Institute and Faculty of Actuaries

Pensions in a Global Context - Using the World Bank Criteria To Assess Seven Countries

Presentation to the ICA Conference, Berlin

Paper by the IFoA Pensions in a Global Context Working Party
June 2018

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1. Summary of Findings

The Institute and Faculty of Actuaries Pensions in a Global Context Working Party ("the Working Party") has used the World Bank pension policy framework to evaluate a range of pension system designs around the world (namely Brazil, Canada, China, Germany, India, Nigeria and Sweden).

In particular, the Five Pillar framework sets out primary evaluation criteria, which are adequacy, affordability, equity, predictability, sustainability and robustness.

In order to judge a country's pension system the Working Party has defined, for each of the six primary criteria, a scale that measures each country's pensions system from complete non-fulfilment to full fulfilment. A key issue was to delineate the criteria to make each of them "independent" of one another to avoid "double jeopardy" in the grading.

It should be noted that all such criteria in the end reflect moral constructs and are always open to challenge. For instance equity could mean everyone receiving an adequate pension or it could mean the pension paid is closely connected to what one put into the system. Or something else or in between these two poles.

Ultimately the five pillar system is a form of analysis to help the public and policy makers define the problem. Thus our ranking of the systems is ultimately subjective but we think useful as it helps to describe where these countries should be reforming and the relative urgency of such efforts.

Defining quantifiable measures is a difficult exercise – differences in quality of data, allowing for different pace of socio-economic developments, purpose and maturity of regimes as well as a country's ability to withstand shocks and changes makes a reasonable comparison a difficult exercise. In addition there is the usual problem of exactly how good is the past in providing a guide to the future.

As stated above the World Bank Five Pillar Framework measures are in themselves difficult to quantify (for example robustness) and one could argue whether using these measures in isolation leads to plausible findings. However, we think the results are plausible and the ranking of each criteria illuminating as to what could or should be done in each country.

1.1 Key Findings

Our ranking of the seven countries based on the criteria as explained in this paper, is shown below:

Ranking	Country	Percentage (%)
1st	Sweden	87%
2nd	Canada	85%
3rd	Germany	71%
4th	Brazil	52%
5th	India	51%
6th	China	39%
7th	Nigeria	24%

It should be noted that the above ranking is a result of a weighting system of the full six criteria.

On the surface the overall ranking seems reasonable. However, the criteria used has elements of current status and views of the future (sustainability for instance). For instance this is reflected in the ranking of Brazil and Germany where as a percentage of average income Brazilians do well and are paid it early compared to Germany but few believe that the Brazilian pension system is really sustainable (or to put it another way diverts resources away from improving the overall productive capacity of the economy) compared to Germany.

Another example is whether it is really better to be a pensioner in India which has a higher ranking than China whereas the latter has a GNP per head at purchase price parity that is 2.2[1] times that of the former.

We therefore encourage readers to work their way through Sections 4 and 5 which describes each of the rankings for each criteria.

In respect of the overall ranking we can conclude the following:

- The findings are consistent with findings from other papers and similar ranking exercises for different countries
- The five pillar system is useful as an analytical framework but in practice very difficult to make work. The criteria are subjective in the sense that it very much depends on what ones prior social political views are.
- This paper considers pillars 1 and 2. Countries with a focus on pillars 3 and 4 should be considered as fundamentally different in structure rather than being poor systems.

[1] Data from 2010 so difference likely to have grown since then

Comparison with MMG

We follow a fact-based research, as does the Melbourne Mercer Global (MMG) Index, for each of the seven countries whenever is possible. The MMG Index covers 30 countries across America, Europe and Asia-Pacific and uses three sub-indices namely adequacy, sustainability and integrity with weightings of 40%, 35% and 25% respectively. In contract to MMG Index we are using six criteria with equal weights and we extend our analysis to include an African country with limited data.

Our results show that Sweden and Canada scored very well with 87% and 85% respectively. Germany scored relatively well (72%) but still there is room to improve in most of criteria. On the other hand, Nigeria (24%) scored poorly although lack of data involves a more subjective approach towards the ranking. Brazil (52%), India (48%) and China (39%), in spite of being less impacted by longevity given their young populations, have relatively immature pension systems.

When comparing with MMG Index we see that the order of the ranking is quite similar except that China gets a slightly higher score than India, i.e. 46.5 versus 44.9. Also, Sweden with 72.0 leads the table while Canada and Germany have very similar scores, i.e. 66.8 and 63.5 respectively. Surprisingly the scores for adequacy and sustainability under both indices are quite similar. However the overall score is quite different in some cases due to the extra criteria defined in our paper, that is, affordability, equity, predictability and robustness.

2. Introduction

2.1 Background

Countries around the world are facing the combined challenges of populations ageing, continued fallout from the financial and economic crisis as well as persistently low interest rates, leading to fundamental questions being raised about the suitability of the existing models of pensions provision. Historically the OECD and the World Bank five pillar model has been particularly influential in the development of public pension arrangements, occupational DB and DC schemes and personal savings vehicles.

In response to these challenges, some countries have re-nationalised their pension systems (such as Poland) whilst others persist in promoting savings vehicles that are likely to be inadequate given the changing demography in many developed and developing countries. Countries such as China and Sweden are experimenting with notional defined contribution. The situation in each country is extremely different. By ranking the countries we thought it may help them decide if pension itself is a key social policy area that needs attention or not.

2.2 Objectives of the IFoA Pensions in a Global Context Working Party

The Institute and Faculty of Actuaries has set up a working party as part of its general focus to expand its overseas outlook and contribute to the global debate on the future developments in pension provision internationally.

Historically, institutions such as the World Bank and OECD have had a significant influence on the nature of pension provision. This Working Party aims to review the overall pensions landscape, through the lens of the World Bank Five Pillar Framework and its primary evaluation criteria focusing on a select group of countries.

For the purpose of this paper the following countries were selected:

- Brazil
- Canada
- China
- Germany
- India
- Nigeria
- Sweden

These broadly represent a range of fully developed and developing economies and political systems, covering a wide geographical area, diverse population density as well as different stages of maturities of the pension provision in place.

Our research aims to fill in a gap in the literature by designing an index that it is focused on the effectiveness of mandatory public pension schemes across the world including African countries. With this in mind, we focus on the primary criteria designed by the World Bank (adequacy, affordability, equity, sustainability, predictability and robustness).

2.3 World Bank Pension Conceptual Framework

The Five-Pillar Framework

The World Bank policy framework applies a flexible five-pillar model comprising:

- a non-contributory “zero pillar” in the form of a basic social pension financed by government;
- a mandatory “first pillar” with contributions linked to earnings and replacing a portion of pre-retirement income;
- a mandatory “second-pillar” that is typically a defined contribution individual savings account;
- a voluntary “third pillar” that is flexible and discretionary and may be DB or DC; and
- a non-financial “fourth-pillar” which includes access to social programs, including health and housing.

World Bank Evaluation Criterion (Extract from the 2005 World Bank Paper)

The policy framework evaluates the range of overall systems designs through the application of a combination of primary and secondary criteria.

The primary criteria are the ability of the reform to maintain adequacy, affordability, sustainability, and robustness while achieving welfare-improving outcomes in a manner appropriate to the current and expected environment of the individual country:

- Adequacy. An adequate system is one that provides benefits sufficient to prevent old-age poverty (at a country-specific absolute level) to the full breadth of the population in addition to providing a reliable means to smooth lifetime consumption for the vast majority of the population.

- Affordability. An affordable system is one that is within the financing capacity of individuals and the society and does not unduly displace other social or economic imperatives or have untenable fiscal consequences.

- Sustainability. A sustainable system is one that is financially sound and can be maintained over a foreseeable horizon under a broad set of reasonable assumptions.

- Equitability. An equitable system provides income redistribution from the lifetime rich to lifetime poor consistent with societal preferences while not taxing workers or retirees external to the system; and an equitable defined-benefit system provides the same benefit for service across income groups and cohorts subject income redistribution parameters which may apply.

- Predictability. A predictable system provides benefit that (i) are specified by law and not subject to the discretion of policymakers or administrators, (ii) includes indexation provisions designed to insulate the individual from inflation, wage and interest adjustments before and after retirement, and (iii) as much as possible insulates the retiree from longevity risks.

- Robustness. A robust system is one that has the capacity to withstand major shocks, including those coming from economic, demographic and political volatility. Application of these criteria requires consideration of the linkages between the various elements and the associated tradeoffs among them. For example, contribution rates for a mandatory first pillar system that are deemed to be affordable to employers and employees may result in issues of the adequacy of benefits or sustainability of the systems financing. In addition, other public policy provisions can materially affect the ability of a particular country to fulfill these criteria. Adequacy in preventing old-age poverty is, for example, closely linked to the manner in which health care for the elderly, typically representing a very large component of consumption for this age group, is financed. Evaluation and resolution of these tradeoffs further highlights the country specific nature of the decision process.

2.4 Developing a Scoring System using the Five Pillar Framework Primary Criteria

In order to judge a country's pension system we have defined, for each of the six primary criteria, a scale that measures from complete non-fulfilment to complete fulfilment. However, we have aimed to be "approximately right" rather than "exactly wrong" and so the measurement as defined as a scale along the following lines:

1. Fully meets the criteria in all areas
2. Mostly meets the criteria in all areas
3. Meets the criteria in key areas
4. Insufficiently meets the criteria in key areas
5. Meets to a low level some of the criteria
6. Fails to meet even the basics of the criteria

3. Description of the Criteria used for Scoring

3.1 Scoring Methodology under each Primary Criteria

For each of the criteria we developed a more precise definition that was, where possible, directly measurable by a formal (national) statistic.

Adequacy

When assessing the adequacy of a country's pillar 0 and 1 benefits there are many factors that could be considered. For the purpose of our study we considered that an adequate system was one that:

- Provides coverage to the whole population
- Provides a sufficient level of income to prevent poverty – defined as being above the OECD definition of the poverty line
- Provides a suitable level of gross replacement ratio

A country scoring highly on adequacy would need to offer a sufficient level of benefit to prevent poverty to a high proportion of the population.

Affordability

An affordable system is one that is within the financing capacity of individuals and the society and does not unduly displace other social or economic imperatives or have other untenable fiscal consequences. Affordability depends on a number of issues, including:

- cost
- fiscal space
- financing options, and
- politics.

Cost will vary from country to country depending on, inter alia, the level of benefits provided and the demographics of the population. According to Pension Watch, in many countries a reasonable social pension might be provided for anywhere from 0.5% to 1.5% of Gross Domestic Product (GDP). Fiscal space will depend on the economic strength of the country, including the existence and levels of budgetary deficits

When assessing the affordability of the countries pillar 0 and 1 benefits, quantitative consideration was given to both the level of public expenditures on old age and survivor benefits as well as the level of spending in terms of total government spending. A country scoring highly on affordability would need to offer a level of benefit that was sustainable and reasonable as a percentage of GDP.

Equity

Equity can be understood in many different ways. But essentially there is a trade-off between:

- Individual equity: how does a resulting pension reflect the accumulated contributions made by the individual?
- Societal equity: how far should the system correct for wider considerations of fairness through social transfers? (For instance having minimum pensions, redistribution from the wealthier to the poorer through tax system, etc.)

There is no unique answer to the question, but for the purposes of our study we defined a fully equitable system as one that:

- Provides 100% coverage to the whole population
- Provides at least a minimum living income in retirement (defined as 60% of median wage)
- That provides a pension that increases in line with the contributions paid once the first two criteria are fulfilled
- Generates pensions that do not perpetuate or attenuate any existing gender gaps

A country scoring highly on equity would need to have high coverage providing reasonable pensions for both men and women. What is often seen is that coverage is often wide with pensions increasing in line with contributions but at the expenses of lower paid not receiving an adequate pension (as there are no formal minimum pensions applied or they are low). The gender gap was measured as the difference in the net replacement ratio between the average pension for men and women (no gap earned a maximum score whereas 100% gap earned nothing).

Predictability

In order to be considered reliable and, in due course, a mainstream option for retirement savings, social pensions system need to indicate to its population that it operates with integrity and that decisions regarding the financial increments and duration of payments are driven towards better individual outcomes rather than to benefit the state.

The stability and credibility of the government in sponsoring such a scheme is dependent on a number of qualitative factors such as assessing the freedom of speech, corruption control and government effectiveness, with the score allocation requiring some discretion based on understanding of different countries and their social welfare regimes.

The factors influencing the pension level and duration look at the practices and legislature which protects individuals from financial and demographic uncertainty, facilitate retirement planning and payable in a form optimal for individuals.

Robustness

When assessing the level of robustness of the pillar 0 and 1 benefits of a country's benefits system, the World Bank definition provides some macroeconomic measures to consider. It defines a robust system as one that has the capacity to withstand major shocks, including those coming from economic, demographic and political volatility. This offers a wide scope of measures and therefore for the purposes of this paper, we have had to make some judgement as to what we regard as a major shock, the timeframe over which this occurs, and for each macroeconomic measure identified, how this can be translated to some tangible measures that will allow for fair comparison across the range of countries under consideration.

As a result, we have chosen three global macroeconomic trends as a framework to test this criteria. Generally these trends are well observed for most of the countries in question and data is either readily available, or some reasonable judgement can be applied to test these measures for each country.

1. Economic stress – Consider the impact on pension benefits post the 2008/09 financial crisis and its impact on pension provision

2. Political stress – Consider significant changes in government since WW2 that may have led to a deterioration in pension provision

3. Demographic stress – The impact of generally observed improvements in longevity and changes made to pension provision to accommodate these changes

For each measure above, we considered whether there had been a significant negative impact, some negative impact or no negative impact on pension provision.

Sustainability

Population ageing means that pension expenditures will tend to increase. Recent reforms have aimed at maintaining or restoring financial sustainability of pension systems by reducing future pension spending. A pension plan is sustainable if it is able to meet its financial obligations in the long-run.

When assessing the sustainability of pension systems we consider that future pension expenditure – that includes current reforms – together with old-age dependency ratios are key indicators. Also, the net pension wealth[2] that is affected by both life expectancy and indexation rules should be considered.

A country scoring highly on sustainability would need to offer a sufficient level of confidence and credibility in the sense that income from contributions cover pension expenditures in the long-run.

[2] Net pension wealth is defined as the presend value of the flow of pension benefits.

4. Assessment of each Country under the Scoring System

4.1 Adequacy

In scoring the adequacy criteria Sweden scored the highest and Nigeria scored the lowest.

1st	Sweden
2nd	Canada
=3rd	Germany
=3rd	Brazil
=3rd	India
6th	China
7th	Nigeria

As might have been expected Sweden scored well on all counts giving a high level of benefit and access to the whole population. Similarly Nigeria scored poorly providing meagre benefits to a very small part of the population. It was interesting however, to see Germany, which provides a good level of benefit to most of the population, scored the same as Brazil and India which both provide high levels of benefits albeit it to a smaller proportion of the population than Germany.

4.2 Affordability

In scoring the affordability criteria Canada and Germany scored the highest, while Nigeria scored the lowest.

=1st	Canada
=1st	Germany
3rd	Sweden
=4th	Brazil
=4th	China
6th	India
7th	Nigeria

Canada and Germany both scored well, providing good levels of benefits at reasonable levels of spending as a percentage of GDP.

4.3. Equity

In scoring the adequacy criteria Canada scored the highest and Nigeria scored the lowest.

1st	Canada
2nd	Sweden
3rd	Brazil
4th	China
5th	Germany
6th	India
7th	Nigeria

Canada scored well on all counts giving a high level of benefit and access to the whole population. Similarly Nigeria scored poorly providing meagre benefits to a very small part of the population.

China has a future net replacement ratio of 104.4% for OECD low earners so amply exceeds the minimum pension measure. The reality is that coverage is low.

Germany is relatively low down the list primarily because low earners earn low pensions that keep them below the poverty line (there is no formal minimum pension). In addition it has a noticeably large gender gap of 46%.

4.4 Predictability

In scoring the predictability criteria, Canada and Sweden scored the highest while India scored the lowest.

= 1st	Canada
= 1st	Sweden
2nd	Germany
3rd	China
4th	Brazil
5th	Nigeria
6th	India

Canada and Sweden both scored well as their pensions appeared to operate within a strong framework of regulatory oversight and have local regulators. Also, pensions paid track earnings inflation and are paid over the lifetime. These factors demonstrate that individuals can justifiably consider state pensions an important element of their retirement income as it appears less prone to governmental interference and volatility (except for those caused by economic conditions).

Nigeria and India scored quite poorly, mainly because of lack of integrity shown in their governance, which is especially dogged by extreme corruption and political misdemeanour. In addition, both countries showed poor design structure and close to no transparency on the way pensions would be administered/paid out.

4.5 Robustness

In scoring the adequacy criteria Canada scored the highest and Nigeria scored the lowest.

1st	Canada
2nd	Sweden
=3rd	Germany
=3rd	India
=5th	Brazil
=5th	China
7th	Nigeria

As might have been expected Canada scored well on all counts, suffering minimal negative impact on its pension provision for the measures defined. Similarly Nigeria scored poorly although lack of data has meant more subjectivity was involved to score Nigeria as well as India. Interestingly India does relatively well in this criteria as it is less impacted by longevity given its very young population. China and Brazil have relatively immature pillar 0 and 1 benefit structures.

4.6 Sustainability

In scoring the sustainability criteria Sweden scored the highest while Brazil and China scored the lowest.

1st	Sweden
2nd	Germany
=3rd	Canada
=3rd	Nigeria
=3rd	India
4th	Brazil
=4th	China

In Sweden the pension expenditure is expected to decrease from 8.9% of the GDP to 7.2% by 2050. At the same time, the reduction on the amount of the initial pension due to notional accounts translates into a net pension wealth lower than the OECD average. In Germany and Canada the pension expenditure is still expected to increase by 2050.

Nigeria and India are scoring low but are young populations with a higher proportion of working population than retirees. Brazil and China scored poorly due to an increase in both the old-age dependency ratio and pension expenditure.

Appendix I – Data Sources

The World Bank Pension Conceptual Framework, World Bank Reform Primer (Old Age Income Support in the 21st Century: An International Perspective on Pensions Systems and Reform, 2005)

OECD 2016 Pensions Outlook

Chłoń-Domińczak, A., Franco, D. and Palmer, E. (2012) 'The First Wave of NDC Reforms: The Experiences of Italy, Latvia, Poland, and Sweden' in Holzmann, R., Palmer, E. and Robalino, D., eds., Nonfinancial Defined Contribution Pension Schemes in a Changing Pension World, Volume 1: Progress, Lessons, and Implementation, Washington, D.C.: World Bank, 31-84.

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OECD (2013), Pensions at a Glance Asia/Pacific 2013, OECD Publishing. http://dx.doi.org/10.1787/pension_asia-2013-en

Pensions Watch: a knowledge hub dedicated to monitoring the right to social security in older age, with a focus on tax-financed social pensions. The site is hosted by HelpAge International.

HelpAge International: a global network of organisations promoting the right of all older people to lead dignified, healthy and secure lives

Stewart, F. and J. Yermo (2009), "Pensions in Africa", OECD Working Papers on Insurance and Private Pensions, No. 30, OECD publishing, © OECD.doi:10.1787/227444006716

http://www.worldbank.org/en/topic/socialprotection/brief/pensions-data

http://www.social-protection.org/gimi/gess/Wspr.action

http://info.worldbank.org/governance/wgi/#home: The Worldwide Governance Indicators (WGI) project reports aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2016, for six dimensions of governance. It is a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms.

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The authors are members of the Pensions in a Global Context Working Party appointed by the Institute and Faculty of Actuaries (IFoA). The IFoA has set up this working party as part of its general focus to expand its overseas outlook and contribute to the global debate on the future developments in pension provision internationally. Historically, institutions such as the World Bank and OECD have had a significant influence on the nature of pension provision. This Working Party aims to review the overall pension landscape, through the lens of the World Bank Five Pillar Framework and its primary evaluation criteria focusing on a select group of countries.

Appendix III – Country rankings

Ranking	Country	Percentage (%)
1st	Sweden	87%
2nd	Canada	85%
3rd	Germany	71%
4th	Brazil	52%
5th	India	51%
6th	China	39%
7th	Nigeria	24%

	Brazil	Canada	China	Germany	India	Nigeria	Sweden
Adequacy	67%	78%	44%	67%	67%	0%	89%
Equity	75%	100%	0%	65%	60%	38%	90%
Predictability	50%	100%	70%	83%	10%	40%	100%
Affordability	75%	100%	75%	100%	50%	0%	90%
Robustness	44%	100%	44%	67%	89%	33%	89%
Sustainability	0%	33%	0%	42%	33%	33%	67%
Overall score	**52%**	**85%**	**39%**	**71%**	**51%**	**24%**	**87%**
Ranking	**4**	**2**	**6**	**3**	**5**	**7**	**1**

Appendix IV – Country Pension System Description

Brazil

Pillar	Definition	Country Model
0	Non-contributory social pension	BPC-LOAS - Commence at age 65 and for those suffering from disability - Qualify if household income per capita is under one-quarter of the minimum wage (floor). - Benefit in line with legal minimum wage and reviewed every two years Previdencia Rural (Rural Pension) - Commences at 60 for males and age 55 for females - Qualify if have at least 180 months of work in rural areas. The benefit is equal to the minimum wage.
1	Mandatory, earnings related contributions and benefits	General Social Security Regime Regime Geral de Previdência Social - RGPS - applies to private sector - Mandatory, contributory, earnings related benefits program - Contributions vary by earnings level at 8% - 11% of monthly earnings - Benefit is average of 80% best monthly earnings since July 1994 to date of retirement adjusted by actuarial coefficient (allowing for contribution rate, contribution period, age and life expectancy) - Commences at age 65 for men or age 60 for women based on contribution record of at least 15 years. Alternatively, full benefit may be received after 35 years of contributions for men, and 30 years for women, irrespective of age. - Minimum benefit equal to legal minimum wage - Death and disability benefits Pension Regimes for Government Workers (Regimes Próprios de Previdência Social - RPPS) - Changes to provision made in 2003 - 10 years’ service required to qualify for benefit - previously no vesting period - Benefit formula updated from final salary to allowing for best salaries from positions the member held for at least five years.

		- Eligible for full benefit, if retire at the statutory retirement age (60 for men and 55 for women). Prior to 2003, men entitled to the pension at the age of 53 and women at the age of 48. - Generally higher pension benefits for lower contributions when compared to RGPS
2	Mandatory individual savings accounts, typically DC	None
3	Voluntary DC and DB pensions	Complementary Pension Regime (Regime de Previdência Complementar – RPC) - Various DB, DC and hybrid plans offered
4	Non-financial	Universal health care program – which is written into the constitution

Canada

Pillar	**Definition**	**Model**
0	Non-contributory social pension	Old Age Security (OAS) and Guaranteed Income Supplement (GIS) pensions. OAS Pensions • Commence at age 65 • Indexed pension after 10 years of residence in Canada with full benefit pro-rated over 40 years • Current maximum monthly pension of ~ $550 subject to income based claw-back • No disability or death benefits GIS Benefits • Supplementary, means-tested benefits
1	Mandatory, earnings related contributions and benefits	Canada Pension Plan (CPP) • Mandatory, contributory, earnings related benefit program • Contributions of 4.95% of eligible earnings by employees and employers • Commences at age 65 with reduced benefits available from age 60 • Benefits based on indexed career average earnings • Maximum monthly pension of ~ $1,000 • Disability and death benefits

2	Mandatory individual savings accounts, typically DC	None
3	Voluntary DC and DB pensions	Variety of voluntary tax-assisted retirement savings vehicles, including: • Registered Pension Plans (RPPs) – both DB and DC • Registered Retirement Savings Plans (RRSPs) – DC only • Tax Free Savings Accounts (TFSAs) – DC only
4	Non-financial	Universal health care program

China

Pillar	Definition	Model
0	Non-contributory social pension	• This pension plan is based on a non-contributory social pension and a personal pension heavily subsidized by governments at different administrative levels • The benefit amount of this plan is very low, with a country average of 81 yuan (13 US dollars) per month
1	Mandatory (urban workers) Voluntary (urban not employed + rural citizens)	**Contingencies:** old-age, disability, survivor pension **Urban Enterprise Pension System (UEPS)** It consists of a social pool (DB scheme) and an individual account (DC scheme). • Retirement age of 60 for men and 55 for women. Number of contributory years at least 15. • Social pool financed by employers. Contributions are 20% of employees’ wages. PAYG DB scheme • Individual account: 8% of employees salaries. This contribution is paid by employees and employers. DC funding scheme. **Urban and Rural Citizens pension system** • All the urban and rural residents who are above age 16 and have not participated in the UEPS may voluntarily join the system. • Retirement age after 60. Number of contributory years at least 15. • The system is financed by the combination of individual contributions, local government subsidies and central government subsidies • The pension benefit is from two accounts, the national account (70RMB annually) and individual account (individual chooses from 100RMB to 2000RMB per year and government contributes at least 30RMB)

2	Voluntary	• Enterprise annuity: Voluntary or supplementary pension benefit • Employers and employees can contribute to the fund. • Balance is payable as a lump sum or an annuity
3	Voluntary	Voluntary complementary pension savings.
4	Non-financial	None

Germany

Germany's pension system is grounded in a strong public pension pillar. In the past individuals relied predominantly on pension benefits provided by the statutory pension insurance.

The German Pillar I system is designed to automatically be adjusted in terms of pension so that the employer/employee contribution does not exceed 22% of covered salary.

Pillar	Definition	Model
0	Non-contributory social pension	n/a
1	Statutory, pay-as-you-earn	Old-age insurance (“*Rentenversicherung*”) • Mandatory, contributory, earnings related benefit program • The contribution rate is equally shared between the employee and the employer with a current annual contribution assessment ceiling of 76,200€ (West Germany) and 68.400€ (East Germany) • The legal retirement age is 65 for both men and women but is scheduled to rise to 67 years over a transition period from 2012 to 2029 • Changes from 2014 also introduced the right to retire from age 63 without any actuarial reductions with 45 year worth of social security contributions. This age is gradually increased to 65 by 2029.
2	Occupational pensions	In the German occupational pension market, employers can choose between two different funding methods: 1. Direct Pension Promises o Usually funded via book-reserve accruals. The employer gives a promise to the employee to pay him an agreed amount once he retires o Benefits are taxed as (deferred) salary when received o In recent years, larger German companies set up contractual trust agreements (CTAs) which are special purpose vehicles that hold assets on the balance sheet purely for pension assets. Thus reducing the net liability.

		2. Direct Insurance ○ Under a direct insurance scheme, the employer takes out a life insurance policy on behalf of the employee and pays contributions to the contract ○ The employee has a direct entitlement to the benefits accrued under the contract against the insurance company 3. Pensionskasse ○ Similar to direct insurance scheme 4. Support funds ○ Support funds are legally autonomous entities allowing for relatively flexible financing. As support funds are not subject to supervision and are not required to comply with any investment criteria the employer is legally liable for the benefits. 5. Pension funds ○ Similar to Pensionskasse with greater flexibility in terms of capital investment. 6. New defined contribution plan. ○ From 2018 on unions and employers' associations are allowed to negotiate and set up a new kind of pension vehicle based on a pure DC concept. These plans are financed through pension funds, Pensionskassen or direct insurance contracts. Unions and employers' associations have to supervise the new vehicle. ○ Guarantees are forbidden ○ Only lifelong pension payments (no lump-sums or instalments) ○ Ongoing pension payments are allowed to increase and to decrease ○ No subsidiary obligation for employers and no insolvency protection ○ But: certain security buffers need to be included into new concept ○ Immediate vesting ○ In case of change of employer right to transfer to next employer or to continue privately ○ Employer matching contribution of 15% (as a gross compensation for reduced employer contribution to the social security system) ○ Tax incentives and incentives for low-earning employees
3	Private pensions	In Germany whilst relying on Statutory and Occupational Pensions, persons may also choose to improve their pension benefit by investing into a private pension

		• 'Riester' Pension Plan (a life annuity plan and government subsidized up to an amount of 2.100€ annually) • 'Rürup' Pension Plan (a life annuity plan and a more flexible Pension plan that effectively replicates the payment of social security contributions into a private pension – useful for high earners and self-employed) • General old-age insurance plan (a savings plan)
4	Non-financial	Universal health care program

India

Pension provision (and other benefits) are split across employed persons, self-employed and agricultural workers and members of cooperatives with fewer than 50 workers. Primary provision through social insurance arrangements.

Pillar	Definition	Model
0	Non-contributory social pension	See below details of access to survivor insurance scheme and pension scheme. Typically retirement age is 58 years with at least 10 years' minimum service requirement to receive social insurance benefits. Social assistance scheme: Needy older persons and poor households. A basic pension of 200 rupees a month is paid if aged 60 to 79; 500 rupees if aged 80 or older. Additional amounts may be paid and vary by state. Separate informal-sector schemes exist for certain artisans and the rural landless.
1	Mandatory, earnings related contributions and benefits	<u>Coverage</u> Provident fund and survivor (deposit linked) insurance scheme: Employees, including those engaged in casual, part-time, daily wage, and contract work, with monthly wages of 15,000 rupees or less working in firms with at least 20 workers in one of 186 categories of covered industry (the firm remains covered even if the number of employees falls below 20); employees of other types of businesses specified by law, including cooperatives with more than 50 employees. Voluntary coverage for employees of covered firms with monthly wages of more than 15,000 rupees, with the employer's agreement; and for employees of firms with fewer than 20 workers if the employer and a majority of employees agree to contribute. Pension scheme (social insurance): Employees who became members of the provident fund on or after November 16, 1995. Gratuity scheme (employer liability): Employees of factories, mines, oil fields, plantations, ports, railways, and businesses with at least 10 workers.

		<u>Funding</u> Insured person: Provident fund: 12% of basic wages (10% in specified categories of industry; businesses covered prior to September 22, 1997, with fewer than 20 employees; and some other specific cases). The maximum monthly wages used to calculate contributions are 15,000 rupees. All other arrangements : None Employer: Provident fund: 3.67% of monthly payroll plus 0.85% of monthly payroll for administrative costs. Survivor (deposit-linked) insurance scheme (social insurance): 0.5% of monthly payroll plus 0.01% of monthly payroll for administrative costs. The maximum monthly wages used to calculate contributions are 15,000 rupees. Pension scheme (social insurance): 8.33% of monthly payroll and the Government contributes 1.16% of the insured's basic wages. The maximum monthly wages used to calculate contributions are 15,000 rupees. Gratuity scheme (employer liability): An average of 4% of monthly payroll. <u>Benefits:</u> Old-age benefit (provident fund): A lump sum of total employee and employer contributions plus accrued interest minus drawdown payments is paid. Drawdown payment: According to circumstances, the value of the minimum payment varies from one month of wages to total employee and employer contributions plus accrued interest minus previous drawdown payments. Old-age pension (social insurance): A monthly pension is paid based on a member's pensionable service and wage. The minimum monthly pension is 1,000 rupees. Deferred pension: The basic pension is increased by 4% after one year of deferral; 8.16% after two years. Partial pension: A lump sum of total employee and employer contributions plus accrued interest minus drawdown payments is paid. Early pension: The basic pension is reduced by 4% for each year that retirement is taken before age 58.

		Benefit adjustment: The pension is adjusted annually by the central government according to an actuarial evaluation. Old-age benefit (gratuity scheme): A lump sum of 15 days of wages for each year of continuous service is paid (a reduced amount is paid for partial years exceeding six months). The maximum lump-sum benefit is 400,000 rupees. For seasonal employees, employers pay at the rate of seven days of wages for each season worked.
2	Mandatory individual savings accounts, typically DC	None
3	Voluntary DC and DB pensions	Various types of defined benefit plans are offered although not always directly related to retirement provision
4	Non-financial	Universal healthcare program written into the constitution, although coverage is minimal and non-minimal care costs paid directly by patients

Nigeria

Pillar	Definition	Model
0	Non-contributory social pension	• Largely not provided – only 2 states out of 36 have such schemes • Ekiti State Social Security Scheme – provides £5,000 Naira on monthly basis to residents of Ekiti state over 65 • Agba Osun Elderly Scheme – provides 10,000 Naira to certain elderly individuals
1	Mandatory, earnings related contributions and benefits	None
2	Mandatory individual savings accounts, typically DC	• In 2004, the Pensions Reform Act (PRA 2004) introduced the Contributory Pension Scheme (CPS) and made it mandatory for employers and employees in both the public and private sectors to contribute towards the retirement benefits of employees • Only covers the formal sector At retirement, the retiree is entitled to a lump sum, annuity or programmed withdrawal.
3	Voluntary DC and DB pensions	Limited evidence
4	Non-financial	Limited evidence

Sweden

Pillar	Definition	Model
0	Non-contributory social pension	A guaranteed pension, a means-tested benefit, provides a minimum pension for individuals older than 65 with low or no income and at least 40 years of residence in Sweden. It is financed by the government's budget. There is also a housing benefit.
1	Mandatory, earnings related contributions and benefits	**National retirement pension** It consists of a pay-as-you-go notional accounts (NDC) systems and a mandatory funded defined contribution pension. • Earliest possible retirement age is 61 years • Under the NDC scheme, accounts are indexed by change in the average income. • At retirement the accumulated notional capital corresponding to the pay-as-you go notional accounts will be converted into an annuity. Notional accounts are increased every year by the distribution of the pension balances of deceased individuals of the same age as survivors (inheritance gains). There is also a *balance mechanism* if assets fall below liabilities. • Contributions of 18.5% are credited. 16% for the notional scheme and 2.5% for the mandatory funded one. • Under the mandatory system, individuals have a broad choice of investment. At retirement they have a choice over the way benefits are withdrawn (annuity, variable annuity).
2	Mandatory individual savings accounts, typically DC	• Occupational pension benefit schemes are estimated to cover almost 90% of employees. Permanent employees automatically belong to an occupational pension scheme. There are only four major occupational schemes.
3	Voluntary DC and DB pensions	Voluntary complementary pension savings.
4	Non-financial	Universal health care programme