Coverage

How much of the labor force is covered by the pension system?

Improvements in coverage are one of the main challenges that has captured pension policymakers’ attention. People who are not covered by the formal pension system could be at risk of poverty in old age. Broadening coverage has therefore been a major goal of many recent pension reforms around the world. The coverage of the formal pension system is therefore one of the most important indicators of the performance of pension systems.

This briefing note looks at issues in the measurement of coverage by the formal pension system of people of working age. It is the second in a series describing the World Bank’s Pension Reform Indicators and Database. The full set is discussed in the first, overview note.

The coverage of the formal pension system has many determinants. These include the design of the system, labor-market conditions and demographic trends. This note discusses differences in concepts of ‘coverage’, measurement methodology and the availability of data. In some cases, institutional differences in national retirement-income schemes and limitations in data mean that coverage data cannot always be meaningfully compared between countries. These caveats are set out briefly here: for more detail, references and recommended further reading are provided at the end of the note.

Retirement-income systems, in theory, affect individuals at all stages of their adult lives. At its simplest, there are two stages: a period of working and a period of retirement. This note focuses on coverage of people of working age (although it is also possible to measure ‘coverage’ of the pension system among beneficiaries).

Definitions

The indicators presented here are designed to show the proportion of the total potential population that could be covered by a pension scheme that is, in fact, covered.

The obvious starting point would be to look at the number of people registered with the pension system, commonly called ‘affiliates’ or ‘members’. Being affiliated typically means that the agency that administers or controls the scheme has background or contact information of the employee on its database.

However, this opens up a number of problems. First, many retirement-income systems are composed of multiple pension schemes. There is often a risk of double-counting of people who have changed jobs. Secondly, there may be many people who have contributed to the pension scheme in the past but are no longer active. These problems can both be confounded by the third difficulty: the lack of a unique identification...
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number for individuals. (This has caused a major problem in Japan, for example, where there are 50 million contribution records that are not linked to individuals.) Finally, some people may be registered with a social-insurance institution because they have contributed to or been beneficiaries of other social benefits but have never formally been covered by the pension part of social insurance. All of these issues hinder the process of collecting information and the maintenance of accurate databases.

A better concept to underlie the measurement of pension coverage than ‘affiliate’ is that of an ‘active member’. An active member can be defined as someone who either contributed to or accrued pension rights in any mandatory pension scheme during a particular time period.

The concept is clearest when the relevant pension scheme is contributory: the question is simply whether then individual and/or their employer contributed. However, some pension schemes are non-contributory: many civil-service pension schemes, for example.

Also, some people may be covered by a contributory pension system without having contributed. Many schemes, for example, provide pension credits for people who are unemployed or who are out of the labour market caring for children. In these cases, pension rights continue to accrue and so the individual should be counted as covered.

The active-member concept only makes sense for pension schemes whose objective is some degree of income replacement. It does not apply, for example, to resource-tested benefits or basic pensions where entitlement depends solely on residency. These are called ‘zero-pillar’ schemes in the World Bank’s pension taxonomy: see the discussion in the first briefing note in this series on ‘Pension indicators: Reliable statistics to improve pension policymaking’.

The objective here is to measure coverage of schemes designed for income replacement in old age: the first and second pillars of the World Bank taxonomy. These schemes provide benefit levels related either to individual earnings or contributions. (Both pillars are mandatory; the first is publicly provided, the second operated by the private sector.)

Data

The ‘active-member’ concept, however, is problematic to implement. First, many people contribute only sporadically to the pension system. The question is whether someone should count as an active member if (for example) they have paid only one contribution in the last year. National databases differ in their treatment of such individuals.

There are two potential sources of data on the number of active members: administrative databases (operated by social-insurance institutions, regulators and supervisors etc.) and household-survey data. Each has its advantages and disadvantages.

One problem arises when there are multiple pension schemes. People can move between different schemes over time, accruing benefits along the way. Aggregating administrative data sources can therefore result in ‘double counting’, particularly where it is difficult to separate active pension members from those with dormant pension rights. A similar issue is the treatment of people with two or more jobs. Are records reconciled to each individual, or is there double counting?

In some cases, data are simply not available centrally, but are maintained separately by different institutions. This can even be true of public-sector workers in some countries, where records are maintained by different organizations and incentives to report accurate information are lacking. Nevertheless, the best administrative databases are able to provide an accurate count of the universe of active members. This can include people covered by credits but not paying contributions. These latter groups can be difficult to count using household survey data.

One of the advantages of using household-survey data is that double counting is easy to avoid. Such datasets also allow for a deeper analysis of
coverage between different groups, because there is information on socio-economic characteristics, such as income, education, living arrangements etc. However, household-survey data have smaller sample sizes than administrative databases and there are problems of mis-reporting of pension status. Sometimes questions about pension coverage of workers are not asked.

**Measurement**

Once the number of people covered by the pension system (as active members) has been counted, it is then necessary to choose a measure of the population that could, potentially, be covered. Comparing the two gives the ‘coverage rate’.

Two different measures of potential active members have commonly been used: the working-age population and the labor force. ‘Working age’ is typically defined as age 15 to 64. The labor force includes all people defined as economically active: the employed, self-employed and unemployed and seeking work.

Again, there are advantages and disadvantages in the different approaches. The first is data availability and quality. Demographic data are easily found and generally reliable. The size of the labor force is commonly estimated from either household surveys or specific labor-force surveys. Such surveys differ between countries in their methodology, frequency and sample sizes, and so in their reliability and comparability.

**Coverage and compliance**

In principle, all people earning income could participate by saving or contributing to a pension scheme. In practice, the legal mandate to contribute is often restricted to formal sector, wage-based employment. Some countries, however, do require the self-employed to contribute.

There is a problem with implementing a measure of the coverage rate based on the actual numbers subject to a legal requirement to contribute. The first is that such information is not available for most countries, whereas demographic and labor market variables used here are easily found.

At the risk of making a virtue out of necessity, if the objective of the analysis is to explore the extent to which workers will be able to smooth their consumption over the lifecycle, then the number of participants should be compared a broader definition of workers. (Of course, if the purpose of the indicator is to capture compliance or administrative efficiency, then the number of participants should be compared to the potential number of participants. But this is of narrower policy relevance.)

**Results**

Information on coverage as a percentage of the labor force is currently available for 110 countries. There are data as a percentage of the working-age population for 120 countries. Figure 1 gives a sample of the results, showing coverage as a percentage of the working-age population for the 30 largest countries (measured by population) for which data are available.

![Coverage: selected countries](image-url)
Coverage, by this measure, is less than 10% in the six countries at the bottom of the chart, which are in Africa and South Asia. In contrast, it is in the range 60-75% in six of the OECD countries at the top.

**Coverage patterns**

One common analysis is to compare coverage of the pension system with national income per head. It should be obvious from Figure 1 that there is a strong relationship between them.

This is confirmed in Figure 2, which plots coverage as a percentage of the labor force against national income per head in US dollars using all the countries for which data are currently available. National income is converted using purchasing-power-parity exchange rates. The chart plots national income on a log scale, showing that there is a strong, log-linear relationship between coverage and income: the $R^2$ for the regression is 0.72.

**Coverage and national income**

![Coverage and national income chart]

*Source: World Bank Pension Indicators and Database*

The final question is the issue of which of the two comparators for coverage – the labor force or the working-age population – is best to use. As noted above, both have their advantages and disadvantages.

Figure 3 directly compares the two different measures of the universe of potential active members. All the data points lie above the 45°-line because the labor force is smaller than the working-age population. The regression line shows a strong non-linear relationship: the $R^2$ of the equation is 0.91. It is a middle levels of coverage that coverage relative to the labor force is largest relative to coverage compared with the working-age population. This analysis suggests that, in empirical terms at least, there is little to choose between the two measures.

**Final caveats**

There are some limitations to what can be learned from the coverage indicator.

First, the coverage rate does not capture the degree to which consumption is likely to be maintained during old age. In a defined-benefit scheme, this depends on the parameters of the scheme and the details of the eligibility criteria and benefit formula. In a defined-contribution scheme, it depends on the future net investment return. For example, many schemes require a minimum number of years of contributions to receive a benefit: it is coverage across the lifecycle that matters, not the snapshot of coverage in a particular time period that is set out here.

**Different coverage measures**

![Different coverage measures chart]

*Source: World Bank Pension Indicators and Database*
The probability of receiving a certain level of pension income (or any pension at all) also depends on projected contribution densities. A worker who is ‘covered’ in the present period may never contribute again in the future and may fail to qualify for benefits at all. Conversely, many workers that did not contribute during the year in question may have pension accruals from previous years.

Second, coverage is a discrete concept: the worker is either covered or not covered. It does not capture the proportion of wages (much less total income) that will be replaced by the pension. This can be significantly lower than the actual wages. First, this can be due to parameters of the system, such as ceilings to covered earnings and parts of remuneration that are non-pensionable. Under-reporting of income is also widespread in many countries. This again limits the amount of consumption smoothing that is really taking place.

Further reading

