.6	78.9	77.5	76.5	77.0
Sri Lanka				23.6	24.4	24.6		
Sudan				10.5				
Tajikistan					89.6			
Tanzania							0.9	1.1
Togo		3.0	3.0	3.1				
Tonga						9.5		
Turkey		75.4	77.3	79.3	81.6	84.0	87.1	
Tuvalu						19.5		
Uganda				0.9	0.9	0.9		
Uruguay	72.7	72.0						
Uzbekistan						F.C.		
Vanuatu						9.0		
Viet Nam					33.5			
Yemen					3.9			
Zambia						7.3	7.7	

Source: Social Security Inquiry, ILO.

Notes

¹ All the information on ILO social security conventions and ratifications are available at <http://www.ilo.org/ilolex/english/convdisp1.htm>.

² There are 20 countries which have ratified the European Code of Social Security and its Protocol.

³ Roddy McKinnon (ISSA official) informed me that a first attempt to collect social security statistics was undertaken in 2005. The SSPTW pilot study in Africa, Asia and the Pacific got a 40 per cent response rate, which can be considered as a successful rate for a pilot project. ISSA internal note: "Section seven SSPTW pilot study: Interim observations and remarks based on replies from Asia and the Pacific and Africa (30 August 2005)."

⁴ For more information on SPER, see: <http://www.ilo.org/public/english/protection/secsoc/areas/stat/spers.htm>.

⁵ For more information on the IHSN, see: <http://www.internationalsurveynetwork.org/home/>.

⁶ The employment status of "Contributing family workers" was also included in the initial data collection as an employment category, but this category was not significant enough to present any result.

⁷ There are a few exceptions to this binary approach. Sometimes an estimation can be done on the basis of exclusion to the scheme coverage.

⁸ Moon (Draft). Figures until 2000, see <http://www.oecd.org/dataoecd/51/31/2763652.pdf>. Figures for 2007, see <http://www.hkn24.com/news/articleView.html?idxno=18233>.

⁹ Social Security Administration and ISSA (2008).

¹⁰ Data come from the ILO Social Security Inquiry (SSI).

¹¹ In SSI, this ratio is called the "Old-age demographic protection ratio (contributors)", Numerator – No. of working age contributors to an old-age pensions scheme (15–64) – Sum of number of contributors for all

schemes covering function: old age; basic schemes only; excluding provident funds. Denominator – Working age population (15–64).

¹² In SSI, this ratio is called the "Old-age pension recipient ratio 65+", Numerator – No. of recipients (65+) of an old-age pension (incl. means-tested). Denominator – Population 65+.

¹³ For 2000 and 2001, data for minor old-age pension schemes were not available and it is likely that the actual coverage rate is slightly under-estimated.

¹⁴ A health-care social assistance programme with means-tested conditions (called Medical Aid programme) was also introduced in 1977.

¹⁵ For more details, see <http://www.nhic.or.kr/eng/>.

¹⁶ For more information see www.concertation.org and <http://www.ilo.org/public/english/protection/secsoc/step/index.htm>.

¹⁷ Inyarubuga (2007). See also http://www.moh.gov.rw/health_indicator.html.

¹⁸ F.C. Full coverage: It is considered that there is full old-age pension coverage when there are more old-age pension recipients than the population over 65.

References

- Annycke, P. 2004. "The impact of HIV/AIDS on security for the elderly in Africa", in R. Paratian and S. Dasgupta (eds): *Confronting economic insecurity in Africa* (Dar es Salaam, ILO), pp. 385–414.
- . 2006. *Trends in old-age pension programs between 1989 and 2003*, ILO web site. Available at: <http://www.socialsecurityextension.org/gimi/gess/RessShowRessource.do?ressourceId=8904>
- . 2008. *Sénégal: L'analyse des prestations et des indicateurs de résultats de la protection sociale* (Geneva, ILO).
- Behrendt, C.; Kühner, S.; Hagemeyer, K.; Bonnet, F. Forthcoming. *Old age pension coverage in sub-Saharan Africa: Methodological considerations and preliminary findings from the ILO Social Security Inquiry*, ILO Working Paper (Geneva).
- Bonnet, F. 2004. "Socio-economic security in Africa: An overview", in R. Paratian and S. Dasgupta (eds): *Confronting economic insecurity in Africa* (Dar es Salaam, ILO), pp. 15–74.
- Cichon, M.; Hagemeyer, K. 2007. "Changing the development paradigm: Investing in a social security floor for all", in *International Social Security Review*, Vol. 60, No. 2–3 (Apr.–Sep.), pp. 169–196.
- Health Systems 20/20. 2008. *National Health Accounts Rwanda 2006 with HIV/AIDS, Malaria, and Reproductive Health Subaccounts* (Bethesda, MD: Health Systems 20/20 project, Abt Associates Inc.). Available at: http://www.who.int/nha/country/Rwanda_NHA_2006.pdf
- International Labour Office (ILO). 2008. *Social security inquiry*. Available at <http://www.ilo.org/public/english/protection/secsoc/areas/stat/ssi.htm>
- Inyarubuga, H. 2007. *Les mutuelles de santé au Rwanda: Une force pragmatique de mutualisation de risque lié à la maladie* (Ministry of Health of Rwanda). Available at <http://www.moh.gov.rw/docs/presentation%20mutuelles%20sante-publications.pdf>
- Kwon, S. 2002. *Achieving health insurance for all: Lessons from the Republic of Korea*, Extension of Social Security (ESS) Paper No. 1 (Geneva, ILO).
- Lagomarsino, G., 2009. *Uruguay: Hacia una nueva matriz de protección social*, paper produced for the International Social Security Association (ISSA) Project on "Examining the existing knowledge on coverage extension", Montevideo, May.
- Lim, H., 2008. *One out of four enrollees not paying their contributions*. Available at <http://www.hkn24.com/news/articleView.html?idxno=18233>

-
- Moon, H. Draft. *The Korean pension system: Current state and tasks ahead*, OECD Working Paper (Paris). Available at <http://www.oecd.org/dataoecd/51/31/2763652.pdf> [accessed 6 Nov. 2009].
- Musango, L.; Doetinchem, O.; Carrin, G., 2009. *De la mutualisation du risque maladie à l'assurance maladie universelle: Expérience du Rwanda* (Geneva, World Health Organization).
- Park, H.D. 2007. *The National Health Insurance of the Republic of Korea*, National Health Insurance Corporation (Seoul, Republic of Korea).
- Schmitt-Diabaté, V., 2008. *The extension of coverage through linked schemes: A typology and several examples*, presentation to the International Labour Organization (ILO), Micro-insurance conference, Cartagena, Colombia. Available at http://www.munichre-foundation.org/NR/rdonlyres/3E734F03-B4EB-4881-8B44-9F4612D406C0/0/S4_MIC2008_SchmittDiabate.pdf
- Social Security Administration (SSA); International Social Security Association (ISSA). 2009. *Social Security Programs Throughout the World: Asia and the Pacific, 2008*, SSA Publication No. 13-11802 (Washington, DC).
- United Nations Department of Economic and Social Affairs. 2008. *World Economic and Social Survey 2008: Overcoming economic insecurity*, E/2008/50/Rev.1 (New York). Available at <http://www.un.org/esa/policy/wess/wess2008files/wess08/wess2008.pdf>