Pensions at a Glance

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Foreword

Accurate presentation of pension systems of a country and the comparison of systems across countries are crucial parts of policy analysis. Yet such presentations and comparisons are far from easy. They require a well-thought-out methodology, access to detailed information on national systems, verification of information and results by country specialists and a network of pension experts to provide feedback to improve the quality and applicability of the research over time.

This study presents a range of indicators to enable comparisons between the countries of the Asia/Pacific region. It also includes data for key countries that are members of the Organisation for Economic Co-operation and Development (OECD). It builds on the OECD's *Pensions at a Glance* reports, published in 2005 and 2007, which looked at the 30 OECD member countries. It also reflects the work underlying the joint World Bank/OECD report *Pensions Panorama*, which explored the pension systems of 53 countries. These included countries in Eastern Europe/Central Asia, Latin America/Caribbean and Middle East/North Africa (Whitehouse, 2007).

Pensions at a Glance: Asia/Pacific is also joint work between the World Bank and the OECD, along with the OECD/Government of Korea Research Centre on Health and Social Policies (RCHSP).

The report was drafted by Andrew Reilly and Edward Whitehouse of the Social Policy division of the OECD Secretariat. Vararat Atisophon, a consultant to the OECD and members of KIHASA helped with the modelling of pension systems. The original collection of data on parameters and rules was carried out by Gautam Bharwaj, Director of the Invest India Economic Foundation and Stuart Leckie of Stirling Finance and their colleagues. The first model versions were developed by Rie Fujisawa and Edward Whitehouse of the OECD.

A first round of results from the models was discussed at a meeting in Seoul in December 2006, hosted by the RCHSP; the contributions of the experts present did much to improve the modelling. These included Stuart Leckie and Yasue Pai (Stirling Finance, Hong Kong), Robert Palacios (World Bank), John Piggott (University of New South Wales, Australia), Ken Hand and Geoff Rashbrooke (both Ministry of Social Development, New Zealand), Yvonne Sin (then with the World Bank, now with Watson Wyatt in Hong Kong), Ravindra P. Rannan-Eliya(Director, Institute for Health Policy, Sri Lanka), Lee Lai-His (Director Department of Labour Standard, Council of Labour Affairs, Chinese Taipei), Hsin Ping-Lung (Graduate Institute of National Development, National Taiwan University, Chinese Taipei), Jong-Uk Won and Sukmyung Yun (both KIHASA, Korea), Liu Fei (Division of Research and Actuarial, Department of Social Security, China) and Junichi Sakamoto (Nomura Research Institute, Japan).

A second round of results was discussed in November 2007 at a meeting, again hosted by the RCHSP. Many of the experts above were in attendance along with Donghyun Park (Asian Development Bank), Ashish Aggarwal and Renuke Sane (both Invest India Micro Pension Services Pvt. Ltd.), Hiroshi Yamabana (International Labour Office), Giang Thanh Long (Vietnam Development Forum), Tran Van Son (Ministry of Finance Vietnam), Melanie Milo (Philippine Institute for Development Studies), Richard Hinz (World Bank), Tanveer Alam (Nauman Associates, Pakistan) and M Ramesh (Lee Kuan Yew School of Public Policy, Singapore).

The final meeting discussing the report was held in Seoul on 25th and 26th June 2008. The majority of the delegates present at the earlier meetings also contributed extensively to this final meeting. New attendees included Hazel Bateman (University of New South Wales, Australia), Dubthob Wangchug, Sonam Yeshey and Ugyen Tshewang (all from National Pension and Provident Fund, Bhutan), Dewen Wang (Institute of population and labour affairs, CASS, China), Shashank Saksena (Ministry of Finance, India), Gyan Bhushan (Pension Fund Regulatory and Development Authority, India), Hasbullah Thabrany (University of Indonesia), Adang Setiana (Deputy Coordinating Minister for People's Welfare, Indonesia), Bambang Purwoko (Pancasila University, Indonesia), Hideaki Tanaka (Hitotsubashi University, Japan), Seongsuk Kim and Yongha Lee (both National Pension Research Institute, Korea), Fathmath Sahudha (Ministry of Higher Education Employment and Social Security, Maldives), Durgesh Pradhan (Ministry of Finance, Nepal), Brig Akhtar Zamin and Zulfiqar Ali (both EOBI, Pakistan), Rouselle Lavado (Philippine Institute for Development Studies), Corazon de la Paz (Philippine Social Security System, President of ISSA), Variya Wongprecha and Ronachai Wintwamorn (both GPF, Thailand) and Dang Nhu Loi (Committee for Social Affairs, National Assembly, Vietnam).

The pension models use the APEX (Analysis of Pension Entitlements across Countries) infrastructure originally developed by Axia Economics, with the help of funding from the OECD and the World Bank.

Executive Summary

Pensions are a major policy issue in developed and developing countries alike. However, pension reform is challenging and controversial because it involves long-term planning by governments faced with numerous short-term pressures. It often provokes heated ideological debates and, sometimes, street protests.

Countries can learn valuable lessons from others' pension systems and their experiences of retirement-income reforms. However, national pension systems are very complicated, involving much institutional, technical, and legal detail. Consequently, international comparisons are very difficult to undertake, making it impossible to transfer policy lessons between countries.

This study combines rigorous analysis with clear, easy-to-understand presentation of empirical results. It does not advocate any particular kind of pension system or type of reform. The goal is to inform debates on retirement-income systems with data that people with different visions for the future of pensions can all use as a reference point.

International comparisons of retirement-income regimes to date have mainly focused on *financial* substantiality: whether the pension promises made to today's workers will be affordable in the future. Much less attention has been paid to the future adequacy of pension benefits, the impact of pension reforms on the distribution of income among older people and ways of combating old-age poverty. These issues, which may be termed *social* sustainability, are a core concern of this study.

This first edition of *Pensions at a Glance: Asia/Pacific* provides a reference for pension comparison throughout the region. The format of the report follows that of the OECD's *Pensions at a Glance* series, which covers the 30 OECD member countries.

The values contained within reflect the pension parameters at 2006 or 2005 where not available. As with the original publications the report is concerned with single pensioners rather than family units.

The report begins by showing the different schemes that make up each national retirement-income provision, including a summary of the rules that apply. This is then followed by a brief summary of several indicators that are the benchmarks of any pension system analysis, namely replacement rates and pension wealth. Both of these indicators are examined on both a gross and net basis. The subsequent sections then look further at both the characteristics of Asian pension systems as well as the population as a whole, through coverage, life expectancy and general demographics. Finally the second part of the report provides detailed background information for all of the non-OECD countries covered as well as country specific tables and charts. Information on the OECD countries is available in the *Pensions*

at a Glance series.

In order to enable comparison between the non-OECD countries and specific OECD countries the results have been grouped by region and OECD status. The largest such grouping is East Asia/Pacific which covers China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, Chinese Taipei, Thailand and Vietnam. Within South Asia the remaining non-OECD countries are listed i.e. India, Pakistan and Sri Lanka. Furthermore the OECD countries themselves have been divided into two distinct groups. Firstly, there are the Asia-Pacific countries of Australia, Canada, Japan, Korea, Mexico, New Zealand and the United States to enable a more regional comparison. Secondly there are four additional OECD countries included, France, Germany, Italy and the United Kingdom, all of which have well established pension systems and are major economic powers. By including this latter group clear differences should be evident between them and the non-OECD countries in Asia.

The results within this report are specifically analysed at three distinct earnings levels so that a more comprehensive portrayal of the individual pension systems is given. Firstly results are given for workers at average earnings, where it is assumed that the worker earns this level throughout their entire career without any period of interruption. The remaining two earnings levels are 50% of average earnings, commonly called low earners and 200% of average earnings, known as high earners, again where this level of earnings applies to the entire working life of the individual. Entry to the pension system is assumed to be at age 20 and the models are based on a full career until the standard retirement age within that country, so for China, for example, it is assumed that a man will have to work for 40 years until age 60 before being eligible for retirement pension.

For workers at average earnings the OECD average gross replacement rate is 60.2% for men. The range within the OECD countries, although wide from 67.9% in Italy to 34.1% in Japan is considerably less than for the non-OECD countries. The highest replacement rate is found in Chinese Taipei, at 70.0% and the lowest is 13.1% in Singapore. This means that for average earners in Chinese Taipei their gross pension income is over two-thirds of their previous earnings level, whereas for pensioners in Singapore they will receive less than one-seventh the amount of their earnings. Taxes play an important role in old-age support as pensioners often do not pay social security contributions, and quite often the thresholds for income taxes are also higher. The values for net replacement rates are therefore higher, with the OECD average being 71.6%, more than eleven percentage points higher than for the gross replacement rate. The difference within specific countries can however be well above this average increase figure at over 18% for Germany, though within the OECD this is against the norm. For Asia the trend is slightly different with the Philippines having a net replacement rate for average workers more than fifteen percentage points above that for gross replacement rate. The same is true across the earnings bands as the variation with the OECD countries is less pronounced than that for the Asian countries. For example, the net replacement rate for low earners in the Philippines is 16.4 percentage points higher than the gross replacement figure.

Replacement rates are not the only factor that governments are concerned with, as they also need to measure the value of the overall pension promise. This is measured by the indicator of pension wealth which takes life expectancy into account. For the OECD the average gross pension wealth for average earners is 9.6 implying that the pension promise of a man who retires at normal pension age is on average 9.6 times the pre-retirement earnings level. The highest OECD value is again in Italy at 10.0, whilst the lowest is in the United Kingdom and Mexico at 4.2 and 4.8 respectively. The majority of the Asian countries are above or very close to this average figure, with only Singapore (2.2), Indonesia (2.6), Hong Kong (6.0), India (6.2) and Malaysia (6.4) going against the norm. China and Vietnam have gross pension wealth figures in excess of 15.0, which is over 50% higher than the OECD average. The level for China is even higher for low earners at 21.2, nearly double the OECD average of 11.5%. The same is the case for the net pension wealth estimates as the figures for the majority of the non-OECD countries are identical to those for gross pension wealth. This is to be expected as only Hong Kong, Chinese Taipei and Vietnam have taxation systems that result in pensioners having to pay any contributions. However the tax bands are sufficiently high in all three countries that any impact is extremely minimal, with Vietnam showing the greatest decline in pension wealth estimates between gross and net. For the OECD countries it is only the United States that doesn't have any change in the pension wealth figures. For all the other countries the decrease in pension wealth is as much as 2.4 times average earnings in Italy for average earners.

Coverage is the main area of concern in the Asian pension systems. The OECD average for the labour force is 83.3%, meaning that this is the percentage covered by the mandatory pension schemes. Even within the OECD differences in coverage are considerable, ranging from 95.3% in Japan down to only 34.5% in Mexico. However, Sri Lanka with 35.6% of the labour force covered is the only non-OECD country that is greater than the value in Mexico. In contrast the levels of coverage within the other two South Asia countries are the lowest in the region, at 9.1% for India and 6.4% for Pakistan. Because of the large population within India this is an extremely low figure as is the 20.5% value calculated for China, which again, because of the large population, is an area for considerable concern. When these findings are combined with the life expectancy results and population projections the situation is even more pressing. The proportion of the population in China aged 65 and over is predicted to almost treble by 2090, though 90% of this increase will occur by 2040. Therefore unless the level of coverage of the pension system improves quickly China will have ever greater numbers of pensioners without any means of personal support. The same situation applies across the region as a whole as the proportion of pensioners within the populations is predicted to increase by as much as 500% in Malaysia, Pakistan and the Philippines. Amongst the OECD countries Mexico, New Zealand and the United States are anticipated to have a major increase in the pensionable population, with the latter two both virtually doubling in the next 80 years. However as the level of coverage in the United States is over 90% of the labour force, and New Zealand has a residency based pension system, the impact

in these two countries will not be as severe as within the non-OECD countries. For Mexico the proportion of pensioners in the population is predicted to increase by nearly 300% over the 80 year period, meaning the level coverage in Mexico also needs to increase along the lines of the non-OECD countries.

Overview of Retirement-Income Systems

Retirement-income regimes around the world are diverse and they often involve a number of different programmes. As a result, classifying pension systems and different retirement-income schemes within those systems is difficult. Perhaps the most well known of these taxonomies is the "mutlipillar" one of the World Bank (1994). In its current versions, this comprises five different pillars (Holzmann and Hinz, 2005). The focus of this report, however, is on mandatory retirement-income provision and so some of these pillars are not necessary here.

The framework consists of two mandatory "tiers": a redistributive part and an insurance part. The redistributive part is designed to ensure that pensioners achieve some absolute, minimum standard of living. Insurance components are designed to achieve some target standard of living in retirement compared with that when working.

The focus of the pension modelling is on workers that are covered by formal-sector pension schemes. The analysis of the structure of pension systems in Table 1, therefore, only covers retirement-income programmes relevant to this group. More general safety-net benefits, often called social pensions, are not therefore covered in the Table (see Palacios and Sluchynsky, 2006 on such schemes).

Starting with the first tier, all the OECD countries have redistributive schemes that affect some or all workers with full careers in the pension system. In contrast, only a third of the Asia/Pacific countries outside the OECD have comparable provisions.

The most common kind of redistributive scheme in the 23 countries as a whole are resource-tested programmes, which grant a higher payment to poorer pensioners, with the amount reduced as the level of other income during retirement increases. The most important of these types of scheme in a national context is the Australian plan, but these also play a significant role in providing retirement incomes in many other OECD countries and Hong Kong.

Minimum pensions are similar to resource-tested schemes, in that they pay a higher benefit to lower-income retirees. However, the crucial difference is that the value of the entitlement depends only on income from a particular pension scheme and not income as a whole (including capital income, earnings, rents *etc.*). Normally they are provided as part of the earnings-related pension scheme, whereas resource-tested schemes are institutionally separate. There are minimum pensions in the Philippines and Pakistan.

The third type of first-tier pension is a basic scheme, in which the amount paid is either a flat rate or it depends on the number of years of contributions; it is not dependent on individual earnings. For

example, the basic pension in China pays a fixed percentage of average, city-wide earnings for each year of coverage. The pension system of Korea has a similar basic component: the pension is based on a mix of individual and economy-wide earnings.

The second tier in this typology of pension schemes plays an "insurance" role. These plans play a particularly important role in retirement income systems outside of the OECD countries because of the relatively limited extent of redistributive schemes. They are designed to provide an adequate income relative to previous earnings, rather than just providing a minimum living standard (as with the first tier). Again, they are mandatory.

Eight of the twelve non-OECD countries have a defined-contribution (DC) plan, where the contributions are saved over time and either paid as a lump sum or as pension-income stream at retirement. The remaining four countries, as well as India which has both, all have defined-benefit (DB) schemes. In these plans the amount of income received at retirement is dependent on the number of

Table 1 Structure of pension systems

	First tier Universal coverage, redistributive			Second tier Mandatory, insurance	
		Public		*Public*	*Private*
	Resource tested	*Basic*	*Minimum*	*Type*	*Type*
East Asia/Pacific					
China		x		DC	
Hong Kong, China	x			DC	
Indonesia				DC	
Malaysia				DC	
Philippines		x	x	DB	
Singapore				DC	
Chinese Taipei				DC + points	
Thailand				DB	
Vietnam				DB	
South Asia					
India				DB + DC	
Pakistan			x	DB	
Sri Lanka				DC	
OECD Asia-Pacific					
Australia	x				DC
Canada	x	x		DB	
Japan		x		DB	
Korea		x		DB	
Mexico		x	x		DC
New Zealand		x			
United States	x			DB	
Other OECD					
France	x		x	DB + points	
Germany	x			Points	
Italy	x			NDC	
United Kingdom	x	x	x	DB	

DB = defined benefit.
DC = defined contribution.
NDC = notional accounts.

years of contributions and on the level of individual earnings.

There are also notional-accounts (NDC) schemes: the public pension in Italy is the only example listed. This scheme records each worker's contributions in an individual account and applies a rate of return to that account. The accounts are "notional" in that both the incoming contributions and the interest charged to them exist only in the books of the managing institution. At retirement, the accumulated notional capital in each account is converted into a stream of pension payments using a formula based on life expectancy.

Methodology and Structure of the Report

This report follows an approach similar to that of the last Pensions at a Glance publication, and is a "microeconomic" one looking at prospective individual entitlements under all 23 of the countries pension regimes.

The report is divided into two main parts. Part I presents the information needed to compare pension policies in a clear, "at a glance" style. It starts by showing the different schemes that together make up national retirement-income provision. Next, there is a summary of the parameters and rules of pension systems.

This is followed by four main indicators that are calculated using the OECD pension models.

- The first two are the most familiar to pension analysts. Both replacement rates, i.e., the ratio of pension benefits to individual earnings. These are given in gross and net terms, taking account of taxes and contributions paid on earnings and on retirement incomes.
- The next two indicators are pension wealth, again given in gross and net terms. Pension wealth is a more comprehensive measure of pension entitlements than replacement rates because it takes account of pension ages, indexation of pensions to changes in wages or prices and life expectancy.

The remainder of part I consists of at a glance analyses of coverage, life expectancy, demographics and pension spending, each of which play a key role in pension modelling.

Part Ⅱ provides detailed background information on each of the 12 non-OECD countries' retirement-income arrangements. These include pension eligibility ages and other qualifying conditions; the rules for calculating benefit entitlements; and the treatment of early and late retirees. The country studies summarise the national results in standard charts and tables. The country chapters for the OECD countries are contained within the *Pensions at a Glance* series.

The remainder of this section describes the methodology used to calculate pension entitlements. It outlines the details of the structure, coverage and basic economic and financial assumptions underlying the calculation of future pension entitlements on a comparative basis.

Future entitlements under today's parameters and rules

The pension entitlements which are compared are those that are currently legislated in the OECD countries and where possible for the non-OECD countries. Changes in rules that have already been legislated, but are being phased-in gradually, are assumed to be fully in place from the start.

The values of all pension system parameters reflect the situation in the year 2006 for OECD countries and either 2005 or 2006 for the non-OECD countries. The calculations show the pension entitlements of a worker who enters the system today and retires after a full career. The results are shown for a single person only.

Career length

The standard OECD definition is used for both the OECD and non-OECD countries. Therefore a full career is defined here as entering the labour market at age 20 and working until standard pension-eligibility age, which, of course, varies between countries. The implication is that length of career varies with the statutory retirement age: 35 years for retirement at 55, 40 years for retirement at 60, etc.

Coverage

The pension models presented here include all mandatory pension schemes for private-sector workers, regardless of whether they are public (i.e. they involve payments from government or from social security institutions, as defined in the System of National Accounts) or private. For each country, the main national scheme for private sector employees is modelled.

Pension entitlements are compared for workers with earnings between 0.5 times and twice the average. This range permits an analysis of future retirement benefits of both the poorest and richer workers.

Economic variables

The comparisons for OECD countries are based on a single set of economic assumptions for all the countries covered. Although the levels of economic growth, wage growth and inflation vary across countries, using a single set of assumptions enables comparison without economic affects. Differences in pension levels therefore reflect differences in actual pension systems and government policies. For Asia however a different set of assumptions need to be applied because of the recent surge in economic growth in the region in comparison to the majority of OECD countries.

The baseline assumptions for the OECD countries are:

- real earnings growth: 2% per year (given the assumption for price inflation, this implies nominal wage growth of 4.55%);
- individual earnings: assumed to grow in line with the economy-wide average. This means that the individual is assumed to remain at the same point in the earnings distribution, earning the same percentage of average earnings in every year of the working life;
- price inflation: 2.5% per year.

- real rate of return after administrative charges on funded, defined-contribution pensions: 3.5% per year.
- discount rate (for actuarial calculations): 2% per year.

For the non-OECD countries we have made the assumption that over the 40 year period being studied all the assumed values will converge to the OECD baseline values, though the starting values for each of the variables is not the same for every country. The non-OECD countries have been split into three core groups. Firstly, China is a group of its own as the levels of growth within China are greatly above those of any other country in the region, particularly for the levels of wage growth and rate of return. The second group covers Chinese Taipei, Hong Kong and Singapore which have all been given the values that apply within the OECD. The third group consists of all the remaining non-OECD Asian countries both within East Asia/Pacific and South Asia.

The baseline assumptions for China are:

- real earnings growth: 12% per year converging to the OECD figure of 2% per year;
- individual earnings: assumed to grow in line with the economy-wide average. This means that the individual is assumed to remain at the same point in the earnings distribution, earning the same percentage of average earnings in every year of the working life;
- price inflation: 5.0% per year converging to 2.5% per year;
- real rate of return after administrative charges on funded, defined-contribution pensions: 10.5% per year converging to 3.5% per year;
- discount rate (for actuarial calculations): 2% per year;

The baseline assumptions for Indonesia, Malaysia, the Philippines, Thailand, Vietnam, India, Pakistan and Sri Lanka are:

- real earnings growth: 6% per year converging to the OECD figure of 2% per year;
- individual earnings: assumed to grow in line with the economy-wide average. This means that the individual is assumed to remain at the same point in the earnings distribution, earning the same percentage of average earnings in every year of the working life.
- price inflation: 5.0% per year converging to 2.5% per year; In Vietnam it starts at 8%, again converging to 2.5% per year.
- real rate of return after administrative charges on funded, defined-contribution pensions: 7.5% per year converging to 3.5% per year; In Pakistan it starts at 10.5%, and in India it starts at 4% going to 6% over 15 years before converging to 3.5%.
- discount rate (for actuarial calculations): 2% per year.

The calculations assume the following for pay-out of pension benefits: when DC benefits are received upon retirement, they are paid in the form of a price-indexed life annuity at an actuarially fair price.

This is calculated from mortality data. Similarly, the notional annuity rate in notional accounts schemes is (in most cases) calculated from mortality data using the indexation rules and discounting assumptions employed by the respective country.

Taxes and social security contributions

The modelling assumes that tax systems and social security contributions remain unchanged in the future. This implicitly means that "value" parameters, such as tax allowances or contribution ceilings, are adjusted annually in line with average earnings, while "rate" parameters, such as the personal income tax schedule and social security contribution rates, remain unchanged.

Average earnings

The values for the OECD countries are based on the earnings of an "average worker" as used in the last Pensions at a Glance publication. Average wage information for the non-OECD countries could not be sourced on the same basis or at a consistent point in time. The following provides a brief explanation of the sources and time points for the non-OECD countries and the subsequent table provides comparative statistics for all the countries included in this report.

Sources

China	- National Statistics website, average wage for 2005
Chinese Taipei	- Journal article for average manufacturing wage in 2006
Hong Kong	- Average economy-wide earnings in 2006
Indonesia	- Average earnings in 2006
Malaysia	- National Statistics website, average manufacturing wage at June 2006
Philippines	- Average wage in 2006
Singapore	- Monthly digest of Statistics August 2007, average wage for 2006
Thailand	- Average economy-wide earnings in 2005
Vietnam	- General Statistics Office, average local state sector wage in 2006
India	- Average covered wage 2007
Pakistan	- Average per capita income in 2005
Sri Lanka	- National Statistics website based on household survey, average earners income in 2006

Table 0.1 Average annual earnings

	Average earnings			Exchange rates with USD	
Individual earnings (% average)	*National Currency*	*USD, market price*	*USD, PPP*	*Market price*	*PPPs*
East Asia/Pacific					
China	18,364	2,242	9,665	8.19	1.90
Hong Kong, China	177,600	22,828	29,600	7.78	6.00
Indonesia	13,125,000	1,352	4,444	9,704.74	2,953.70
Malaysia	21,080	5,562	11,711	3.79	1.80
Philippines	127,584	2,316	9,968	55.09	12.80
Singapore	42,648	25,692	28,432	1.66	1.50
Chinese Taipei	509,400	n.a.	n.a.	n.a.	n.a.
Thailand	107,520	2,673	8,335	40.22	12.90
Vietnam	17,815,200	1,130	5,551	15,766.00	3,209.50
South Asia					
India	154,418	3,502	16,785	44.10	9.20
Pakistan	50,930	856	3,087	59.51	16.50
Sri Lanka	164,460	1,636	6,578	100.50	25.00
OECD Asia-Pacific					
Australia	53,385	40,200	38,406	1.33	1.39
Canada	41,715	37,413	34,475	1.12	1.21
Japan	5,035,230	43,296	40,607	116.30	124
Korea	30,377,732	31,816	40,830	954.79	744
Mexico	76,332	6,212	10,706	11.29	7.13
New Zealand	42,572	27,608	28,961	1.54	1.47
United States	32,503	32,503	32,503	1.00	1.00
Other OECD					
France	31,464	39,478	35,234	0.80	0.893
Germany	42,003	52,701	48,003	0.80	0.875
Italy	23,299	29,233	27,218	0.80	0.856
United Kingdom	30,842	56,799	49,906	0.54	0.618

n.a.: Not available.

PPP = purchasing power parity.

Note: OECD countries sourced from OECD stat for 2006. Non-OECD sourced from World Bank with PPP at 2004 and market price at 2005.

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PART I

Comparing Pension Policies

This part starts with an overview of the different schemes that together make up national retirement-income systems. A summary of the key features of pension systems – the parameters and rules – follows. The main empirical results, consisting of four indicators calculated using the pension models, are then presented.

The first two indicators are both replacement rates; that is, the ratio of pension benefits to individual earnings. These are given in gross and net terms, taking account of taxes and contributions paid on earnings and on retirement incomes.

The next two indicators are based on pension wealth, again in gross and net terms. Pension wealth, reflects not just pension entitlement but also differences in pension ages, indexation of pensions in payment and national life expectancy.

The remainder of part I consists of at a glance analyses of coverage, life expectancy, demographics and pension spending, each of which play a key role in pension modelling.

Key Features of Pension-System Design

The features of the pension systems of the countries covered in this report are summarised in Table 1.2 below. These follow the typology of the previous section, dividing the pension system into two tiers. The summary necessarily leaves out much of the institutional details. More complete descriptions are provided in the country studies (Part Ⅱ).

First-tier, redistributive schemes

The level of benefits under first-tier, redistributive schemes is expressed as a percentage of average earnings in each country (average earnings is covered in detail in the methodology section above).

In the cases of minimum pensions and basic schemes, the benefit entitlement is shown for a worker who enters at age 20 and works without interruption until normal retirement age. In most OECD countries, this is at least age 65, but for the non-OECD countries it is generally either 55 or 60, as shown in the last lines of Table 1.2. The final row shows the total, first-tier benefit for a full-career worker. In some cases, workers can receive several different types of first-tier benefits, while in other cases they are only eligible for one programme.

Second-tier, insurance schemes

The information on the second tier, insurance based schemes, is shown separately for earnings-related and defined-contribution (DC) plans.

The information on earnings-related schemes begins with the scheme type: defined benefit (DB), points or notional accounts (NDC). The main differences within this type are due to the accrual rate per year of contribution, that is, the rate at which a worker earns benefit entitlements for each year of coverage. The accrual rate is expressed as a percentage of the earnings that are covered by the pension scheme.

For points systems, the effective accrual rate shown is the ratio to the cost of a pension point to the pension-point value, expressed as a percentage of individual earnings. In notional-accounts schemes, the effective accrual rate is calculated in a similar way to obtain the annual pension entitlement as a proportion of earnings in a given year.

For the non-OECD countries five of the six with DB schemes use final year earnings in the determination of pension entitlement rather than lifetime earnings. In comparison, the OECD countries with DB schemes are either based on lifetime earnings or the best years, but none of them use final years. In a number of countries in Asia the accrual rates change depending on the contribution period

or they can be different for men and women. For example, in Vietnam the first 15 years have an accrual rate of 3%, but subsequent years have an accrual rate of 2% for men and 3% for women.

Defined-contribution plans

The key parameter for DC plans is the proportion of earnings that must be paid into the individual account by employees, employers or the government. The contribution rates within Asia range from 2% for Indonesia to 20% for Singapore, though the remainder are all between 5% and 12%. For the OECD countries only Australia and Mexico have DC schemes, with contribution rates of 9% and 6.5% respectively.

Valorisation

This is process whereby past earnings are adjusted to take account of changes in living standards between the time pension rights accrued and the time they are claimed. For DB schemes in India and Pakistan there is no need for valorisation as the benefit is based on the final year's salary. Most of the non-OECD countries do not have formal systems in place for this because their pension systems make a lump sum payment. So for this report price valorisation has been used along with the assumption that payments are made over the full pension period.

Ceilings on pensionable earnings

Most OECD countries have an earnings limit for which no further contributions need to be made to the pension system, though the same is not true for the non-OECD countries. Within these countries only Chinese Taipei, Hong Kong and India have such an earnings limit system and for Chinese Taipei it is set as high as 350% of average earnings. In comparison the rates for Hong Kong and India are considerably lower, at respectively, 135% and 160% of average earnings.

Pension eligibility ages

The majority of the OECD countries have a retirement age of 65 for men, with some countries now starting to introduce higher retirement ages of 67 or even eventually 68, as in the case of the United Kingdom. For women the recent trend has been for the standardising of retirement ages irrespective of sex, though normally over a considerable time period. Outside the OECD countries the retirement ages are generally lower at 55 in five countries, 60 in four others and 62 in Singapore. Only the Philippines and Hong Kong currently have retirement ages of 65 for men. Furthermore in five of the non-OECD countries the retirement ages for women are five years below that for men, meaning that in Sri Lanka the standard retirement age is 50.

Indexation of pension-system parameters

Linking pension systems to prices instead of earnings has led to a steady decline in their value relative to average earnings at today's prices, and this trend will only continue unless the indexation procedures are changed. As it unlikely to be politically possible to continue to pay smaller amounts over time, relevant to earnings it is assumed here that these policies will not continue. Therefore for the purpose of this report it has been assumed that benefits and parameters are linked to average earnings rather than to prices, even if that is the current legislative system. Obviously this assumption has a big effect on the results when calculating the value of the pension promise.

Table 1.2 Summary of pension-scheme parameters and rules

	China	Hong Kong, China	Indonesia	Malaysia	Philippines	Singapore	Chinese Taipei	Thailand	Vietnam	India	Pakistan
First tier											
(% average earnings)											
Resource-tested	-	4	-	-	-	-	-	-	-	-	-
Basic	40	-	-	-	4	-	-	-	-	-	-
Minimum	-	-	-	-	30	-	-	-	-	-	36
Overall entitlement	40	4	-	-	30	-	-	-	-	-	36
(full-career worker)											
Second tier											
Earnings-related											
Type	None	None	None	None	DB	None	Points	DB	DB	DB	DB
Accrual rate	-	-	-	-		-	1.00	1	3		2
(% indiv. earnings)											
Earnings measure	-	-	-	-	max(f5,L)	-	f3	f5	L	f1	f1
Valorization	-	-	-	-	p	-	p	p	w	d	p
Indexation	-	-	-	-	p	-	p	p	w	d	p
Defined contribution											
Contribution rate	8	5	2	11	-	20	6	-		12	-
(% indiv. earnings)											
Ceilings											
(% average earnings)											
Public	-	135	-	-	-	-	350	-	-	160	-
Private/occupational	-	-	-	-	-	-	-	-	-	-	-
Pension age											
Normal	60	65	55	55	65	62	60	55	60	55	60
(women)	(55)						(55)		(55)		(55)
Early	55	60		50	60		50		55	50	55
(women)	(50)								(50)		(50)

Notes:

Parameters are for 2006 but include all legislated changes that take effect in the future. For example, some countries are increasing pension ages and extending the earnings measure for calculating benefits; pension ages for women are shown only if different from those for men. Early pension ages are shown only where relevant. - = not relevant; [w] = varies with earnings; [y] = varies with years of service; [a] = varies with age; L = lifetime average; b = number of best years; f = number of final years; w = valorization/indexation with average earnings; p = valorization/indexation with prices; d = discretionary indexation; DB = defined benefit; DC = defined contribution; NDC = notional accounts.

1. United Kingdom: minimum benefit calculated from minimum credit.

2 United States: higher accrual rates on lower earnings, lower accruals on higher earnings.

3 France: data shown combines two different programmes.

4 France: higher accrual rate on higher earnings.

5 Germany: valorization can be reduced by any increase in contribution rates and for the potential contribution to private pensions. Indexation can be reduced by any increase in contributions.

6 United States: earnings valorization to age 60; no adjustment from 60 to 62; prices valorization from 62 to 67.

7 Italy: indexation is fully to prices for low pensions, 90 per cent of prices or 75 per cent of prices for higher pensions.

8 Mexico: addiditional contribution of 5.5% of minimum wage is shown as a basic pension. The lower value of the annuity calculated is for women (because women retire earlier than men).

Table 1.2 Summary of pension-scheme parameters and rules (cont.)

	Sri Lanka	Australia	Canada	Japan	Korea	Mexico	New Zealand	United States	France	Germany	Italy	United Kingdom
First tier												
(% average earnings)												
Resource-tested	-	25	17	-	-	-	-	22	32	19	-	20
Basic	-	-	14	16	30	7.0/4.2[8]	40	-	-	-	-	15
Minimum	-	-	-	-	-	26	-	-	22	-	-	15[1]
Overall entitlement	-	23	31	16	30	26	40	22	31	19	22	30
(full-career worker)												
Second tier												
Earnings-related												
Type	None	None	DB	DB	DB	None	None	DB	DB/Points	Points	NDC	DB
Accrual rate	-	-	0.63	0.55	1	-	-	0.91[w][2]	1.75 [w][3,4]	1.00	1.75	0.89[w]
(% indiv. earnings)												
Earnings measure	-	-	b34	L	L	-	-	b35	b25/L	L	L	L
Valorization	-	-	w	w	w	-	-	w[6]	p/p	w[5]	GDP	w
Indexation	-	-	p	p	p	-	-	p	p/p	w[5]	p[7]	p
Defined contribution												
Contribution rate	8	9	-	-	-	6.5[8]	-	-	-	-	-	-
(% indiv. earnings)												
Ceilings												
(% average earnings)												
Public	-	-	96	150	160	-	-	290	101	151	370	115
Private/occupational	-	250	-	-	-	377	-	-	302	-	-	-
Pension age												
Normal	55	65	65	65	65	65	65	67	61	67	65	67
(women)	(50)					60					(60)	
Early		55	60	60	60			62		63	60	
(women)												

Retirement-Income Indicators

The first two indicators are both replacement rates; that is, the ratio of pension benefits to individual earnings. These are given in gross and net terms, taking account of taxes and contributions paid on earnings and on retirement incomes.

The next two indicators are based on pension wealth, again in gross and net terms. Pension wealth, unlike replacement rates, reflects differences in pension ages, indexation of pensions in payment and national life expectancy.

The remainder of part I consists of at a glance analyses of coverage, life expectancy, demographics and pension spending, each of which play a key role in pension modelling.

■ Gross replacement rates

Gross replacement rates, showing pension benefit as a share of individual lifetime average earnings, vary greatly across Asia, from 15.4% in Indonesia to 67.8% in Vietnam. These are the extremes for average earners but estimates are also given at 50% and 200% of average earnings. Replacement rates generally decline as earnings increase and are usually higher for men than for women.

Often, the replacement rate is expressed as the ratio of the pension over the final earnings before retirement. However, the indicator used here shows the pension benefit as a share of individual lifetime average earnings (re-valued in line with economy-wide earnings growth). Under the baseline assumptions, workers earn the same percentage of economy-wide average earnings throughout their career. In this case, lifetime average re-valued earnings and individual final earnings are identical.

For workers at average earnings, the average for the OECD countries of the gross replacement rate from mandatory pensions is 60.2% for men and 52.6% for women. There is little variation across Asia-Pacific OECD countries, with Korea at the top of the range, offering replacement rates of nearly 45 % and Japan at the bottom with only 34%. The rates for the non-OECD countries do have a wide range, going from 68% for Vietnam to 13% for Singapore and 15% for Indonesia, though the next lowest is Malaysia at 32%, meaning both Singapore and Indonesia are clear outliers. Regional variation also exists with Pakistan having a replacement rate over 50% higher than both India and Sri Lanka, whilst the majority of the remaining Asia-Pacific countries have replacement rates between 60% and 80%. The non-Asian OECD countries normally have lower replacement rates with Italy and, to a lesser degree, France being slight exceptions with replacement rates of 68% and 51% respectively.

Low earners–workers earning only half the mean–have higher replacement rates than mean earners: on average, 72% for the OECD. This reflects the fact that most countries attempt to protect low income workers from old-age poverty. The one exception is Hong Kong which had a slightly lower replacement rate for low earners than for average earners, 35% and 38% respectively. The cross-country variation of replacement rates at this earnings level is much higher than it is for pensions of those who earn twice the average. The highest gross replacement rates for low earners are found in the Philippines at 95% and China at 88%, which means that in both countries full-career workers with permanently low earnings have approximately the same income, upon retirement, as when they were working. The lowest rate is again observed in Singapore, which has a replacement rate of 13% for low earners. New Zealand has the highest replacement rate amongst Asian OECD countries at 78%, nearly twice that of Germany.

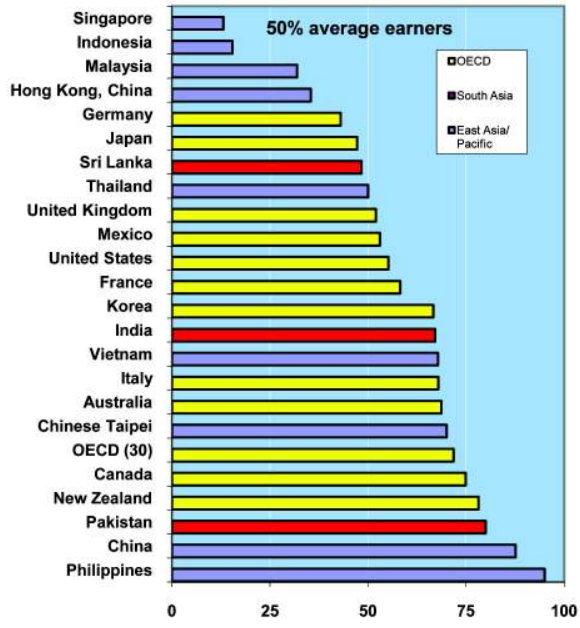
For high earners – working earning twice the mean -Vietnam offers the highest pensions, with a steady replacement rate of 68% across all the earnings levels. The variation across countries in replacement rates for high earners is much smaller than it is for people on low or average pay. Singapore is again at the bottom of the rankings though it is closely followed by Indonesia and New Zealand both with replacement rates less than 20%. Again the majority of the non-OECD countries have higher replacement rates than their OECD counterparts, with the exception of Italy. Only three of the twelve non-OECD countries have a higher replacement rate than the OECD average of 53.9%, compared to only one of the eleven OECD countries listed. The replacement rates in the Philippines, Australia and Korea are well under half the level for low earners. For the United Kingdom the replacement rates are at one-third of the level for low earners, while for New Zealand they are only at one-quarter of the level.

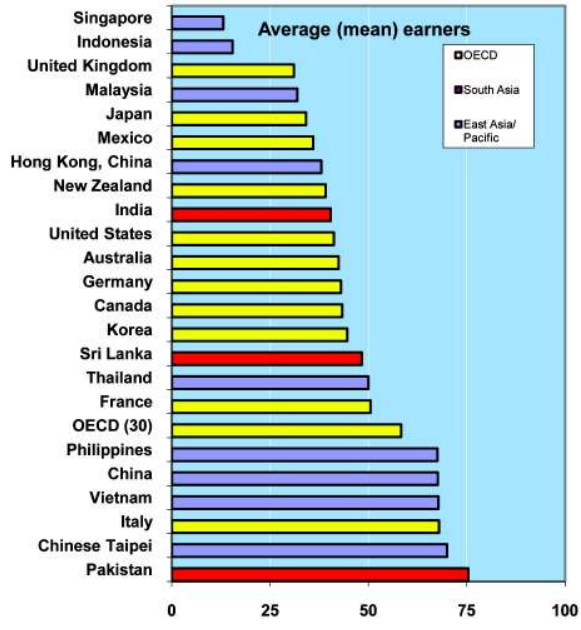
For women the replacement rates are below, or at best equal to, those for men, without exception. Whilst most OECD countries have the same replacement rates for men and women it is noticeable that all the non-OECD countries, apart from Thailand and the Philippines, have lower replacement rates for women than for men. The majority of non-OECD countries are now actually below the OECD average across all the earnings levels, which is the opposite of the findings for men. This is particularly the case for low earners where seven of the twelve non-OECD countries listed are below the OECD average, with the exceptions being China, the Philippines, Vietnam, India and Pakistan.

Gross replacement rates by earnings

	Men			Women		
Individual earnings (% average)	*50*	*100*	*200*	*50*	*100*	*200*
East Asia/Pacific						
China	87.6	67.6	57.6	59.8	44.8	37.3
Hong Kong, China	35.4	38.0	24.0	32.3	34.2	22.1
Indonesia	15.4	15.4	15.4	13.7	13.7	13.7
Malaysia	31.9	31.9	31.9	28.1	28.1	28.1
Philippines	95.0	67.5	44.3	95.0	67.5	44.3
Singapore	13.1	13.1	8.3	11.7	11.7	7.4
Chinese Taipei	70.0	70.0	54.9	56.1	56.1	41.0
Thailand	50.0	50.0	41.9	50.0	50.0	41.9
Vietnam	67.8	67.8	67.8	62.4	62.4	62.4
South Asia						
India	67.1	40.4	26.7	65.6	39.0	25.5
Pakistan	80.0	75.4	37.7	70.0	66.0	33.0
Sri Lanka	48.3	48.3	48.3	31.8	31.8	31.8
OECD Asia-Pacific						
Australia	68.7	42.4	29.3	68.7	42.4	29.3
Canada	74.9	43.3	21.7	74.9	43.3	21.7
Japan	47.2	34.1	26.7	47.2	34.1	26.7
Korea	66.6	44.6	27.0	66.6	44.6	27.0
Mexico	53.0	35.9	33.7	53.0	29.7	27.9
New Zealand	78.2	39.1	19.6	78.2	39.1	19.6
United States	55.2	41.2	32.2	55.2	41.2	32.2
Other OECD						
France	58.2	50.5	43.5	58.2	50.5	43.5
Germany	43.0	43.0	32.3	43.0	43.0	32.3
Italy	67.9	67.9	67.9	52.8	52.8	52.8
United Kingdom	52.0	31.0	16.4	52.0	31.0	16.4
OECD (30)	71.8	58.3	49.7	70.8	57.0	48.3

Gross replacement rates by earnings





■ Net replacement rates

Net replacement rates show greater diversity than the gross replacement rates. They range from 16.3% in Indonesia to 82.7% in the Philippines. These are the extremes for average earners but findings are also given at 50% and 200% of average earnings. Replacement rates generally decline as earnings increase, though Vietnam and Italy do not follow this premise, and are usually higher for men than for women. Results for China and the Philippines are amongst the highest especially for low and average earners. As with gross replacement rates Indonesia and Singapore are at the bottom of the rankings.

The net replacement rate is defined as the individual net pension entitlement divided by net pre-retirement earnings, taking account of personal income taxes and social security contributions paid by workers and pensioners. The personal tax system plays an important role in old-age support. Pensioners often do not pay social security contributions and, as personal income taxes are progressive and pension entitlements are usually lower than earnings before retirement, the average tax rate on pension income is typically less than the tax rate on earned income. In addition, most income tax systems give preferential treatment either to pension incomes or to pensioners, by giving additional allowances or credits to older people. Therefore, net replacement rates are usually higher than gross replacement rates.

For average earners, the net replacement rate across OECD countries is 71.6% for men and 63.6% for women, which is 11% higher than for gross replacement rates. Four of the non-OECD countries are higher than this average for men, whereas out of the OECD countries listed only Italy has a value higher than the average. Replacement rates within Asia are similar across the different geographical regions and also between OECD and non-OECD countries. Only Australia and Canada have replacement rates that are greater than that of most of the non-OECD countries, with China, the Philippines, Chinese Taipei, Vietnam and Pakistan being the exceptions.

Low earners–workers earning only half the mean–have higher replacement rates than average earners: on average, 82.4% for the OECD. This reflects the fact that most countries attempt to protect low income workers from old-age poverty. The cross-country variation of replacement rates at this earnings level is much lower within the OECD than for the Asian countries. The highest net replacement rate for low earners is found in the Philippines at 111.4%, which means that full-career workers with permanently low earnings have more money when they retire than when they were working. China also has a replacement rate at this earnings level that is close to full replacement. The lowest rates are again observed in Indonesia and Singapore where full career workers on half average earnings have only a 16% replacement rate. It still remains that the replacement rate in Hong Kong is again lower at this earnings level when compared to average earners. The same is also true in Indonesia, Singapore and Chinese Taipei.

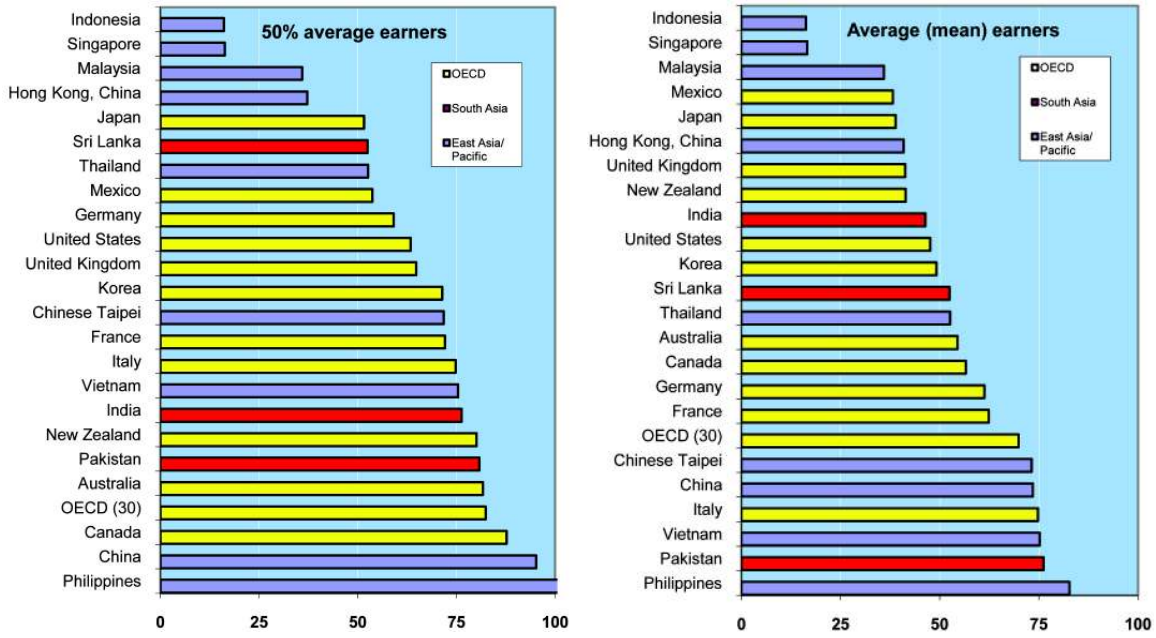
For high earners–workers earning twice the mean -the OECD average drops to 65.2%, with all OECD countries, with the exception of Italy, having lower replacement rates at this earnings level than at average or 50% average earnings. For Asia the same trend applies with Vietnam being the only exception, and in fact the replacement rate in Vietnam at this earnings level is now the highest for all the non-OECD countries. The lowest replacement rate is now found in Singapore, though it is closely followed by Indonesia. The gap to the other countries has narrowed compared to other earnings levels, with Hong Kong now having a rate less than double that of Indonesia. On comparison with the 50% average earnings figure, the replacement rate for the Philippines is just over half at 57.3% and that for New Zealand is less than one-third of its earlier level.

For women the net replacement rates are at best equal to those for men, but are generally lower. The only discrepancy amongst the OECD countries is for Italy at the 50% average earnings level which has a slightly higher replacement rate for women. For the non-OECD countries there is no earnings level for which the replacement rate is higher for women in any of the countries included. The rates in the Philippines and Thailand are identical to those of men, whereas in Sri Lanka the replacement rates for women are less than two-thirds those for men across all the earnings levels.

Net replacement rates by earnings

	Men			Women		
Individual earnings (% average)	*50*	*100*	*200*	*50*	*100*	*200*
East Asia/Pacific						
China	95.2	73.5	67.2	65.0	48.7	43.8
Hong Kong, China	37.2	40.9	27.8	34.0	36.9	25.5
Indonesia	16.1	16.3	16.2	14.3	14.5	14.4
Malaysia	35.9	35.9	35.9	31.5	31.5	31.5
Philippines	111.4	82.7	57.3	111.4	82.7	57.3
Singapore	16.3	16.6	10.9	14.6	14.8	9.7
Chinese Taipei	71.8	73.2	58.8	57.6	59.1	44.5
Thailand	52.6	52.6	44.0	52.6	52.6	44.0
Vietnam	75.4	75.2	77.7	69.9	69.6	72.1
South Asia						
India	76.3	46.4	38.2	74.5	44.4	34.7
Pakistan	80.8	76.2	38.1	70.7	66.6	33.3
Sri Lanka	52.5	52.5	52.5	34.6	34.6	34.6
OECD Asia-Pacific						
Australia	81.7	54.5	37.3	81.7	54.5	37.3
Canada	87.7	56.6	30.2	87.7	56.6	30.2
Japan	51.6	38.9	30.9	51.6	38.9	30.9
Korea	71.4	49.2	31.6	71.4	49.2	31.6
Mexico	53.7	38.2	39.8	53.7	31.7	33.0
New Zealand	80.1	41.4	23.0	80.1	41.4	23.0
United States	63.4	47.6	37.2	63.4	47.6	37.2
Other OECD						
France	72.1	62.4	54.8	72.1	62.4	54.8
Germany	59.1	61.3	44.9	59.1	61.3	44.9
Italy	74.8	74.8	78.4	76.6	58.1	62.4
United Kingdom	64.8	41.3	23.2	64.8	41.3	23.2
OECD (30)	82.4	69.9	60.6	81.9	68.3	59.0

Net replacement rates by earnings



■ Gross replacement rates with entry at age 30

Gross replacement rates, for those starting their career at age 30 vary greatly across Asia, from 9.6% in Singapore to 67.5% in the Philippines. These are the extremes for average earners but findings are also given at 50% and 200% of average earnings. Replacement rates generally decline as earnings increase and are usually higher for men than for women. Results for Pakistan are amongst the highest within the region, and are around twice that of both India and Sri Lanka for average earners.

Under the baseline assumptions used in this report, workers enter the labour market at age 20 and work until the standard retirement age. For the OECD countries this generally results in a career of at least 45 years. For the non-OECD countries this can lead to a career of between 30 and 45 years depending on sex and country.

The reality though is that the career length is shorter than this baseline assumption: some workers start paid work later than age 20, and many spend time out of the labour market for various reasons. In addition, early retirement is common, particularly in the OECD countries. As a sensitivity analysis, therefore, gross replacement rates are presented here for a shorter career. The alternative assumption is that workers enter the labour market at age 30. This results in a career length of between 20 and 35 years again depending on sex and country, though the career length is slightly longer in a few OECD countries with retirement ages beyond 65 years.

For workers at average earnings, the average gross replacement rate for the 30 OECD countries is 50.9% for men and 43.7% for women. There is very little variation across Asia-Pacific OECD countries, with Canada at the top of the range, offering replacement rates of 42% and Mexico lowest with only 27%. It is noticeable though that all the countries in that region are well below the OECD average. For South Asia the replacement rates in Pakistan are twice those of Sri Lanka and India, with Pakistan having the fourth highest replacement rate in Asia at 56.5%. The only countries higher than that for average earners are the Philippines, Vietnam and Chinese Taipei. In contrast the replacement rate in Singapore is only 9.6% and it is 10.2% in Indonesia. In fact the replacement rates in East Asia/Pacific are below 30% in four of the nine countries and above 50% in another four, with Thailand at 35% being the exception.

For low earners the replacement rates are at least equal to those for average earners, with the exception of Hong Kong which has a slightly lower replacement rate for low earners, 27.7% compared to 28.4% for average earners. The OECD average at this earnings level is 63.3% for men, though of the OECD countries listed, only New Zealand, Canada and Australia have higher replacement rates. Australia is only slightly above at 64.4% and it should be noted that the pensions in both Canada and New Zealand are based on residency and not earnings. Within South Asia, Pakistan again has a replacement rate approximately twice that of Sri Lanka, which has a constant replacement rate irrespective of earnings level. For East Asia/Pacific the trend is again similar to that for average earners with the Philippines having the highest, at 95%, meaning low earners have an income in retirement that is virtually equivalent to that when working, and lowest in Singapore, at 9.6%. As with the average earners there is variation in the rates with four countries below 30% and four countries above 50%, with Thailand at 35%.

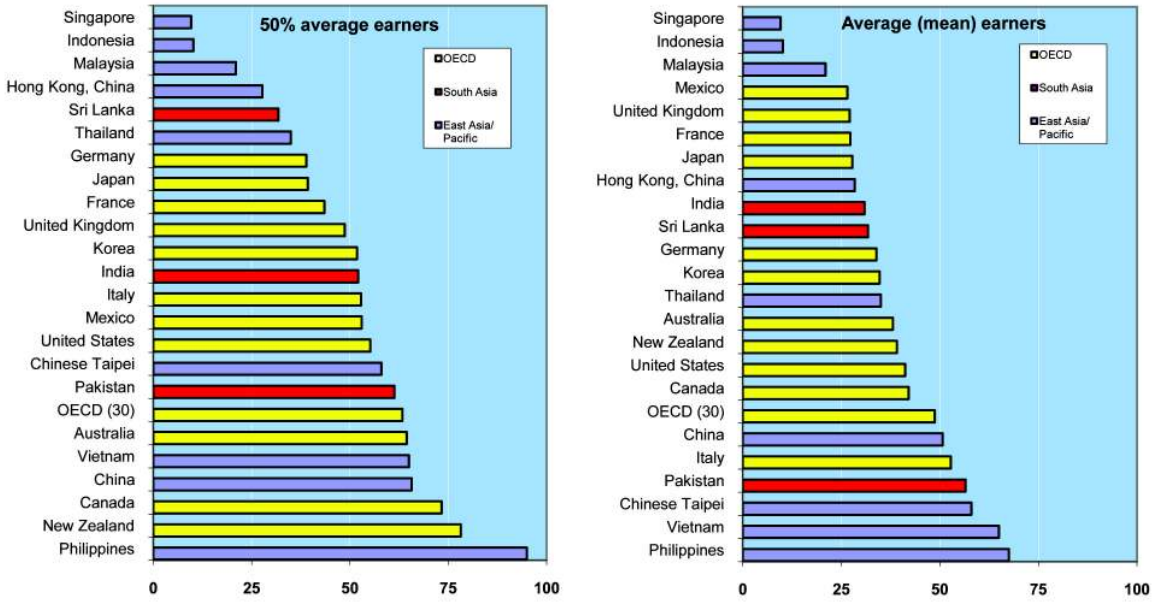
High earners have an average replacement rate of 44.8% for the 30 OECD countries, with Italy being the only country listed with a replacement rate higher than this average, at 52.8%. For the Asia-Pacific OECD countries there is little variation in the replacement rates with just over 5% separating six of the countries with the United States higher at 32.2%. In South Asia both Sri Lanka and Pakistan have replacement rates about 50% higher than that of India. The replacement rate in the Philippines is again higher than that in Pakistan, but for this earnings level the rate in Vietnam, at 65% is the highest. As before there are four countries in East Asia/Pacific with substantially higher replacement rates, namely Vietnam, the Philippines, China and Chinese Taipei, than the remaining five. The lowest replacement rate is in Singapore at only 6.1% for twice average earners.

For women the replacement rates are below, or at best equal to, those for men, without exception. Whilst most OECD countries have the same replacement rates for men and women it is noticeable that all the non-OECD countries, apart from Thailand and the Philippines, have lower replacement rates for women than for men.

Gross replacement rates by earnings: entry at age 30

	Men			Women		
Individual earnings (% average)	*50*	*100*	*200*	*50*	*100*	*200*
East Asia/Pacific						
China	65.7	50.7	43.2	39.8	29.8	24.8
Hong Kong, China	27.7	28.4	19.3	25.6	25.7	17.4
Indonesia	10.2	10.2	10.2	9.0	9.0	9.0
Malaysia	21.0	21.0	21.0	18.5	18.5	18.5
Philippines	95.0	67.5	44.3	95.0	67.5	44.3
Singapore	9.6	9.6	6.1	8.6	8.6	5.4
Chinese Taipei	58.0	58.0	43.0	40.7	40.7	29.0
Thailand	35.0	35.0	29.3	35.0	35.0	29.3
Vietnam	65.0	65.0	65.0	61.2	61.2	61.2
South Asia						
India	52.1	30.9	20.1	51.0	30.0	19.2
Pakistan	61.3	56.5	28.3	61.3	47.1	23.6
Sri Lanka	31.8	31.8	31.8	19.6	19.6	19.6
OECD Asia-Pacific						
Australia	64.4	38.1	25.0	64.4	38.1	25.0
Canada	73.3	42.1	21.1	73.3	42.1	21.1
Japan	39.3	27.8	21.4	39.3	27.8	21.4
Korea	51.8	34.7	21.0	51.8	34.7	21.0
Mexico	53.0	26.5	24.3	53.0	26.5	20.1
New Zealand	78.2	39.1	19.6	78.2	39.1	19.6
United States	55.2	41.2	32.2	55.2	41.2	32.2
Other OECD						
France	43.5	27.3	26.7	43.5	27.3	26.7
Germany	38.9	33.9	25.4	38.9	33.9	25.4
Italy	52.8	52.8	52.8	44.0	38.8	38.8
United Kingdom	48.7	27.1	14.3	48.7	27.1	14.3
OECD (30)	63.3	48.7	41.0	49.2	47.7	39.9

Gross replacement rates by earnings: entry at age 30



■ Gross pension wealth

Gross pension wealth, indicating the magnitude of the pension promise, ranges, for men, from a high of 21.2 in China for low earners to a low of 1.4 in Singapore for high earners. The value for women in China is actually even higher at 26.9, meaning that someone on 50% average lifetime earnings has a mandatory pension worth 26.9 their earnings level at retirement. China has considerably higher levels than for any other Asian country, though the values for men in Chinese Taipei, Pakistan and Vietnam are still over 10 at both average and 50% average earnings levels.

Pension wealth shows the size of the lump sum that would be needed to buy a flow of pension payments equivalent to that promised by the mandatory pension system in each country. Pension wealth is measured and expressed as a multiple of gross annual individual earnings. It is shown here for workers with earnings of 50%, 100% and 200% of the average, separately for men and women. For a fuller picture though consideration needs to be given to both retirement ages and life expectancy variation across countries. For example, the general retirement age within OECD countries is 65, whereas for the non-OECD countries it is generally either 55 or 60 for men. Whilst it is shown later that the life expectancy levels in non-OECD countries are lower than for OECD countries the actual duration of retirement is longer in the non-OECD countries for those who reach retirement age.

The average pension wealth for the OECD is 9.6 for average earners, 11.5 for 50% average earners and 8.6 for 200% average earners. The other OECD countries are generally below these averages apart from Italy at the 100% and 200% earnings levels. For the Asian/Pacific OECD countries they are all lower than the OECD average at all earnings levels, with the exception of Australia and New Zealand at the low earners level. For the non-OECD countries China, Chinese Taipei and Vietnam are higher at all earnings levels, with Sri Lanka also having a higher pension wealth at 200% average earnings.

China has the highest pension wealth of all countries for each of the earnings levels. The lowest pension wealth figures are found in Singapore and Indonesia, the latter of which has a constant rate of 2.6 for all earnings levels. The value for China therefore is nearly ten times that of Singapore for men with lifetime earnings equivalent to 50% average within their country.

With the exception of Hong Kong, which is higher for average earners than 50% average earners, the level of pension wealth either remains steady or declines as the level of earnings increases in all the other countries. In China for 200% average earners the level of pension wealth is less than two-thirds that for 50% average earners. The same applies in Japan, Korea, the United States and the Philippines, though in all cases the actual lump sum value for 200% average earners is at least double. For example the lump sum in China for 50% average earners is 21.2 * 0.5 = 10.6 times average earnings, compared to 13.9 * 2.0 = 27.8 times average earnings for those at the 200% earnings level. For New Zealand the pension wealth at 200% average earnings is half that for average earnings, which in turn is half that for 50% average earnings. This is expected as the mandatory pension in New Zealand is not dependent on earnings and so for all earnings levels the pension wealth is worth 7.2 times individual earnings for men and 8.5 individual earnings for women. The difference between sexes is due to the difference in life expectancies.

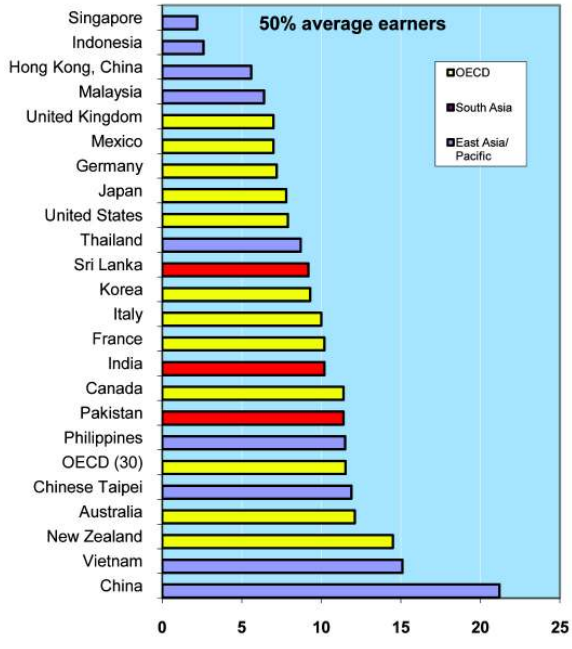
As mentioned earlier the levels of pension wealth for women are generally higher than those for men. Only Sri Lanka has higher levels for men than women, though the levels are identical for Indonesia, Malaysia and Singapore across all earnings levels. The variation for women is also greater than that for men, ranging from 26.4 in China for 50% average earnings to 1.4 in Singapore for twice average earners. The rate of decline in pension wealth as earnings increase is virtually identical between the sexes for all the countries included. A couple of notable exceptions are China and, in particular, Chinese Taipei, which has a pension wealth for men at 200% average earnings equivalent to 78% of that for 50% average earnings compared to only 73% for women. As before though the actual lump sum involved is still considerably higher for the 200% average earners compared to the 50% average earners for both men and women. For the OECD countries it should be noted that the average for women at 50% average earners level is slightly lower than that for men, though is higher at the other earnings levels.

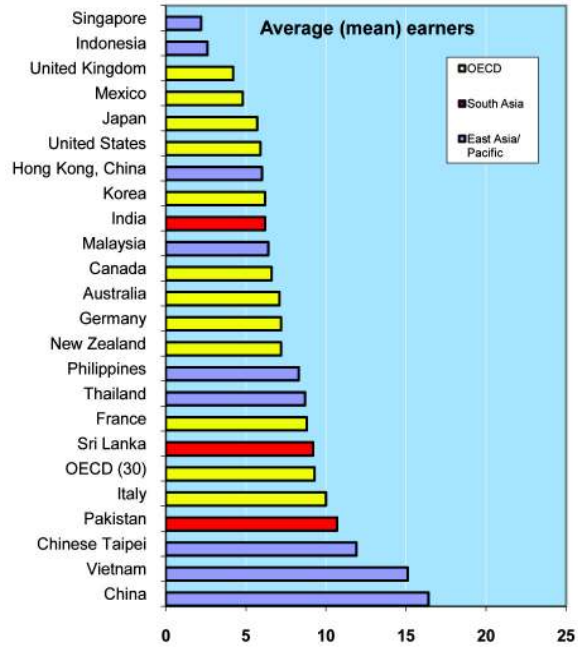
Gross pension wealth by sex and earnings

Multiple of individual annual gross earnings

	Men			Women		
Individual earnings (% average)	*0.5*	*1*	*2*	*0.5*	*1*	*2*
East Asia/Pacific						
China	21.2	16.4	13.9	26.9	20.1	16.7
Hong Kong, China	5.6	6.0	3.8	5.8	6.1	3.9
Indonesia	2.6	2.6	2.6	2.6	2.6	2.6
Malaysia	6.4	6.4	6.4	6.4	6.4	6.4
Philippines	11.5	8.3	5.5	13.1	9.5	6.3
Singapore	2.2	2.2	1.4	2.2	2.2	1.4
Chinese Taipei	11.9	11.9	9.3	12.5	12.5	9.1
Thailand	8.7	8.7	7.3	10.2	10.2	8.5
Vietnam	15.1	15.1	15.1	16.9	16.9	16.9
South Asia						
India	10.2	6.2	4.2	10.9	6.6	4.4
Pakistan	11.4	10.7	5.4	13.3	12.5	6.3
Sri Lanka	9.2	9.2	9.2	7.6	7.6	7.6
OECD Asia-Pacific						
Australia	12.1	7.1	4.6	14.1	8.2	5.3
Canada	11.4	6.6	3.3	13.3	7.7	3.9
Japan	7.8	5.7	4.4	8.8	6.4	5.0
Korea	9.3	6.2	3.8	11.1	7.4	4.5
Mexico	7.0	4.8	4.5	8.5	4.8	4.5
New Zealand	14.5	7.2	3.6	17.0	8.5	4.2
United States	7.9	5.9	4.6	9.2	6.8	5.3
Other OECD						
France	10.2	8.8	7.6	11.8	10.2	8.8
Germany	7.2	7.2	5.4	8.5	8.5	6.4
Italy	10.0	10.0	9.9	10.7	10.7	10.6
United Kingdom	7.0	4.2	2.2	8.0	4.8	2.5
OECD (30)	11.5	9.3	7.9	13.5	10.8	9.1

Gross pension wealth by sex and earnings





Net pension wealth, the present value of the flow of pension benefits, again varies by country, ranging from 21.2 for men in China (26.9 for women) to 1.4 in Singapore, for both men and women. As with gross pension wealth the values in China are well above every other country and are now approximately double the OECD average at every earnings level. However Vietnam is much closer to China at the 200% earnings level, followed by Sri Lanka and Chinese Taipei.

Net pension wealth shows the size of the lump sum that would be needed to buy the flow of pension payments, net of personal income taxes and social security contributions, promised by the mandatory pension system in each country. It is measured and expressed as a multiple of gross annual individual earnings in the respective country. Gross earnings are used as the comparator to isolate the effects of taxes and contributions paid in retirement from those paid when working. This means that gross and net pension wealth are the same where people are not liable for contributions and income taxes on their pensions. The charts compare gross and net pension wealth for men and women respectively. In countries that lie on the 45-degree line, gross and net pension wealth are the same because there are no taxes due on pension income.

For average earners net pension wealth is identical to that of gross pension wealth in only the three American OECD countries, namely Canada, the United States and Mexico, which have identical values of pension wealth, net and gross, for each of the earnings levels. The same is not the case for the non-OECD countries as the majority here have identical pension wealth, net and gross. For average earners the only non-OECD countries that differ are Chinese Taipei and Vietnam. In fact no matter which level of earnings is chosen, these are the only two non-OECD countries that have different values for net and gross pension wealth.

The average for the OECD countries is 10.5 for low earners, 8.4 for average earners and 7.0 for high earners. No OECD country listed has a higher value for average earners, though Italy has a higher value at the 200% earnings level, and Australia, Canada and New Zealand have higher values at 50% average earnings. As with the gross pension wealth the values for New Zealand half on each doubling of earnings as the mandatory pension is not affected by earnings but rather residency rules.

For high earners the non-OECD Asian countries dominate with China, Chinese Taipei, Thailand, Vietnam and Sri Lanka having values above the OECD average, with none of the Asian OECD countries having a higher value than the OECD average. The values in both China and Vietnam are approximately twice that of the OECD average, closely followed by Sri Lanka. Even the variation within the other OECD countries is apparent with Italy having a net pension wealth over three times that of the United Kingdom for high earners.

For low earners China, the Philippines, Chinese Taipei and Vietnam all have a net pension wealth higher than the OECD average. The value in China at 21.2 is nearly ten times the value in Singapore, and is at least twice that of every other non-OECD country, with the exception of Vietnam. For the OECD it is only three of the seven Asia-Pacific countries, namely Australia, Canada and New Zealand that have a net pension wealth above the OECD average. The remaining OECD countries all have similar values between 6.6 and 9.6, but all are below the 10.5 OECD average.

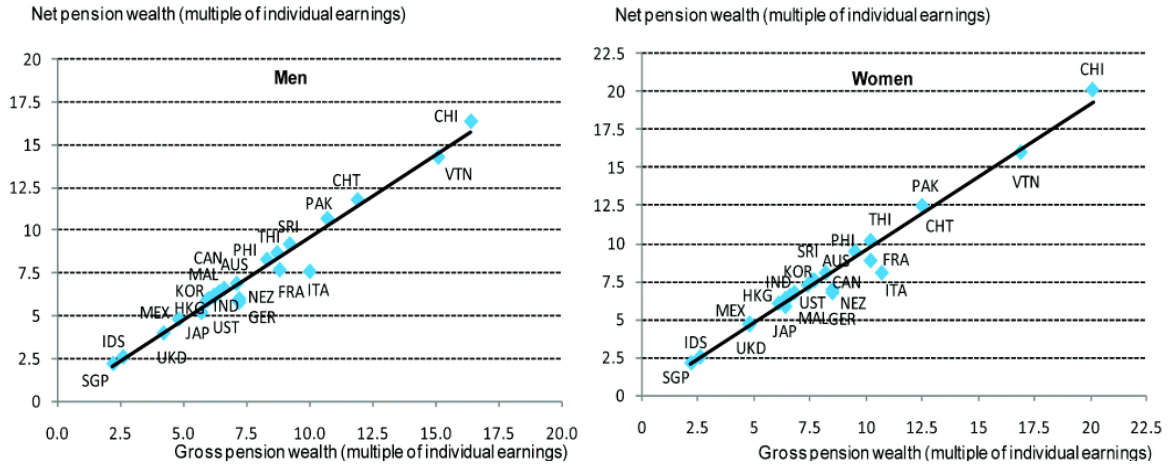
For women the same pattern is repeated as for the gross pension wealth, in that only Sri Lanka has higher net pension wealth figures for men than women, with Indonesia, Malaysia and Singapore again being identical for both sexes. The remaining countries, both OECD and non-OECD all have net pension wealth estimates that are higher for women than for men. Although for Mexico the values for men are higher than for women at 50% average earnings they are identical at both average and 200% average earnings.

Net pension wealth by sex and earnings

Multiple of individual annual gross earnings

	Men			Women		
Individual earnings (% average)	*0.5*	*1*	*2*	*0.5*	*1*	*2*
East Asia/Pacific						
China	21.2	16.4	13.8	26.9	20.1	16.7
Hong Kong, China	5.6	6.0	3.8	5.8	6.1	3.9
Indonesia	2.6	2.6	2.6	2.6	2.6	2.6
Malaysia	6.4	6.4	6.4	6.4	6.4	6.4
Philippines	11.5	8.3	5.5	13.1	9.5	6.3
Singapore	2.2	2.2	1.4	2.2	2.2	1.4
Chinese Taipei	11.9	11.8	9.1	12.5	12.5	9.0
Thailand	8.7	8.7	7.3	10.2	10.2	8.5
Vietnam	14.9	14.3	13.4	16.7	16.0	15.0
South Asia						
India	10.2	6.2	4.2	10.9	6.6	4.4
Pakistan	11.4	10.7	5.4	13.3	12.5	6.3
Sri Lanka	9.2	9.2	9.2	7.6	7.6	7.6
OECD Asia-Pacific						
Australia	12.1	6.9	3.9	14.1	8.1	4.5
Canada	11.4	6.6	3.3	13.3	7.6	3.8
Japan	7.1	5.2	3.9	8.0	5.9	4.4
Korea	9.2	6.1	3.7	11.0	7.3	4.4
Mexico	7.0	4.8	4.5	8.5	4.8	4.5
New Zealand	11.9	6.0	3.0	14.0	7.0	3.5
United States	7.9	5.9	4.6	9.2	6.8	5.3
Other OECD						
France	9.6	7.7	6.3	11.1	8.9	7.2
Germany	6.6	5.8	4.0	7.8	6.8	4.8
Italy	7.6	7.6	7.3	10.7	8.1	8.1
United Kingdom	6.9	4.0	2.1	7.9	4.7	2.4
OECD (30)	10.5	8.4	7.0	9.5	8.2	7.2

Gross *versus* net pension wealth by sex, average earner



The pension-earnings link, showing the link between pension entitlements and individual earnings, varies widely between countries. Levels in Indonesia, Hong Kong and particularly New Zealand show that there is virtually no link, whereas Vietnam, China and Sri Lanka display a strong link between pension entitlements and individual earnings. The relative pension levels are used here to illustrate the link between individual pre-retirement earnings and pension benefits in each country. They are shown for individual earnings from 0.5 to 2 times average earnings levels.

The strength of the link between pension entitlements and individual earnings is measured using the relative pension level, that is, the gross individual pension divided by average earnings (rather than by average earnings as in the replacement rate results). It is best seen as an indicator of pension adequacy, since it shows the benefit level that a pensioner will receive in relation to average earnings in the respective country. Individual replacement rates may be quite high, but the pensioner may still receive only a small fraction of economy-wide average earnings. If, for example, a low-income worker has a replacement rate of 100%, the benefit will only amount to 50% of economy-wide average earnings. For an average earner, the replacement rate and the relative pension level will be the same.

The charts show relative pension levels in the countries on the vertical axis and individual pre-retirement earnings on the horizontal. Countries have been grouped by region and by membership of the OECD. As there are nine countries in East Asia/Pacific they have been divided into three groups on the basis of results.

In the first set of countries (Panel A), there is little or no link between pension entitlements and pre-retirement earnings for any of the three countries listed. The ranges are small for all of the countries in the chart, particularly for Hong Kong and Singapore. The graphs for these countries reach a steady value between average and twice average earnings. This is in contrast to the findings for the other six countries in the region (Panel B and Panel C) which show a much stronger link between pension entitlements and pre-retirement earnings. In Vietnam for example the range is 34% to 136% compared to only 7% to 17% for Singapore. For Vietnam there is also no ceiling to pensionable earnings as it is paid in a lump sum which we have converted to an annual entitlement. Also in Chinese Taipei the defined contribution component has a ceiling well over three times average earnings. Singapore has a different system in that the maximum contribution level applies for earnings not much above the average, which explains why the graph levels at 125% of average earnings. The same also happens for Thailand but at a much higher earnings level.

Panel D covers the countries in South Asia, all of which indicate a link between pension entitlements and pre-retirement earnings, but to different degrees. In Sri Lanka although there is an earnings-related pension scheme the resultant replacement rate is quite low. However in India, as with Thailand before, the graph levels at 160% of average earnings because of the limit on the defined contribution element of the pension system. In Pakistan the graph levels much earlier at only 95% of average earnings because of the contribution limit.

The remaining two charts, Panel E and Panel F, are for the OECD countries, with the first covering the Asia/Pacific countries and the second the other OECD countries. In Panel E it is clear that there is virtually no link between pension entitlement and pre-retirement earnings in Australia, Japan and New Zealand. In fact in New Zealand there is absolutely no link as the pension is paid at a flat rate based on residency and is not dependent on earnings at all. In Korea though there is a slight link but it levels off around 150% of average earnings because there is a ceiling to pensionable earnings in Korea, which comes into effect at that level.

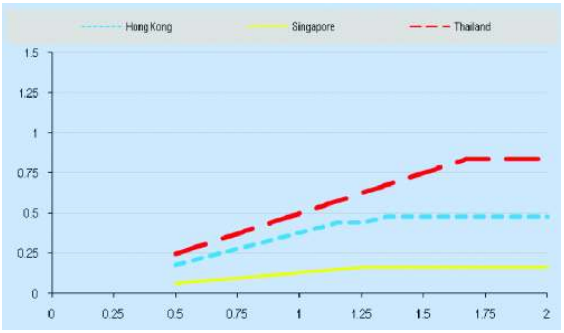
For the other OECD countries there is very little link in Germany, and particularly in the United Kingdom. In France there is a slightly greater link as the range is 30% to 87%, but the country with the greatest link is Italy (In Italy as with other countries mentioned previously the ceiling on pensionable earnings is set above three times the average economy-wide earnings).

With some countries applying limits to pension incomes, and others to the levels of contributions, the link between pension entitlements and individual earnings will be broken at some earnings level, even though it evidently existed prior this level.

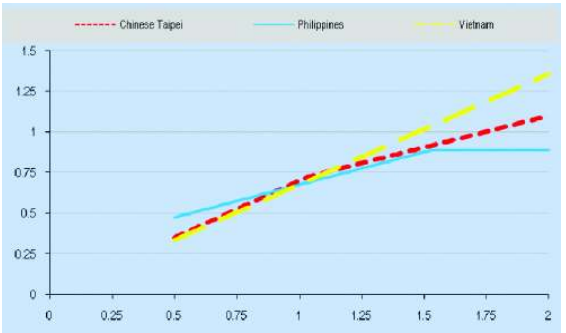
The link between pre-retirement earnings and pension entitlements

Gross pension entitlement as a proportion of economy-wide average earnings

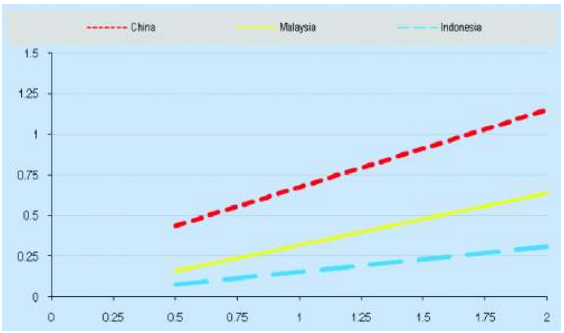
A. Hong Kong, Singapore and Thailand



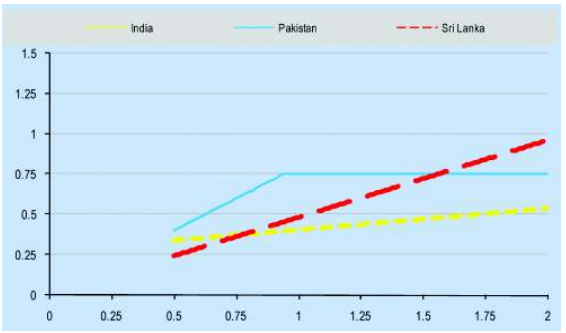
B. Chinese Taipei, the Philippines and Vietnam



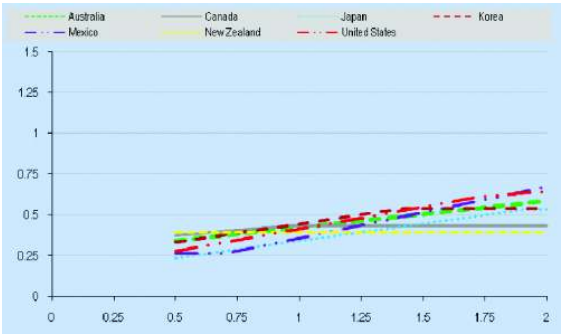
C. China, Malaysia and Indonesia



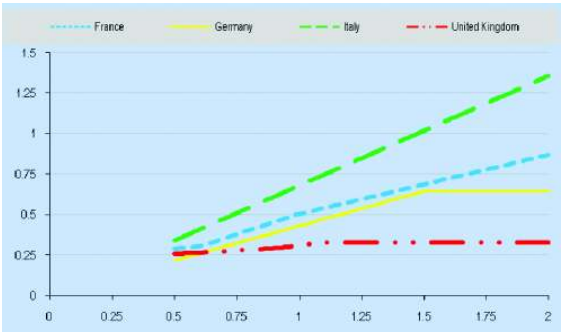
D. India, Pakistan and Sri Lanka



E. Australia, Canada, Japan, Korea, Mexico, New Zealand and the United States



F. France, Germany, Italy and the United Kingdom



The level of coverage, the proportion covered by mandatory pension schemes, in non-OECD countries ranges from 22.2% in Sri Lanka to only 4.0% in Pakistan, for the population aged 15 to 64. In contrast the OECD average is 60.4% and is as high as 75.0% in Japan. For the labour force the non-OECD countries range from 35.6% to 6.4%, whilst the OECD average increases to 83.3%, with Japan again highest at 95.3%.

Coverage is defined as the proportion of people that are covered by mandatory pension schemes. For the purposes of this report the measures used are (i) the population aged 15 to 64 and (ii) the active labour force. The coverage percentage is a measure of how effectively a pension system is being utilized by the pre-retirement population and can act as an indicator of future trends. The coverage value is expressed as the percentage of the population or labour force that is classified as active members of a mandatory pension system during the indicated year. For this purpose active members include those that have either contributed or accrued pension rights in any of the major mandatory pension schemes during the indicated year.

For OECD countries as a whole there is very little variation between countries using either the population or labour force measurement. The average coverage percentage within the OECD is 60% for the population measure and 83% using the labour force methodology. The exception within the listed OECD countries is Mexico which has noticeably lower values compared to the OECD average, though it is still considerably higher than the other countries within the region, with the exception of Japan and Australia.

The remaining Asian, non-OECD, countries vary considerably in the levels of coverage using either measurement. Of these countries only Sri Lanka has more than 20% of the population aged 15 to 64 covered by a mandatory pension scheme, whereas its neighbours, India and Pakistan, have less than 6% covered by a scheme. The picture improves slightly for the East Asia/Pacific countries with China and Thailand having over 17% of their populations aged 15 to 64 covered by at least one mandatory pension scheme. When considering the size of the populations in this region of the world it becomes apparent that the lack of coverage is a global rather than regional issue.

The level of coverage does improve in Asia when looking at the labour force measure but non-OECD increases are less than those of the OECD countries listed, despite them starting from a higher base. Sri Lanka again has the highest level of coverage, at 36%, with Pakistan and India still having less than 10% coverage. The position of the countries is generally unchanged between measures. The gap between the Asian countries and the OECD as a whole widens when looking at the labour force measure, 62.6%, as opposed to the population measure, 44.9%.

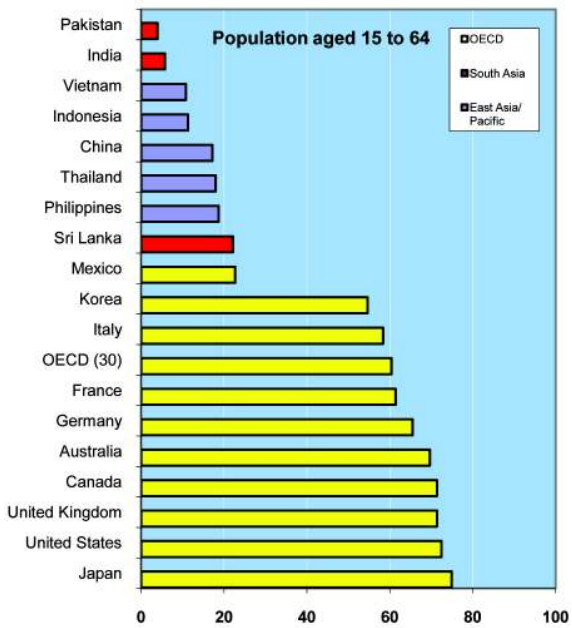
The average figures for Asia for both the population aged 15 to 64 and the labour force are heavily influenced by the low percentage values for India. Because of the high population within India if it was to be removed from the calculation of the Asia average, the value would increase by over 4% for both the population aged 15 to 64 and the labour force.

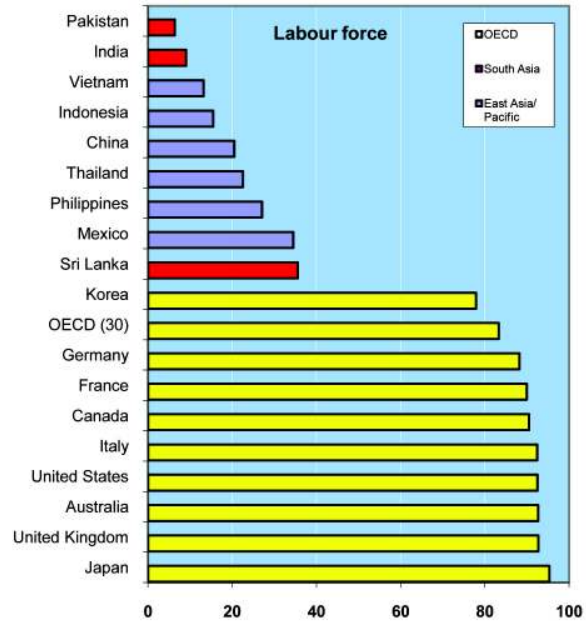
Coverage statistics are better analysed in conjunction with life expectancy and population projections, in order to estimate the numbers of people actually involved rather than percentage. Analysis of these characteristics will highlight the problems that may arise if nothing is done to combat the poor levels of coverage that exist within a number of countries across Asia.

Coverage of mandatory pension schemes by population and labour force

Country	*Members*	*Percentage of population aged 15 to 65*	*Percentage of labour force*
East Asia/Pacific			
China	159,000,000	17.2%	20.5%
Hong Kong, China			
Indonesia	15,683,000	11.3%	15.5%
Malaysia			
Philippines	8,336,946	18.7%	27.1%
Singapore			
Chinese Taipei			
Thailand	7,822,013	18.0%	22.5%
Vietnam	5,805,000	10.8%	13.2%
South Asia			
India	38,650,000	5.7%	9.1%
Pakistan	3,465,400	4.0%	6.4%
Sri Lanka	2,945,000	22.2%	35.6%
OECD Asia-Pacific			
Australia	9,578,000	69.6%	92.6%
Canada	15,950,000	71.4%	90.5%
Japan	63,560,000	75.0%	95.3%
Korea	18,994,604	54.6%	77.9%
Mexico	14,133,200	22.7%	34.5%
New Zealand			
United States	141,100,000	72.5%	92.5%
Other OECD			
France	24,319,400	61.4%	89.9%
Germany	36,156,000	65.5%	88.2%
Italy	22,146,000	58.4%	92.4%
United Kingdom	28,402,200	71.4%	92.7%
OECD (30)	463,879,410	60.4%	83.3%

Coverage of mandatory pension schemes by population and labour force





Life expectancy at birth in virtually all non-OECD Asian countries is lower than for all the OECD countries covered. The exception is Singapore which has a life expectancy higher than the United Kingdom, Germany and the United States, and is also above the OECD average. Life expectancy for women in India is over 15 years less than in Japan but if survival to either 60 or 65 is assumed then the difference drops to approximately 10 years, which will impact greatly on future pension systems.

Information on life expectancy predictions is essential to pension modelling as a guide to the duration that pensions will be claimed. Recently, in many OECD countries life expectancy data has been used to determine future retirement ages and its consideration in any analysis is therefore worthwhile.

Information is available at 2004 for men and women separately and is calculated at three different points in time, namely, at birth, age 60 and age 65. The latter two are obviously conditional upon surviving to age 60 and age 65 respectively but give a greater indication of the duration of pension receipt.

The graphs below for all three stages of the life-cycle indicate that the life expectancy in the non-OECD Asian countries is well below that of the OECD countries.

The first graph covering life expectancy at birth indicates that the average life expectancy for both men and women in India is below 65 years of age. Considering that the normal pension age in India is 55 years for the defined contribution element then this shows that the average duration for pension receipt is actually only eight or nine years. In contrast life expectancy in Sri Lanka is approximately ten years higher for men and 13 years higher for women implying that the duration of pension receipt in Sri Lanka is much greater than that for India. However the general trend is that the non-OECD countries represented are all at the lower end of the scale with male life expectancy generally under 70 years, compared to the OECD average of 75 years, and it is as high as 78 years for Japan.

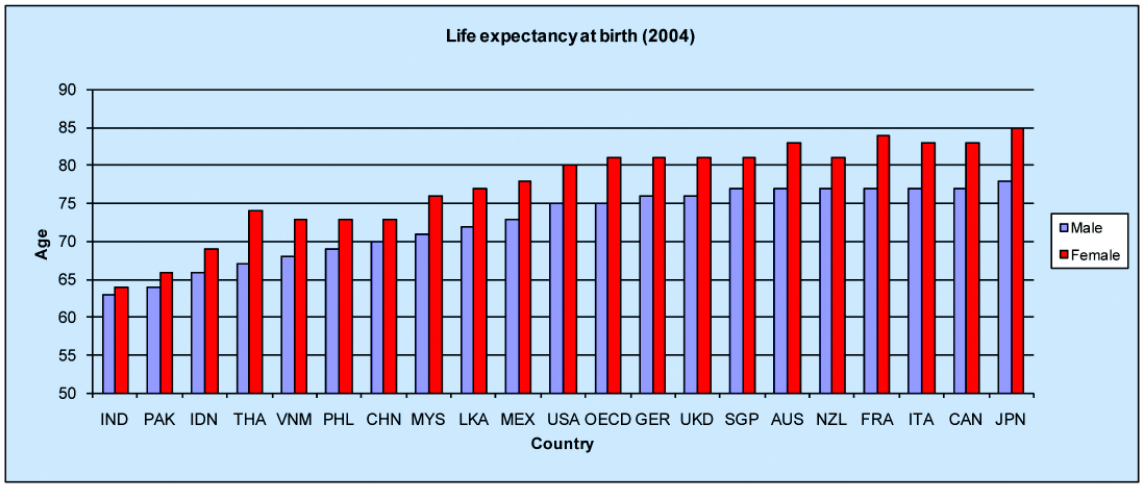
The second graph displays life expectancy on the assumption that the individual has survived to age 60. The findings at this juncture tend to have more bearing on pension policies as they indicate the likely duration period for those that actually start to claim their pensions. Although the non-OECD countries still dominate the lower half of the chart the actual difference in ages between these countries and their OECD counterparts has reduced considerably. India now has an average life expectancy of over 75 years, therefore suggesting that the average duration for those who begin claiming pensions is considerably higher than the impression given by life expectancy at birth. The results for Indian men are now virtually identical to those of Sri Lanka and are only three years less for women. Overall the range between the worst and best countries being analysed has halved for both men and women, indicating that once survival to age 60 is assumed there is a greatly reduced difference in life expectancy throughout the region.

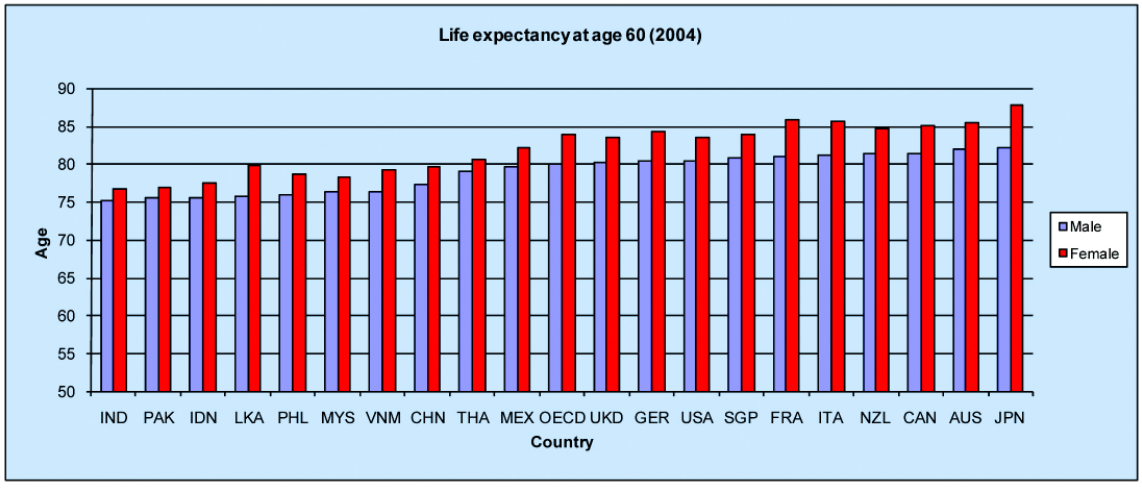
The third graph takes the analysis one step further as survival to age 65 is now assumed, which is the maximum normal retirement age for all but a handful of countries. Therefore the findings at this age level provide more accurate estimates of average duration for pension claimants than the previous indicators. Once again the difference in life expectancy estimates between the highest, Japan, and the lowest, India, has reduced further and is now six years for men and under ten years for women. Although the non-OECD countries are again at the lower end the results for men are all within four years of the OECD average.

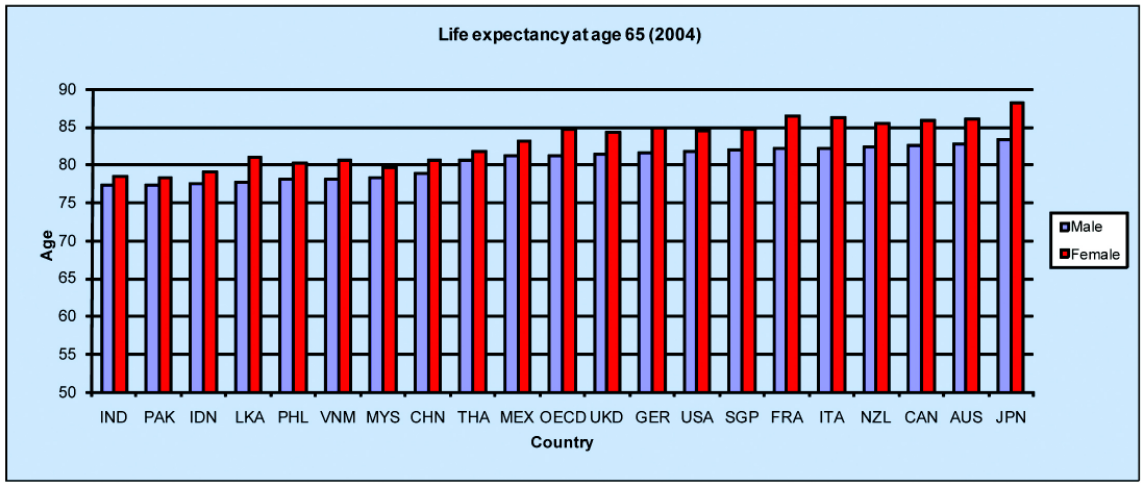
Singapore does not follow the same trend as the other non-OECD countries as it consistently has higher life expectancy ages for men than Germany, the United Kingdom and the United States, and is also higher for women in both the United Kingdom and the United States.

Although life expectancy results are a useful tool in pension analysis they have limited use when used alone. They can provide estimates of average duration of pension receipt for those that actually begin claiming a pension, but they do not assist with providing any information about the actual numbers involved. For this population projections are required and this will now be covered in the following section.

Average life expectancy by sex and starting age







Asia is predicted to have a higher rate of increase in the elderly population than the OECD as a whole. The percentage of the population aged 65 and over in Malaysia, Pakistan and the Philippines is projected in 2090 to be over five times the level in 2005. All of the remaining non-OECD countries have a projected increase of at least 280% over the 85 year period, compared to the OECD countries which all have an estimated increase of less than 200%.

Age projections are obviously a key component of any pension modelling. They enable estimation of pension costs and recipient numbers as well as providing governments with baseline assumptions upon which future pension policy can be structured.

Data is available for 2010 to 2090 at five yearly intervals for those aged 65 and over. This therefore covers the eligible pensionable population in all but a few countries that have normal retirement beyond age 65. Unfortunately it obviously under-estimates the pension population for those countries that have pensions commencing at age 60, for example, though it is still an extremely useful tool in any modelling exercise.

The graphs below show the actual percentage of the population aged 65 and over, between 1995 and 2005 as well as the population projections mentioned earlier.

The first graph shows the percentage of the population that was at least 65 of years of age for 1995 to 2005. The OECD countries generally average around 15% of their population being aged at least 65, compared to between four and five percent for the non-OECD countries in 1995. For 2005 the situation has tightened as the OECD countries now averaged approximately 16% to 17%, compared to the non-OECD average of 6% to 7%. The variation within Asia is also high ranging between 4% for Pakistan and the Philippines and 12% for Hong Kong, which is very similar to the percentage in the United States, namely 12.3%.

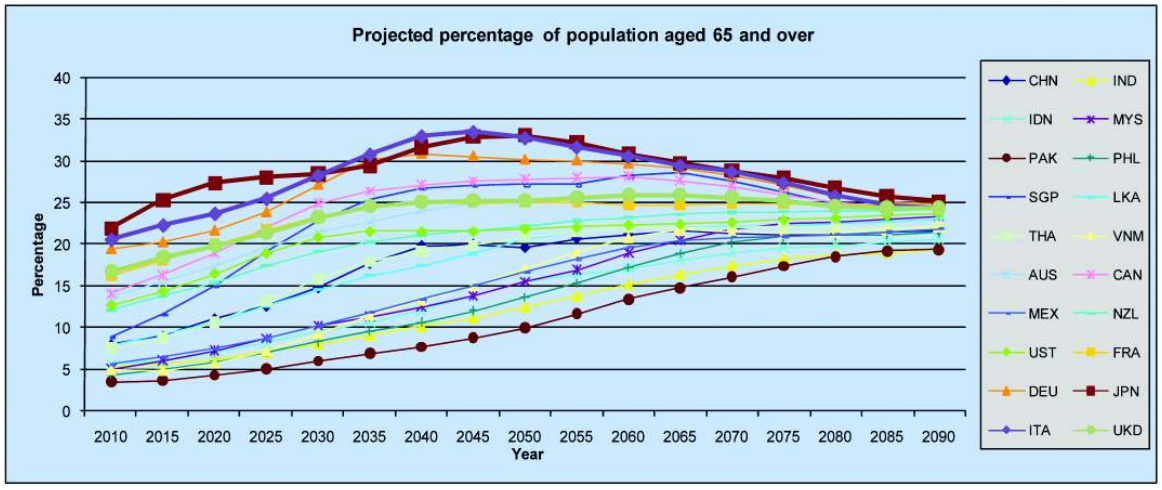
The next two graphs show the age projection statistics, and to enable easier interpretation have been divided into OECD and Asia. Therefore Australia, Japan and New Zealand are included in both graphs.

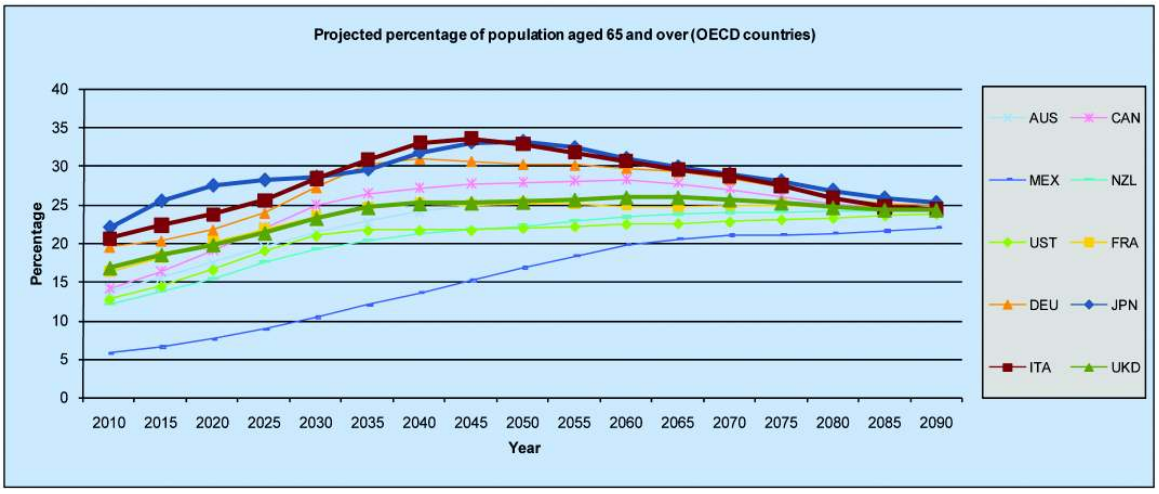
The second graph is for the OECD countries included in this report, with the exception of Korea, for which no data was available. Germany, Italy and Japan generally have the highest percentage across all the projected years, though after 2050 the proportion for these countries is in decline, from estimated highs of approximately 33%, for Japan and Italy, of the population being age 65 and over. This is only to be expected because of the lower fertility rates that have been prevalent in these countries within the last few decades. All countries generally converge at approximately 25% of their population being aged at least 65 years in 2090, with the United States slightly lower at just below 24%.

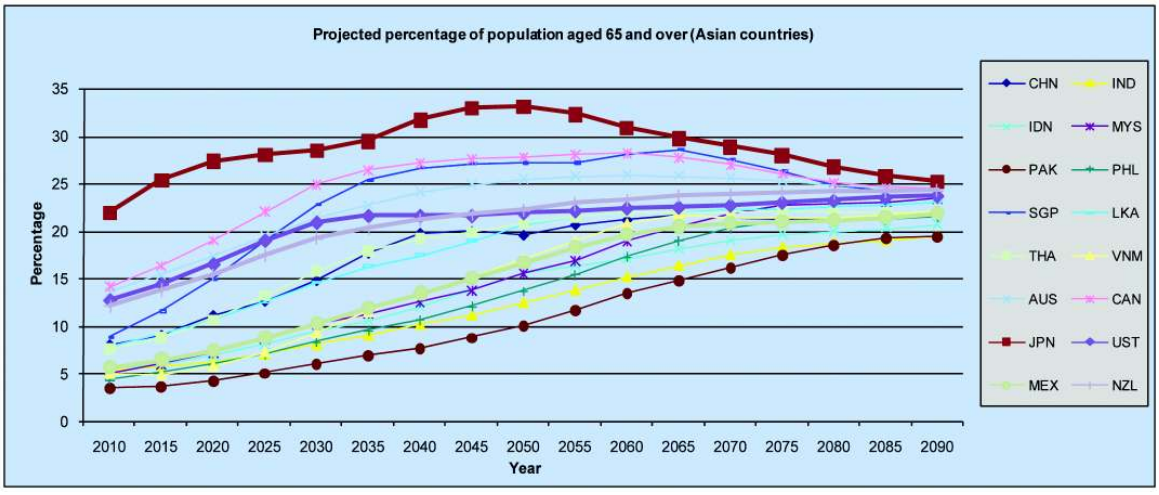
The third graph covers Asia, including the OECD countries within the region. It is clear that these OECD countries dominate the picture, with Japan having a higher proportion aged 65 and over than any other country across the entire time period. Singapore though does have very similar projections to Australia across the forecast period. An increasing elderly population is the highlight of this picture, with the proportion in Pakistan increasing more than five fold over the eighty year period. A similar pattern occurs across the other non-OECD Asian countries with the proportion of people aged 65 and over estimated to at least treble in virtually every country between 2010 and 2090. After the projection period it is clear that estimates indicate at least 19% of the population will be aged 65 and over in all the Asian countries. This means that the majority of non-OECD countries will be directly comparable with most OECD countries. As the retirement ages in the non-OECD countries are currently generally lower than those within the OECD then the proportion of pensioners in Asia will be considerably higher than within the OECD if the current systems remain in place.

When these results are considered alongside the coverage material it becomes evident that unless the issue of coverage is addressed quickly, the scale of the problem is going to increase dramatically. As the percentage of the population of pensionable age continues to increase then the necessity to provide support for them also increases. This places further pressure on national governments to act sooner rather than later to increase the coverage of the mandatory pension schemes. If action is not taken in the short term it may spiral out of control and become unmanageable.

Pensioner population projections







PART II

Country Studies

This part provides detailed background information on each of the 12 non-OECD countries' retirement-income arrangements. These include pension eligibility ages and other qualifying conditions; the rules for calculating benefit entitlements; the treatment of early and late retirees. The country studies summarise the national results in standard charts and tables. The country chapters for the OECD countries included can be found in the *Pensions at a Glance* series.

Introduction

The country studies follow a standard schema. First, there is a detailed description of the rules and parameters of the pension schemes:

- Qualifying conditions: pension eligibility (or "retirement") age and years of contributions required to receive a pension.
- Benefit calculation: the rules for each of the schemes making up the pension system, such as earnings-related schemes, mandatory private plans and resource-tested schemes.
- Early and late retirement: the rules and conditions under which workers can retire early or continue to work beyond the standard retirement age.
- Treatment of pensioners under the personal income tax and social security contributions, including any relief for pension income.

Values of all pension parameters and other relevant figures, such as minimum wages, are given in the national currencies as a proportion of average earnings.

A summary results table gives expected relative pension values, replacement rates and pension wealth at different individual levels of earnings for mandatory pension schemes. (See Part I of this report for the definition and measurement of the different indicators.) These are given in both gross and net terms (the latter taking account of taxes and contributions paid when working and when drawing the pension).

Summary charts show the breakdown of the gross relative pension value into the different components of the pension scheme (the first row of the charts). As far as possible, the same terminology is used to describe these schemes. The particular national scheme that is described can be found in the text of the country study. Some standard abbreviations are used in the legends of the charts:

- SA: social assistance
- Targeted: separate resource-tested schemes for older people.
- Minimum: a minimum pension within an earnings related scheme.
- Basic: a pension based only on number of years of coverage or residency.
- Earnings-related: all public earnings-related programmes, including notional accounts and points schemes as well as traditional defined-benefit plans.
- DC: defined-contribution, mandatory private plans.
- Occupational: mandatory pensions, which can be provided by employers, industry-wide schemes, profession-based schemes or publicly.

The second row of country charts shows the effect of personal income taxes and social security

contributions on relative pension values and replacement rates, giving the gross and net values. The final row of country charts shows, for reference, the taxes and contributions paid by pensioners and workers. This illustrates the source of any concessions to older people in these systems since the values are shown for workers and pensioners with the same income. The effect of taxes and contributions on net replacement rates is more complex than illustrated here. Since replacement rates are usually less than 100%, the normal

progressivity of the tax system means that people tend to pay fewer taxes when retired regardless of any concessions.

The final row also shows the sources of the net replacement rate. In addition to the components of the pension system shown in the first two charts, this includes the effect of taxes and contributions. This is computed using results of the tax models on the amount of taxes paid on earnings of a particular level and the amount of taxes due on the pension entitlement calculated for someone earning at that level.

The charts use a standard scale to ease comparisons between countries: the scale for replacement rates runs to 125% while that for relative pension values runs to 2.5 times average earnings. In some cases, pension benefits exceed these maxima and so the measure has been capped at these levels.

China

China has a two-tier pension system, consisting of a basic pension and a mandatory employee contribution to a second-tier plan. This system, which was introduced in 1997, was significantly revised in 2006. It covers urban workers and many of the parameters depend on city-wide (rather than national) average earnings.

Qualifying conditions

Normal pension age is 60 for men and 55 for women.

Benefit Calculation

Basic

The basic pension pays 1% of the average of city-wide average earnings and individual earnings for each year of coverage, subject to a minimum of 15 years of service. The pension in payment is indexed to a mix of wages and prices, which may be between 40 and 60% of average earnings growth. The modelling assumes the mid-point of this range, which is 50% indexation to wages.

Defined contribution (funded or notional accounts)

The second-tier scheme is based on individual accounts. In addition to the north-eastern provinces (Liaoning, Jilin and Heilongjiang), a further 8 have established pension funds. In other cases, the accounts are notional and are credited with a notional interest rate.

Employees pay 8% of wages to the individual funds. The accumulated balance in the fund or the notional account is converted into a stream of pension payments at the time of retirement by dividing by a government-determined annuity factor, which should reflect individual retirement age and average local life expectancy. In all provinces, these annuity factors (for monthly benefits) are:

Age	40	45	50	55	60	65	70
Factor	233	216	195	170	139	101	56

Pensions in payment are indexed to a mix of wages and prices (see the description of the basic pension above).

Non-standard careers

Early retirement

It is possible to claim pensions at 55 for men and 50 for women if the individual engaged in physical work. If the individual is totally disabled, one can claim pensions at 50 for men and 45 for women with 10 years of contribution.

Late retirement

It is possible to defer pension claim after normal pension age, but it is not valorised.

Personal income tax and social security contributions

There is a standard income-tax allowance of RMB 1,600 per month. Employees are allowed to deduct 20% of earnings for work-related expenses. If earnings are less than RMB 4,000, then the worker is allowed to deduct a flat rate of RMB 800. The income-tax schedule is

Limit	0	500	2 000	5 000	20 000	40 000	60 000	80 000	100 000
Rate	5%	10%	15%	20%	25%	30%	35%	40%	45%

The social security contributions to individual account are exempted from income taxes. On the other hand, pension benefit is taxed according to personal income tax rate.

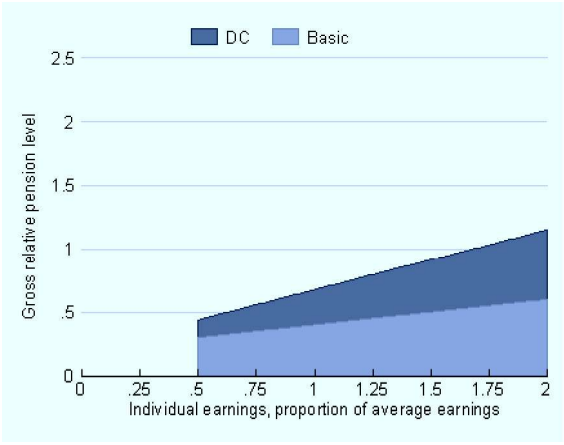
Under the revised system, employers contribute 20% of earnings to cover the basic pension. The second-tier pension is financed by an 8% contribution from employees.

Pension modelling results: China

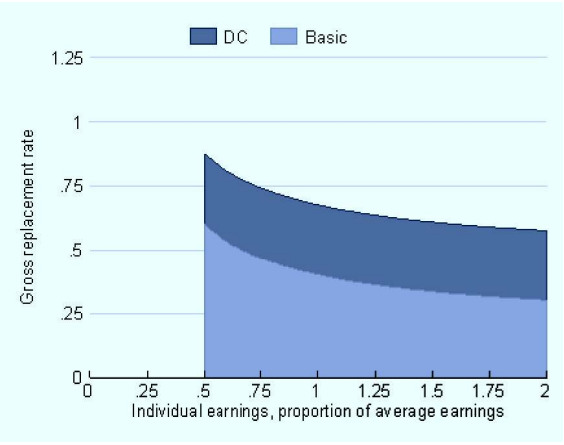
Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	43.8	55.7	67.6	91.4	115.3
(% average gross earnings)	36.1	45.4	54.8	73.4	92.0
Net relative pension level	47.6	60.6	73.5	99.4	124.3
(% net average earnings)	39.3	49.4	59.5	79.8	100.0
Gross replacement rate	87.6	74.3	67.6	61.0	57.6
(% individual gross earnings)	72.3	60.6	54.8	48.9	46.0
Net replacement rate	95.2	80.8	73.5	68.6	67.2
(% individual net earnings)	78.5	65.9	59.5	55.0	54.1
Gross pension wealth	21.2	18.0	16.4	14.8	13.9
(multiple of average gross earnings)	26.4	22.1	20.0	17.9	16.8
Net pension wealth	21.2	18.0	16.4	14.8	13.8
(multiple of average net earnings)	26.4	22.1	20.0	17.9	16.8

Pension modelling results: China

Gross relative pension level



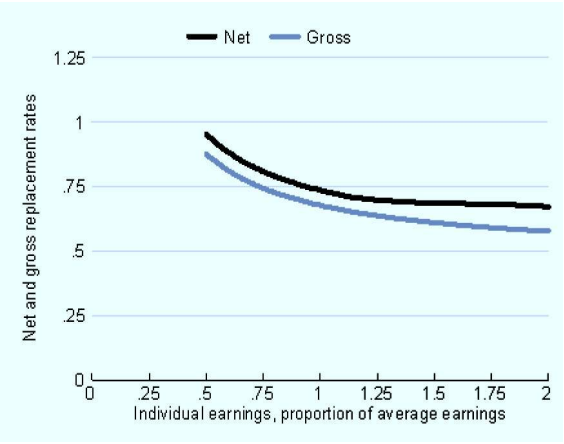
Gross replacement rate



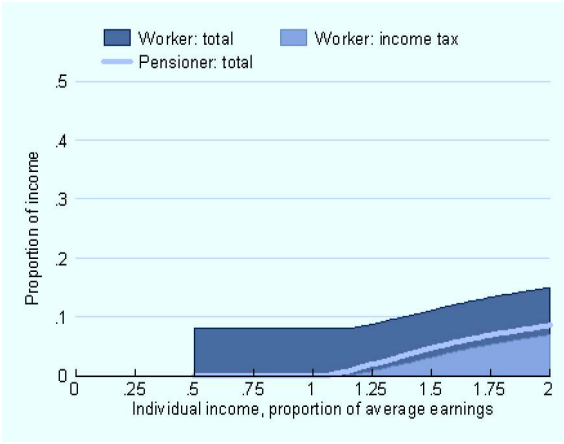
Net and gross relative pension levels



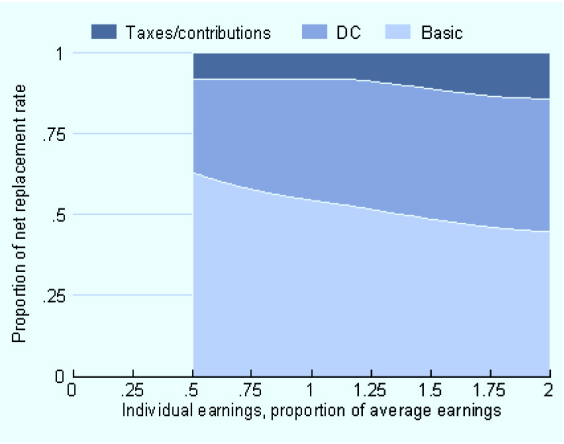
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Hong Kong

Employees including part-time and self-employed workers are required to join Mandatory Provident Fund (MPF) scheme. MPF is a defined contribution scheme.

Average earnings in the economy is HK$ 177,600.

Qualifying conditions

Normal pension age is 65 for men and women.

Benefit calculation

Defined-contribution

For the private sector employee, the amount of contribution depends on the income levels. Employees do not need to pay contribution if the monthly income is lower than HK$ 5,000 and they pay at least 5 % of earnings if the income is between HK$ 5,000 and HK$ 20,000. The maximum contribution is capped at HK$ 1,000. Employers contribute at least 5% of employee's earnings up to the maximum level of HK$ 1,000. Slightly different rules are applied to the self-employed. Indexation of pensions in payment is discretionary; the model uses price indexation. The scheme members can withdraw all their accrued benefits in a lump sum at retirement. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

Targeted/Basic

The old-age allowance has two levels. Normal old age allowance (NOAA) is means-tested and provided to those between 65 and 70. For a single person, the asset limit is HK$ 169,000 and monthly income limit is HK$ 5,910 (after which benefits are withdrawn). Limits for married couples are higher (HK$ 254,000 and HK$9,740, respectively). The full benefit is HK$ 625 per month, which is about 4.2% of average earnings (HK$ 177,600).

Higher older age allowance (HOAA) is for those above 70 years of age. It is a basic plan: paying a flat amount of HK$ 705 per month with no claw-back. Again, there is no formal indexation rule, so the modelling assumes price indexation.

Non-standard careers

Early retirement

It is possible to retire and to start claiming the DC pension at age 60. However, the targeted/basic programme does not provide benefits until 65.

Late retirement

It is possible to combine working and receiving pension.

Personal income tax and social security contributions

Taxation of workers

There are various tax relief systems in Hong Kong but they are not relevant to the standard individual (single without a child) used for the model. Social security contributions are tax deductible up to HK$ 12,000 per year.

Taxation of worker's income

The lower of the following two tax rules are applied. The first rule is described in the following tax schedule. This is applied to taxable income (after deduction and allowance).

Annual Taxable Income (HK$)	Tax Rate
30,000	2%
30,000 – 60,000	7%
60,000 – 90,000	13%
> 90,000	19%

The second rule is standard rate (16%) multiplied by assessable income after deductions but before allowances.

Social security contributions payable by workers

The employed contribute to the pension scheme and the contribution is 5% of their earnings up to the maximum level of HK$ 1,000 per month.

Pension modelling results: Hong Kong

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	17.7	27.8	38.0	48.1	48.1
(% average gross earnings)	16.2	25.2	34.2	44.2	44.2
Net relative pension level	19.0	30.0	40.9	51.8	51.8
(% net average earnings)	17.4	27.1	36.9	47.6	47.6
Gross replacement rate	35.4	37.1	38.0	32.0	24.0
(% individual gross earnings)	32.3	33.6	34.2	29.4	22.1
Net replacement rate	37.2	39.2	40.9	36.2	27.8
(% individual net earnings)	34.0	35.5	36.9	33.3	25.5
Gross pension wealth	5.6	5.9	6.0	5.1	3.8
(multiple of average gross earnings)	5.8	6.0	6.1	5.2	3.9
Net pension wealth	5.6	5.9	6.0	5.1	3.8
(multiple of average net earnings)	5.8	6.0	6.1	5.2	3.9

Taxation of pensioners

There is no additional tax relief for pensioners.

Taxation of pension income

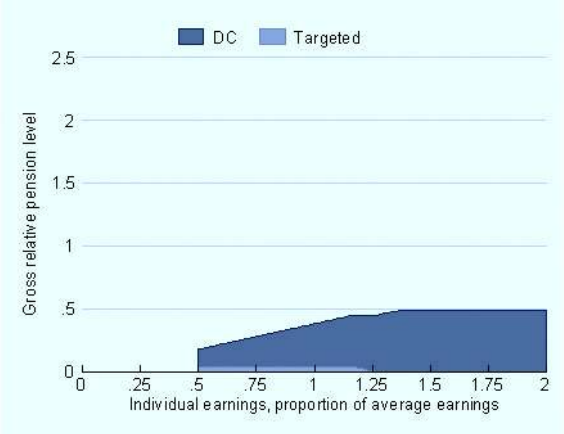
The same taxation rule is applied to pension benefits.

Social security contributions payable by pensioners

Pensioners do not pay any social security contribution.

Pension modelling results: Hong Kong

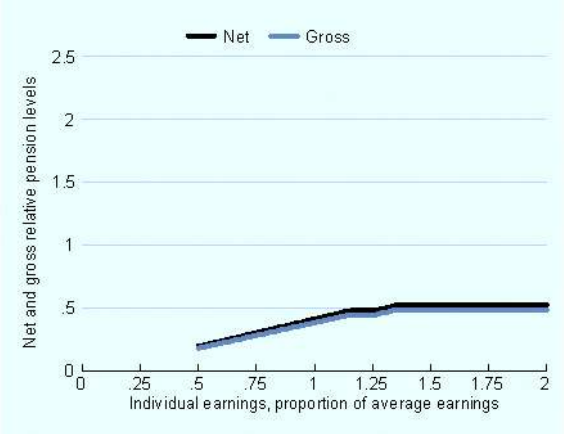
Gross relative pension level



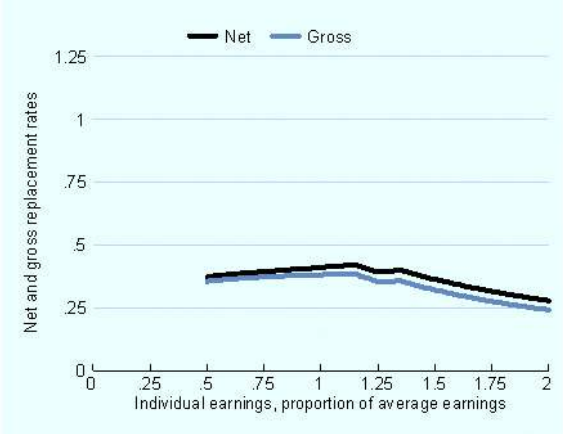
Gross replacement rate



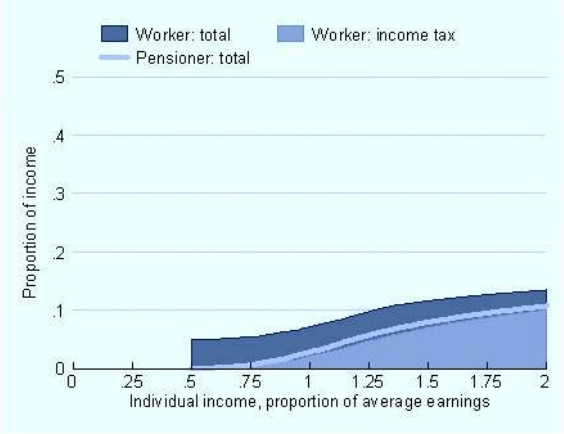
Net and gross relative pension levels



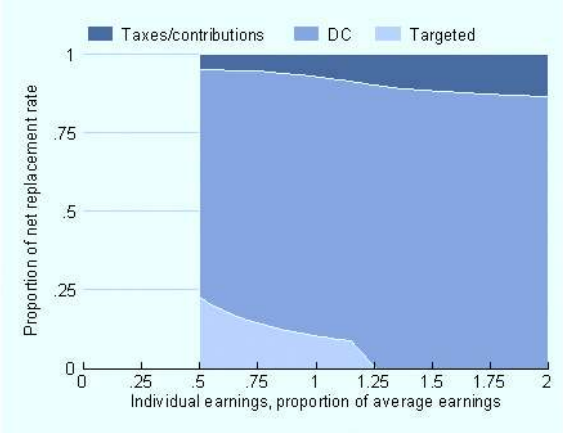
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Indonesia

Employees in private sectors are covered by defined contribution plan.

Average earnings is Rp 13 125,000 in 2006.

Qualifying conditions

Normal pension age is 55.

Benefit calculation

Defined-contribution

Employees contribute 2% of earnings and employers pay 3.7% of the payroll. Pension is paid in lump sum or payable monthly up to a maximum of 5 years if the balance is more than Rp 3 million. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

Non-standard careers

Early retirement

It is possible to start claiming pension at any age with a minimum of 5 years of contribution.

Late retirement

It is not possible to start claiming pension after normal pension age.

Personal income tax and social security contributions

Taxation of workers

There is a deduction of Rp 2,880,000 for a single individual. In addition, work-related expense is tax deductible and the amount is 5% of earnings up to a ceiling of Rp 1,296,000. Social security contribution is tax deductible.

Taxation of worker's income

Following table shows the tax rule applied to worker's income.

Annual Income (Rp millions)	Tax Rate
Up to 25	5%
Over 25 up to 50	10%
Over 50 up to 100	15%
Over 100 up to 200	25%
Over 200	35%

Social security contributions payable by workers

Employees contribute 2% of payroll to the pension plans.

Taxation of pensioners

There is no additional tax relief for pensioners.

Taxation of pension income

The same tax rules are applied to pensioners.

Social security contributions payable by pensioners

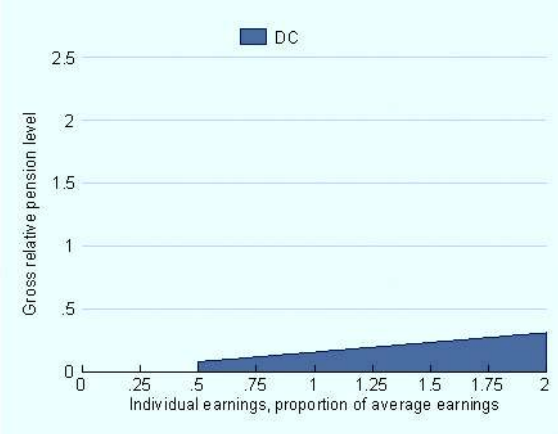
Pensioners do not pay any social security contributions.

Pension modelling results: Indonesia

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	7.7	11.6	15.4	23.1	30.8
(% average gross earnings)	6.8	10.3	13.7	20.5	27.4
Net relative pension level	8.2	12.2	16.3	24.4	32.2
(% net average earnings)	7.2	10.9	14.5	21.7	28.7
Gross replacement rate	15.4	15.4	15.4	15.4	15.4
(% individual gross earnings)	13.7	13.7	13.7	13.7	13.7
Net replacement rate	16.1	16.3	16.3	16.3	16.2
(% individual net earnings)	14.3	14.4	14.5	14.5	14.4
Gross pension wealth	2.6	2.6	2.6	2.6	2.6
(multiple of average gross earnings)	2.6	2.6	2.6	2.6	2.6
Net pension wealth	2.6	2.6	2.6	2.6	2.6
(multiple of average net earnings)	2.6	2.6	2.6	2.6	2.6

Pension modelling results: Indonesia

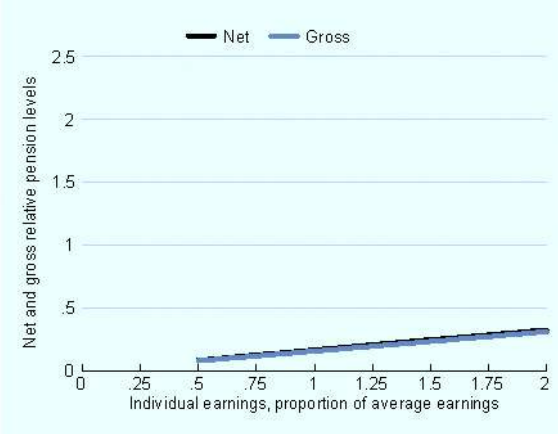
Gross relative pension level



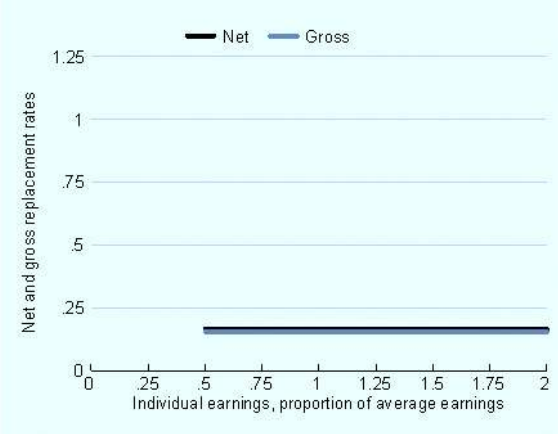
Gross replacement rate



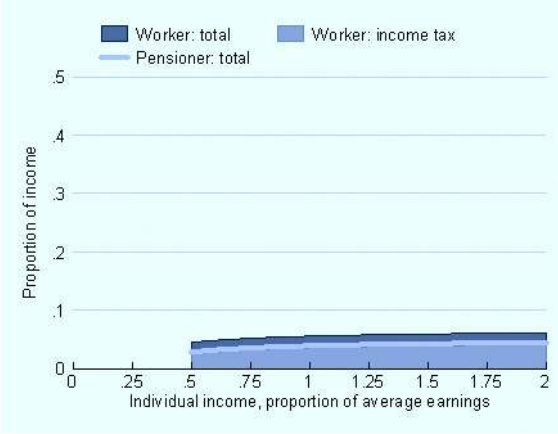
Net and gross relative pension levels



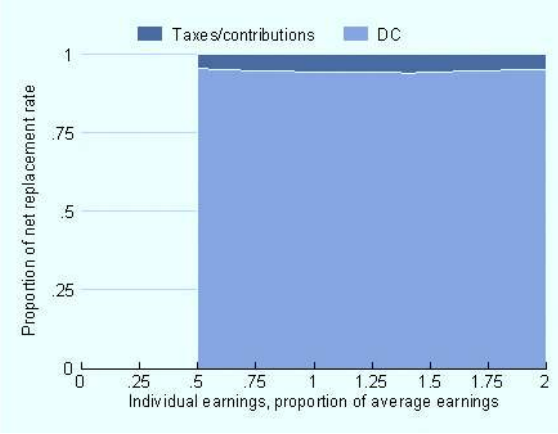
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Malaysia

Private sector employees and non-pensionable public sector employees contribute to the provident fund.

Average manufacturing earnings at June 2006 of RM 21,080.

Qualifying conditions

Normal pension age is 55.

Benefit calculation

Defined-contribution

Employees pay 11% of monthly earnings to the provident fund according to wage classes. Employers pay 12% of monthly earnings according to wage classes. Minimum monthly earnings for the contribution are RM 10 and there is no ceiling for the contribution. Insured persons can make voluntary additional contributions. The contribution is made to three different accounts: 60% of contribution to Account 1 and 30% to Account 2 and the rest to Account 3. It is possible to receive pension in a lump sum, monthly instalments or a combination of both. The minimum total amount to be paid in monthly instalments is RM 12,000 with the minimum contribution of 60 months and minimum benefits of RM 200 but the payment is essentially made in a lump sum. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

Non-standard careers

Early retirement

It is possible to withdraw savings between age 50 and 55 from Account 2. In the case of critical illness, savings could be withdrawn from Account 3 before the normal pension age. The model assumes that individuals are in good health up to normal pension age.

Late retirement

It is possible to defer retirement and continue to make contributions after normal pension age.

Personal income tax and social security contributions

Taxation of workers

The mandatory and voluntary provident fund contributions up to RM 5,000 a month are tax deductible. Employees below age 55 earning RM 2,000 or less a month and casual workers need to be covered by social insurance. The insurance does not cover old-age pension, but disability, survivor and other

pensions and grants. The contribution rate is 0.5% of monthly earnings based on 24 wage classes. Social insurance contributions are tax deductible.

Taxation of worker's income

In dividual income tax rate ranges from 2% to 30% with nine income brackets.

Chargeable Income	RM	Rate	Tax (RM)
On the first	2,500	0%	0
On the next	2,500	1%	25
On the first	5,000	-	25
On the next	5,000	3%	150
On the first	10,000	-	175
On the next	15,000	3%	300
On the first	20,000	-	475
On the next	15,000	7%	1,050
On the first	35,000	-	1,525
On the next	15,000	13%	1,950
On the first	50,000	-	3,475
On the next	20,000	19%	3,800
On the first	70,000	-	7,275
On the next	30,000	24%	7,200
On the first	100,000	-	14,475
On the next	50,000	27%	13,500
On the first	150,000	-	27,975
On the next	100,000	27%	27,000
On the first	250,000	-	54,975
Exceeding	250,000	28%	-

Social security contributions payable by workers

Taxation of pensioners

There is no additional tax relief for pensioners.

Taxation of pension income

Pension income is tax exempted.

Social security contributions payable by pensioners

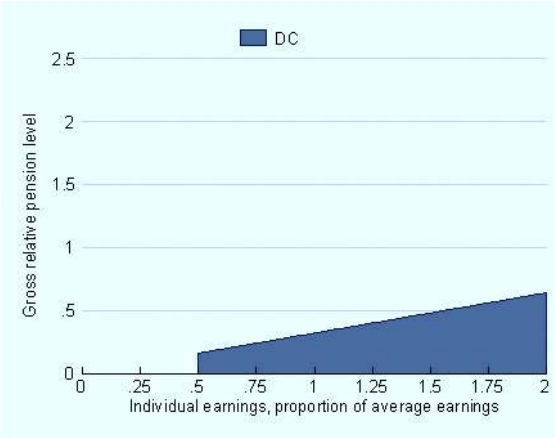
Pensioners do not pay any social security contributions.

Pension modelling results: Malaysia

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	16.0	24.0	31.9	47.9	63.9
(% average gross earnings)	14.0	21.1	28.1	42.1	56.1
Net relative pension level	17.9	26.9	35.9	53.8	71.8
(% net average earnings)	15.8	23.7	31.5	47.3	63.1
Gross replacement rate	31.9	31.9	31.9	31.9	31.9
(% individual gross earnings)	28.1	28.1	28.1	28.1	28.1
Net replacement rate	35.9	35.9	35.9	35.9	35.9
(% individual net earnings)	31.5	31.5	31.5	31.5	31.5
Gross pension wealth	6.4	6.4	6.4	6.4	6.4
(multiple of average gross earnings)	6.4	6.4	6.4	6.4	6.4
Net pension wealth	6.4	6.4	6.4	6.4	6.4
(multiple of average net earnings)	6.4	6.4	6.4	6.4	6.4

Pension modelling results: Malaysia

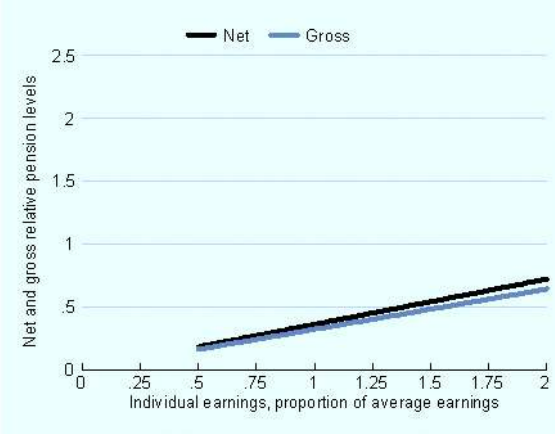
Gross relative pension level



Gross replacement rate



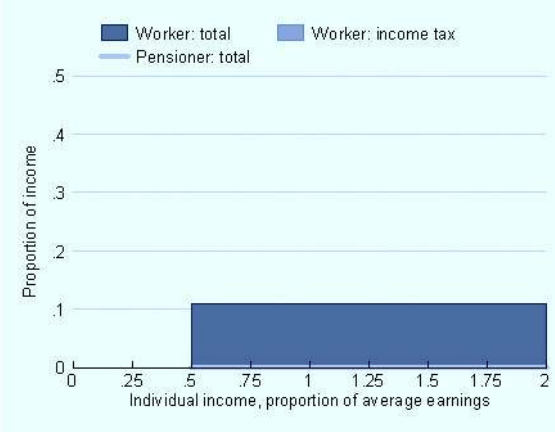
Net and gross relative pension levels



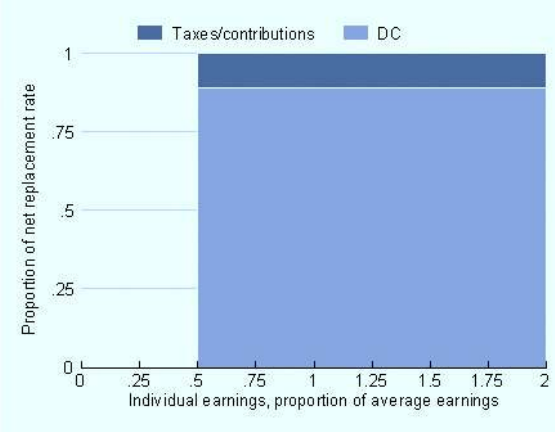
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Philippines

Employees up to age 60 earning more than 1,000 pesos a month are covered by the basic, earnings-related and minimum pensions. There are special systems for government employees and military personnel.

Average monthly wage in the Philippines is 10 629 pesos in 2006.

Qualifying conditions

Normal pension age is 65 with 120 months of contribution.

Benefit calculation

Basic

The monthly basic pension is 300 pesos.

All pension payment is made 13 times per year in the Philippines. Indexation rule for all pension payment is decided periodically based on price inflation and wage growth and on the financial state of the fund. In a long run, it is assumed that this ad hoc adjustment will be in line with price inflation.

Earnings-related

Earnings-related pension benefit depends on the greater one between the following two average earnings: the average earnings over 5 years at 6 months prior to pension claim or the average earnings for the period in which contribution was paid. The benefit is 20% of workers' average monthly earnings plus 2% of workers' average monthly earnings for each year of service exceeding 10 years or 40% of the workers' average monthly earnings, whichever is greater.

Minimum

The minimum pension for both basic and earnings-related components is 1,200 pesos a month with a contribution period of between 10 years and 20 years and 2,400 pesos for more than 20 years of contribution.

Non-standard careers

Early retirement

People could start receiving pension as early as age 60 with 120 months of contributions at 6 months before retirement. The pension is suspended if an old-age pensioner resumes employment or self-employment before age 65.

Late retirement

People can start claiming pension later than normal pension age, but there is no increment for the delayed pension benefits.

Personal income tax and social security contributions

Taxation of workers

Taxation of worker's income

Over	But Not Over	Rate
	P 10000	5%
P 10000	P 30000	P 500 + 10% of the excess over P 10000
P 30000	P 70000	P 2500 + 15% of the excess over P 30000
P 70000	P 140000	P 8500 + 20% of the excess over P 70000
P 140000	P 250000	P 22500 + 25% of the excess over P 140000
P 250000	P 500000	P 50000 + 30% of the excess over P 250000
P 500000		P 125000 + 32% of the excess over P 500000

Social security contributions payable by workers

Workers pay 3.33% of monthly gross insured earnings as social security contribution for pension, sickness and maternity and funeral benefits and the gross insured earnings are set based on 29 income classes. The maximum insured monthly earnings for contribution are 15,000 pesos.

Taxation of pensioners

Under the Expanded Senior Citizens Act of 2003, senior citizens (resident citizens of the Philippines at least 60 years old) are exempted from paying individual income taxes provided their annual taxable income does not exceed the poverty level as determined by the National Economic and Development Authority (NEDA) for that year. They are also entitled to a 20 percent discount on the price of some services and products, including medical services and medicines. The 20 percent discount then becomes a tax credit for the establishment concerned.

Taxation of pension income

All pension incomes are exempt from taxation.

Social security contributions payable by pensioners

Pensioners do not pay social security contributions.

Pension modelling results: Philippines

Men Women (where different)	Individual earnings, multiple of average				
	0.5	0.75	1	1.5	2
Gross relative pension level (% average gross earnings)	47.5	57.5	67.5	87.5	88.6
Net relative pension level (% net average earnings)	58.2	70.4	82.7	107.2	108.6
Gross replacement rate (% individual gross earnings)	95.0	76.7	67.5	58.3	44.3
Net replacement rate (% individual net earnings)	111.4	92.3	82.7	73.8	57.3
Gross pension wealth	11.5	9.4	8.3	7.3	5.5
(multiple of average gross earnings)	13.1	10.7	9.5	8.3	6.3
Net pension wealth	11.5	9.4	8.3	7.3	5.5
(multiple of average net earnings)	13.1	10.7	9.5	8.3	6.3

Pension modelling results: Philippines

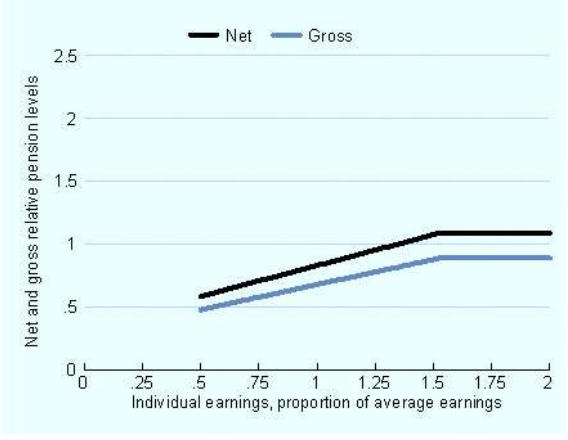
Gross relative pension level



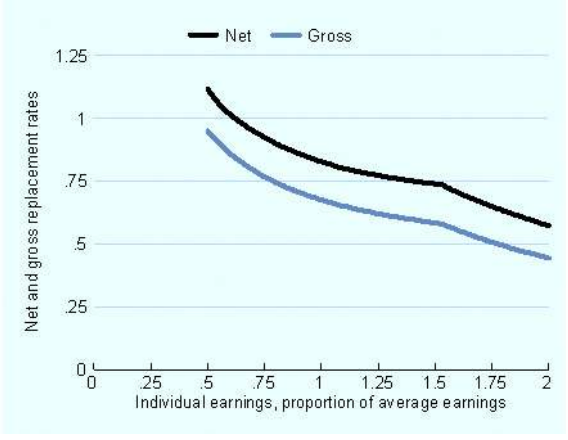
Gross replacement rate



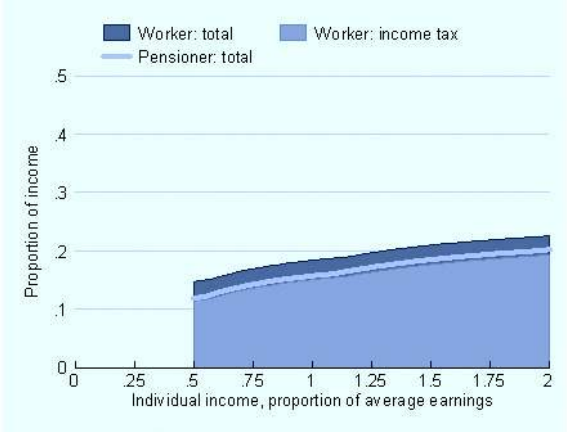
Net and gross relative pension levels



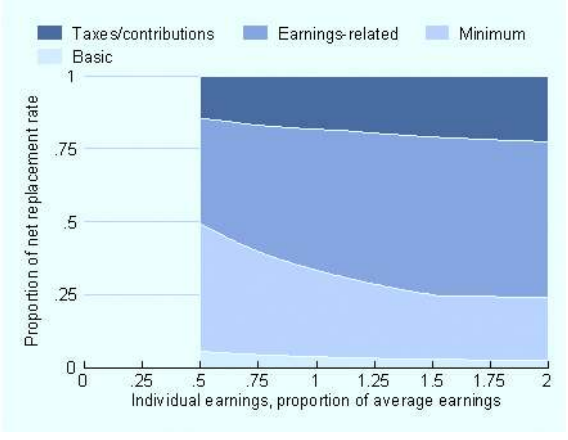
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Singapore

The Central Provident Fund (CPF) covers all workers including most civil servants. CPF is a defined contribution scheme.

Average earnings in 2006 is S$ 42,648.

Qualifying conditions

Normal pension age is 55 for CPF withdrawal in lump sum and 62 for phased withdrawal.

Benefit calculation

Defined-contribution

Maximum contribution for the private sector is calculated based on a basic salary ceiling of S$4,500 per month for both the employer and the employee. Benefits are paid as lump-sum for the amount over a minimum sum, while the amount up to the minimum sum can be drawn down over 20 years. The minimum sum is S$ 99,600 from 1 July 2007 and it will be raised to S$ 120,000 (in 2003 dollars) in 2013. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

The contribution rates vary depending on the age as indicated below.

For (1) Private Sector Employees (2) Government Non-Pensionable Employees (3) Non-Pensionable Employees in Statutory Bodies & Aided Schools (4) Singapore Permanent Resident (SPR) employees from their 3rd year onwards

Employee Age (years)	Contribution By Employer (% of wage)	Contribution By Employee (% of wage)	Total Contribution (% of wage)	Credited Into Ordinary Account (Ratio of Con)	Special Account (Ratio of Con)	Medisave Account (Ratio of Con)
35&below	14.5	20	34.5	0.6667	0.1449	0.1884
35-45	14.5	20	34.5	0.6088	0.1739	0.2173
45-50	14.5	20	34.5	0.5509	0.2028	0.2463
50-55	10.5	18	28.5	0.4562	0.2456	0.2982
55-60	7.5	12.5	20	0.575	0	0.425
60-65	5	7.5	12.5	0.28	0	0.72
Above 65	5	5	10	0.1	0	0.9

Non-standard careers

Early retirement

It is not possible to withdraw pension before normal pension age.

Late retirement

It is possible to defer the pension claim after normal retirement age and during this period people can continue to contribute to the fund. People can also combine pension receipt with continuing to work.

Personal income tax and social security contributions

Taxation of workers

Compulsory CPF contributions are fully tax-exempt. There is also relief for "cash top-up" of CPF retirement account up to a maximum of S$ 7,000 per year.

There is also tax deductible "earned income relief", and the relief amount depends on the worker's age as described below.

Age	Relief Amount
Below 55 years old	S$1,000
55 to 59 years old	S$3,000
60 years old and above	S$4,000

Taxation of worker's income

For resident individuals income tax rates and bands (in 2007) are as follows:

Chargeable Income S($)	Rate (%)
Up to 20,000	0
Over 20,000 up to 30 000	3.5
Over 30,000 up to 40 000	5.5
Over 40,000 up to 80 000	8.5
Over 80,000 up to 160 000	14
Over 160,000 up to 320 00	17
Over 320,000	20

Social security contributions payable by workers

Workers pay contribution to the CPF as described above.

Taxation of pensioners

There is no additional tax relief for pensioners.

Taxation of pension income

Pension income is exempted from personal income tax.

Social security contributions payable by pensioners

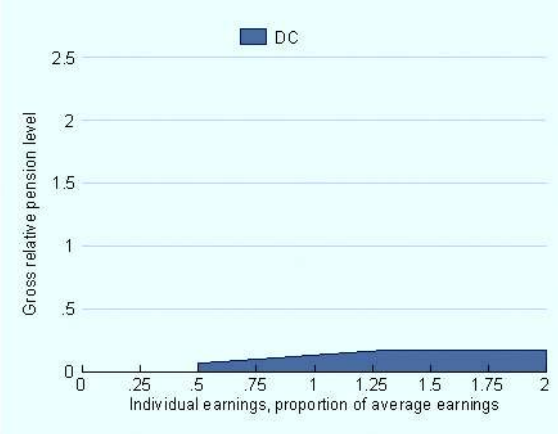
Pensioners do not pay any social security contributions.

Pension modelling results: Singapore

Men Women (where different)	Individual earnings, multiple of average				
	0.5	0.75	1	1.5	2
Gross relative pension level	6.5	9.8	13.1	16.5	16.5
(% average gross earnings)	5.8	8.8	11.7	14.8	14.8
Net relative pension level	8.3	12.4	16.6	21.0	21.0
(% net average earnings)	7.4	11.1	14.8	18.8	18.8
Gross replacement rate	13.1	13.1	13.1	11.0	8.3
(% individual gross earnings)	11.7	11.7	11.7	9.9	7.4
Net replacement rate	16.3	16.4	16.6	14.3	10.9
(% individual net earnings)	14.6	14.7	14.8	12.8	9.7
Gross pension wealth	2.2	2.2	2.2	1.9	1.4
(multiple of average gross earnings)	2.2	2.2	2.2	1.9	1.4
Net pension wealth	2.2	2.2	2.2	1.9	1.4
(multiple of average net earnings)	2.2	2.2	2.2	1.9	1.4

Pension modelling results: Singapore

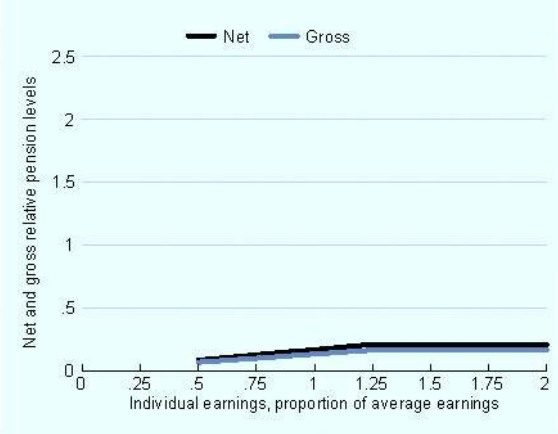
Gross relative pension level



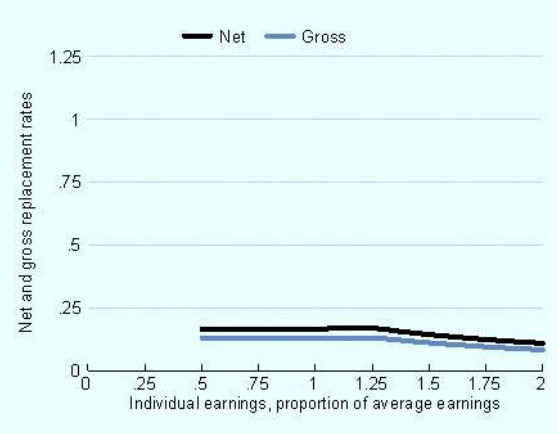
Gross replacement rate



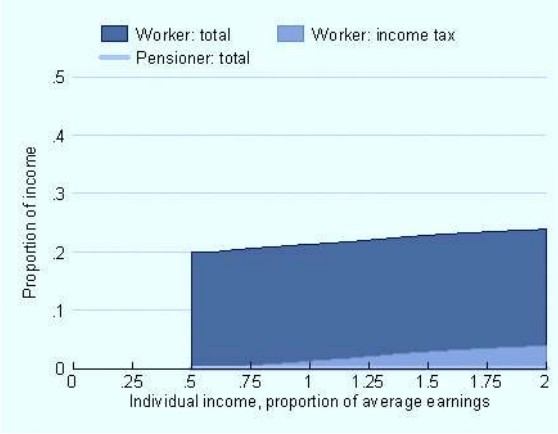
Net and gross relative pension levels



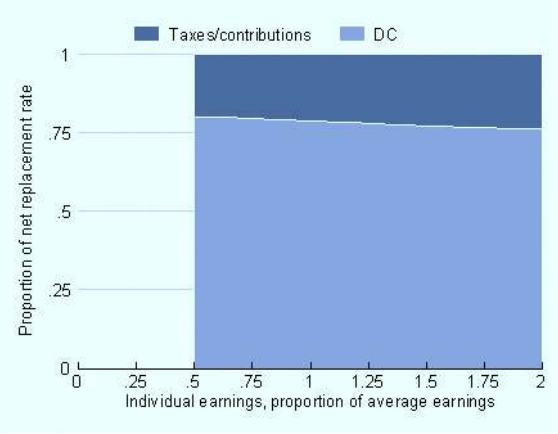
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Chinese Taipei

Pension systems for private sector employees are composed of two schemes: old-age benefits and defined-contribution.

Qualifying conditions

Normal pension age for old-age benefits is 60 for men and 55 for women with at least one year of contribution and for defined contribution scheme it is 60 for both men and women.

Benefit calculation

Earnings-related

The minimum pensionable earnings is NT$ 15,840 per month and the ceiling is NT$ 43,900 per month. Individuals earn 1 base unit, which is equivalent to one month of the individual average earnings in the 36 months before retirement, for each service year up to 15 years and 2 base units after 15 years, up to the maximum 45 units. There is no formal indexation rule but the government reviews the benefits levels periodically. The model assumes price indexation.

Defined-contribution

Labour pension system is changed from defined-benefit to defined contribution scheme in 2005. Employers contribute minimum of 6% of earnings and employees voluntarily deposit up to 6% of their earnings (for the purpose of the model we assume that employees deposit 6% of their earnings). The minimum earnings base is NT$ 1,500 per month and the maximum is NT$ 150,000 per month. The annuity calculation for this new scheme has not been determined yet. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

Targeted

Individuals aged 65 and above could receive Old-Age Citizens' Welfare living Allowance or Middle-and-Low Income Old-Age Citizens' Living Allowance. The former is NT$ 3,000 per month for those who earn less than NT$ 500,000 per year. The latter is either NT$ 6,000 for those with income below 1.5 times the minimum living expense or NT$ 3,000 for those with income between 1.5 and 2.5 times the minimum living expense. The model includes only the Old-Age Citizens' Welfare living Allowance.

Non-standard careers

Early retirement

People could start receiving old-age benefits from age 50 given the contribution period of 25 years or more and otherwise from age 55 with 15 years of contribution. For the defined contribution plan, people could start claiming the pension at any age with 25 years of work at the same firm and at age 55 with 15 years of work at the same firm.

Late retirement

It is possible to defer pension receipt after normal pension age until age of 65 but the mandatory retirement age is 60 for men and women. Deferring the pension earns an extra base unit for each year of deferral up to a maximum of 5 units. It is not possible to combine work and pension receipt.

Personal income tax and social security contributions

Taxation of workers

Employee's voluntary contribution for the defined contribution plan is tax deductible. Standard deduction is NT$46,000 (NT$ 92,000 if claimed with spouse).

Taxation of worker's income

Progressive tax rate is applicable in Chinese Taipei, and the marginal tax rates are:

Chargeable Income for the Year (NT$)	Marginal Tax Rate
77 000 and less	0%
370 000 and 77 000	6%
More than 370 000 ~ 990 000	13%
More than 990 000 ~ 1 980 000	21%
More than 1 980 000 ~ 3 720 000	30%
More than 3 720 000	40%

Zero-rate band is NT$77,000 per person and it is NT$115,500 per person for those aged 70 and more.

Social security contributions payable by workers

Employees pay 1.3% of earnings for the earnings-related pension and 6% of earnings to defined contribution plans.

Taxation of pensioners

There is no additional tax relief for pensioners.

Taxation of pension income

Earnings-related pension is not subject to income tax but the income from defined contribution plans is subject to income tax with basic amounts for tax deductibility.

Social security contributions payable by pensioners

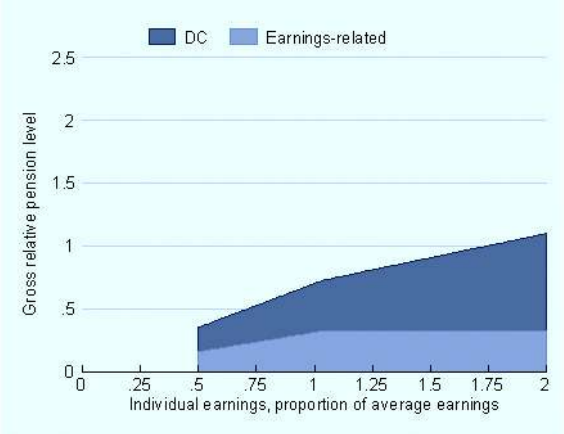
Pensioners do not pay any social security contributions.

Pension modelling results: Chinese Taipei

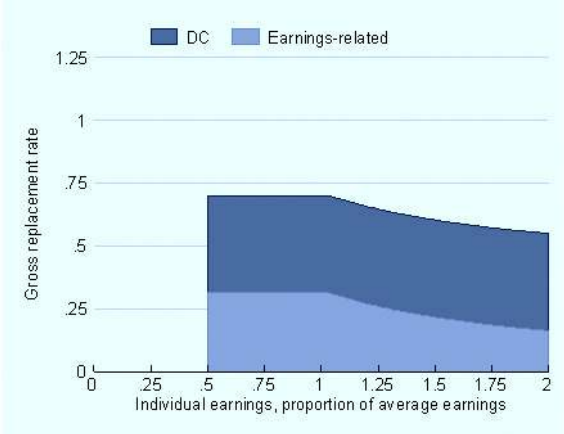
Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	35.0	52.5	70.0	90.5	109.8
(% average gross earnings)	28.1	42.1	56.1	69.6	82.1
Net relative pension level	36.8	55.3	73.2	93.5	112.6
(% net average earnings)	29.5	44.3	59.1	72.8	85.2
Gross replacement rate	70.0	70.0	70.0	60.3	54.9
(% individual gross earnings)	56.1	56.1	56.1	46.4	41.0
Net replacement rate	71.8	73.0	73.2	64.1	58.8
(% individual net earnings)	57.6	58.5	59.1	50.0	44.5
Gross pension wealth	11.9	11.9	11.9	10.2	9.3
(multiple of average gross earnings)	12.5	12.5	12.5	10.3	9.1
Net pension wealth	11.9	11.9	11.8	10.0	9.1
(multiple of average net earnings)	12.5	12.5	12.5	10.2	9.0

Pension modelling results: Chinese Taipei

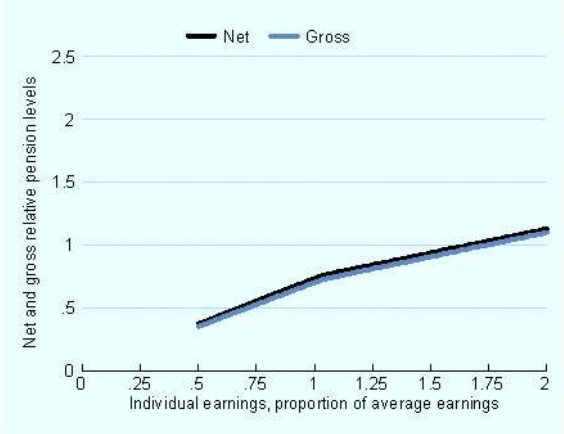
Gross relative pension level



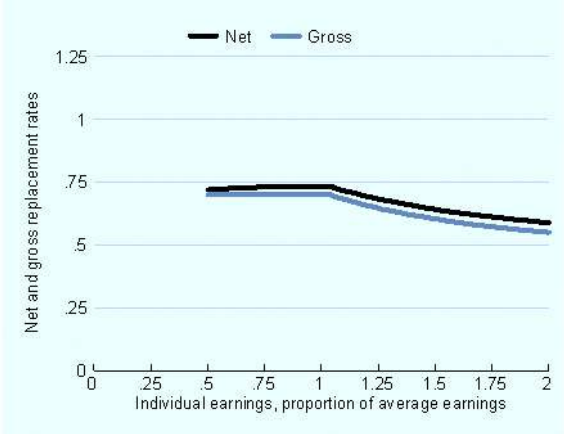
Gross replacement rate



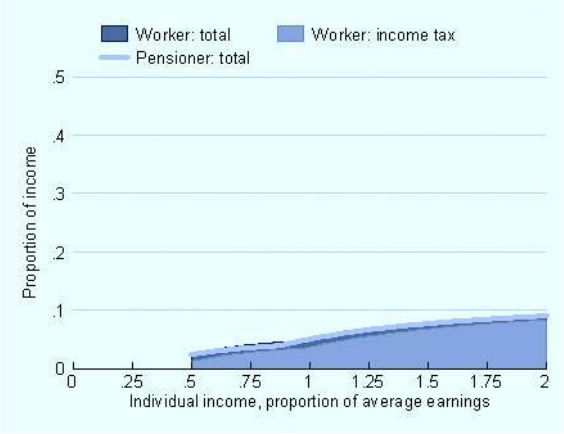
Net and gross relative pension levels



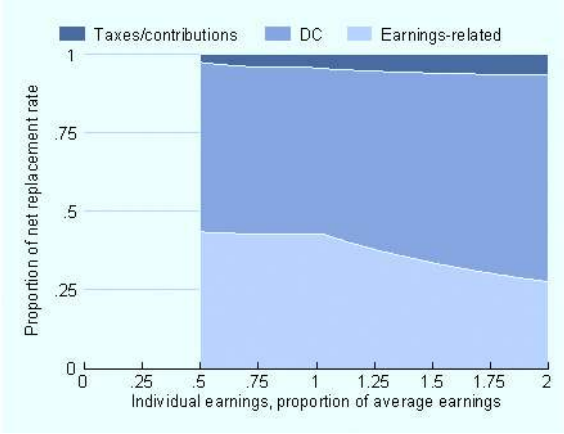
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Thailand

Private sector employees in the formal sectors are covered under the Social Security Fund (SSF). The old-age pension scheme under SSF is a defined benefit scheme.

Average earnings in the economy is Bt 107,520 in 2005.

Qualifying conditions

Normal pension age for private sector workers is 55 for men and women. 15 years of contributions is required for monthly pension receipt and the pension benefit is adjusted for a longer contribution period. For people with a contribution period less than 15 years, a lump sum payment equivalent to the total contributions is made.

Benefit calculation

Earnings-related

Workers accrue 20% of their earnings for the first 15 years and then 1.5% for every year thereafter. The base wage used for benefit calculation is the average wage over the last 5 years prior to retirement. Indexation rules are discretionary and the modelling assumes price indexation of pensions in payment. Hence for the full career workers who enter labour market at age 20 in 2006 and earn average earnings throughout the career, the benefit is a little over Bt 53,700 plus price inflation.

Non-standard careers

Early retirement

It is not possible to claim the earnings-related pension before the normal age of 55.

Late retirement

It is possible to retire later than normal pension age. People who continue to work beyond 55 will receive 20% of average wage of the last 60 months or 20% and 1.5% per additional 12 months of contributions above 180 months.

Personal income tax and social security contributions

Taxation of workers

There are various tax relief systems and the employed receive tax deduction of 40% of assessable income up to Bt. 60,000. Single people receive a personal allowance of Bt 30,000. Social security contributions are tax deductible.

Taxation of worker's income

The following tax schedule is applicable to taxable income (assessable income after deductions and allowances).

Annual Taxable Income (Baht)	Tax Rate
0 - 100 000	0%
100 001 - 500 000	10%
500 001 - 1 000 000	20%
1 000 001 - 4 000 000	30%
> 4 000 000	37%

Social security contributions payable by workers

Workers pay social security contributions. For old age pension, the contribution rate is 3%. They also pay 1.5% of earnings for sickness, maternity, invalidity and death benefits and 0.5% of earnings for unemployment insurance scheme. The contribution is based on individual monthly earnings between the floor of Bt 1per month and the ceiling of Bt 15per month. Therefore, total contributions to the SSF are between Bt 83 and Bt 750 per month.

Taxation of pension income

All pension incomes are exempted from taxation. The elderly above 65 who continue working receive old age allowance of Bt 190,000 as a tax allowance.

Social security contributions payable by pensioners

Pensioners do not pay social security contributions.

Pension modelling results: Thailand

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	25.0	37.5	50.0	75.0	83.7
(% average gross earnings)					
Net relative pension level	26.3	39.5	52.6	78.9	88.1
(% net average earnings)					
Gross replacement rate	50.0	50.0	50.0	50.0	41.9
(% individual gross earnings)					
Net replacement rate	52.6	52.6	52.6	52.6	44.0
(% individual net earnings)					
Gross pension wealth	8.7	8.7	8.7	8.7	7.3
(multiple of average gross earnings)	10.2	10.2	10.2	10.2	8.5
Net pension wealth	8.7	8.7	8.7	8.7	7.3
(multiple of average net earnings)	10.2	10.2	10.2	10.2	8.5

Pension modelling results: Thailand

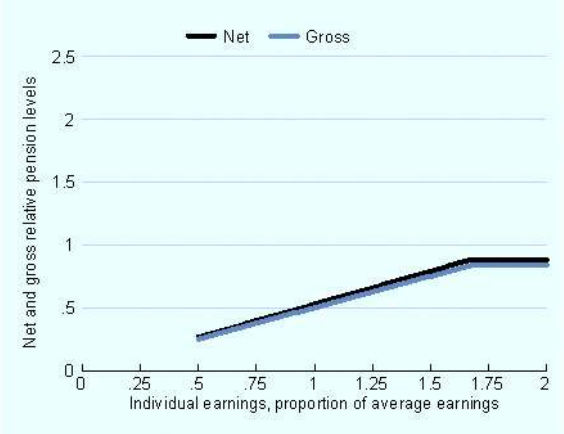
Gross relative pension level



Gross replacement rate



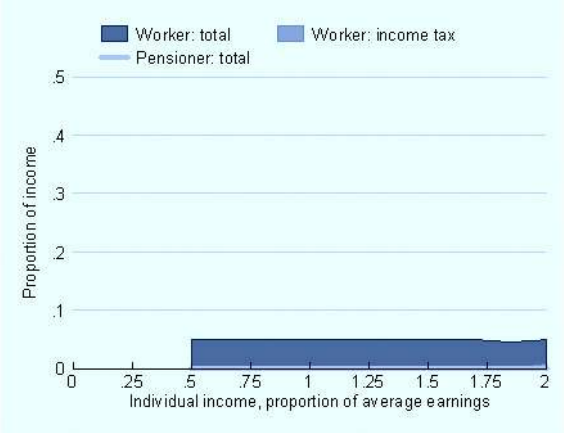
Net and gross relative pension levels



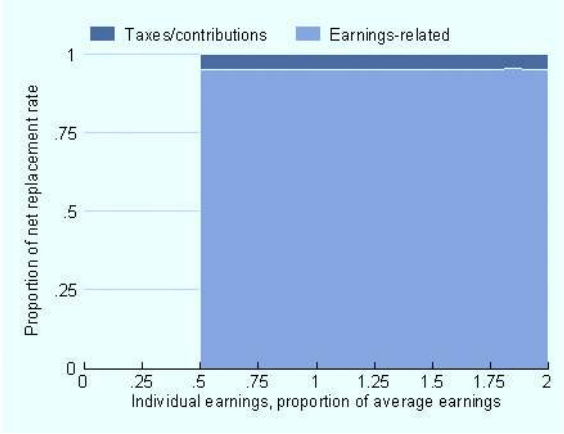
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Vietnam

Vietnam Social Security (VSS) manages and administers social security benefits (including pensions) for both private sector workers and government workers. VSS is a defined benefit scheme.

Average earnings in the local state sector were VND 17.8 million in 2006.

Qualifying conditions

Normal pension age is 60 for men and 55 for women. To receive a monthly pension, minimum of 20 years of contributions is required and a lump sum payment is made for people with shorter contribution periods.

Benefit calculation

Earnings-related

There is no floor or ceilings on pensionable earnings. Pension benefit formulae are different depending on total years of contribution. Up to the 15 years of contribution, the pension accrual rate is 3%, and is then 2% for males and 3% for females each additional year. If contributions have been paid for in excess of 30 years (25 years for women), the retiree can receive an additional lump sum payment of half a month's average salary for each year in excess of the 30/25 years, with a cap of 5 months of average salary (5 times of minimum monthly wage). The model assumes that this lump sum amount is paid as monthly price-indexed pension for life-time. The maximum pension is equal to 75% of the insured's average earnings in the last five years before the pension is first paid. If total contribution years are less than 20, retirees can only receive a lump sum payment of one month's average salary for each year of contribution payment. Pension in payment changes in line with minimum wage which is set to increase at 5% per annum in the long run but the model assumes that it is indexed to average wage growth. The maximum monthly earnings for contribution and benefit calculation purposes is VND 9 million.

Non-standard careers

Early retirement

It is possible to retire and to start claiming the pension at age 55 for men and 50 for women under specific requirements.

Late retirement

It is not possible to start claiming pension after normal pension age. It is possible to combine working and receiving pension.

Personal income tax and social security contributions

Taxation of workers

There are various tax relief systems in Vietnam but they are not relevant to the standard individual (single without a child) used for the model. The personal income tax regulations do not specify the deductibility of social security contributions.

Taxation of worker's income

Tax Rates Applicable to regular Income:

Average Monthly Income (VND million)	Tax Rate
Up to 5	0%
Over 5 up to 15	10%
Over 15 up to 25	20%
Over 25 up to 40	30%
Over 40	40%

Social security contributions payable by workers

Employees in 2006 paid 5% of monthly salary/wage for retirement benefits. From 2010, the contribution rate will increase 1% in every 2 years until it reaches to 8%. Moreover, if the monthly salary/wage, which is based for contribution, is greater than 20 times of the minimum wage, the contribution will be 20 times of the minimum wage.

Taxation of pensioners

There is no additional tax relief for pensioners.

Taxation of pension income

The same taxation rule is applied to pension benefits.

Social security contributions payable by pensioners

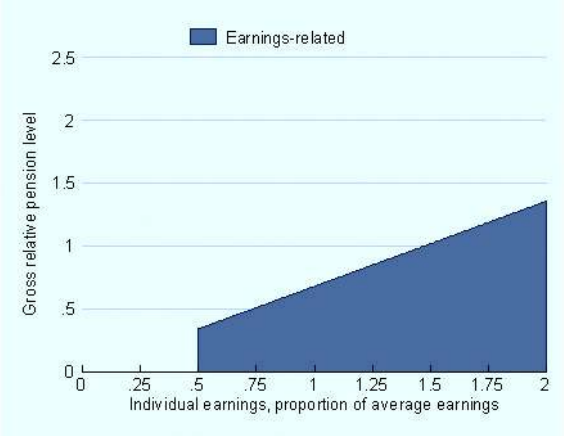
Pensioners do not pay any social security contribution.

Pension modelling results: Vietnam

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	33.9	50.8	67.8	101.7	135.6
(% average gross earnings)	31.2	46.8	62.4	93.7	124.9
Net relative pension level	39.3	57.3	75.2	109.1	141.1
(% net average earnings)	36.4	53.0	69.6	101.6	131.0
Gross replacement rate	67.8	67.8	67.8	67.8	67.8
(% individual gross earnings)	62.4	62.4	62.4	62.4	62.4
Net replacement rate	75.4	74.8	75.2	76.1	77.7
(% individual net earnings)	69.9	69.3	69.6	70.8	72.1
Gross pension wealth	15.1	15.1	15.1	15.1	15.1
(multiple of average gross earnings)	16.9	16.9	16.9	16.9	16.9
Net pension wealth	14.9	14.5	14.3	13.8	13.4
(multiple of average net earnings)	16.7	16.2	16.0	15.6	15.0

Pension modelling results: Vietnam

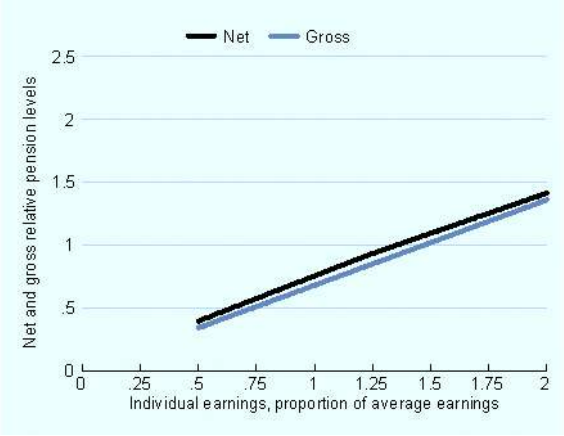
Gross relative pension level



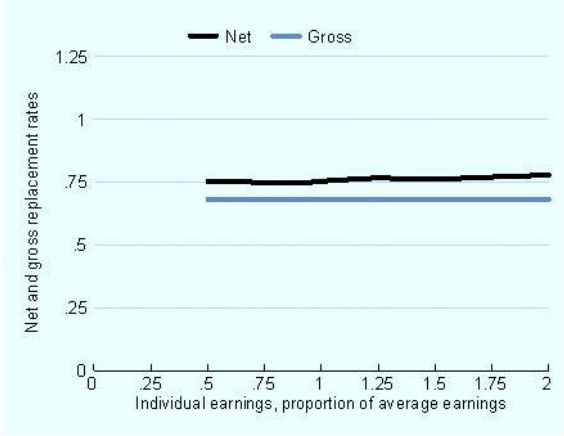
Gross replacement rate



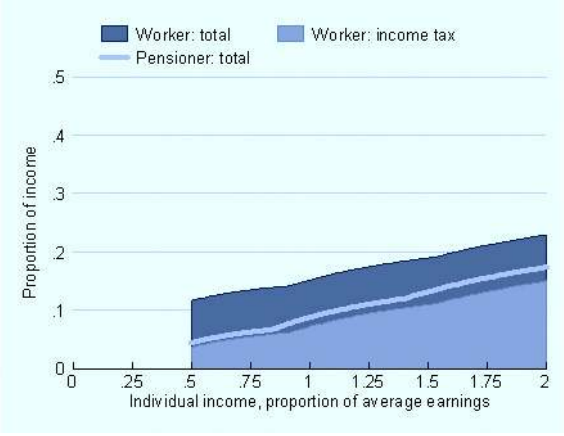
Net and gross relative pension levels



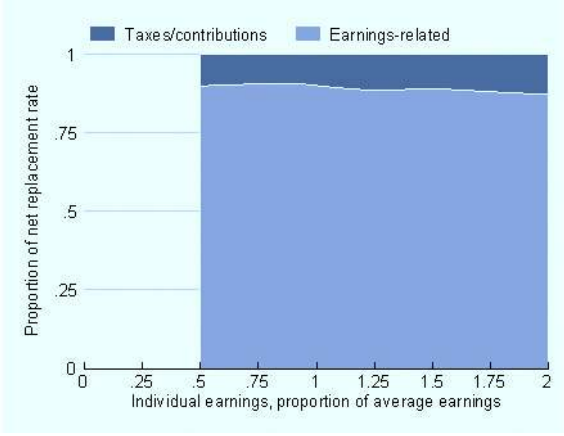
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



India

India's paid workforce in the age range 18-59 years is estimated at 321 million[1]. Of this, 11.53% (37 million) are estimated to be covered under pension. The remaining 284 million do not have any formal social security coverage.

Of the 37 million covered workers, government employees[2] comprise 22 million. They are covered under the civil service defined benefit pension schemes.

The remaining 15 million workers are estimated to be covered under the earnings-related employee pension scheme and defined contribution employee provident fund administered by the Employees Provident Fund Organisation (EPFO)[3] and other employer managed funds.

Employees with monthly earnings[4] of INR 6,500[5] or less at firms with 20 or more members are compulsorily covered by EPFO. Firms not covered under EPFO may run their own pension and provident fund for the benefit of their employees subject to certain regulations. It is estimated that about 5 million formal private sector workforce have some kind of formal coverage outside[6] EPFO.

The wage earning population in industries, factories and establishments are also entitled to lump sum benefit in the form of gratuity under the Payment of Gratuity Act, 1972. Factories, mines, oilfields, plantations, ports, railway companies and shops and commercial establishments having 10 or more employees are covered.

Social assistance is available for the needy elderly above 65 years who do not have any regular means of subsistence from his/her own sources of income. This is in the form of a monthly pension of INR 450 under the National Old Age Pension Scheme (NOAPS) jointly administered by the Central Government and the various State Governments.

The average annual earnings of covered workers is estimated to be INR 154,418 in 2007. The average earnings for government employees is estimated at INR 135,223 (source: Invest India Incomes & Savings Survey 2007)

1) Source: Invest India Incomes & Savings Survey, 2007, IIMS Dataworks. The survey completed in June 2007 comprised a house-listing sample of over a million and personal interviews with nearly 100,000 earners across urban and rural India.
2) All direct and indirect Central and State government employees excluding the armed forces
3) All employers (other than government) with more than twenty employees are covered under the Employees Provident Funds and Miscellaneous Provision Act, 1952 (PF Act). The EPFO is part of the Labour Ministry at the Central Government.
4) Basic + Dearness Allowance
5) The EPF&MP Act, 1952 requires contributions only in respect of covered employees and up to salary of Rs.6500. However, it is a common practice amongst employers to extend the provident fund benefits to all employees and contribute the provident fund contributions on employees' full salary without capping the same at the maximum salary ceiling of Rs.6500 p.m.
6) Employers running their own fund outside of EPFO (known as Excluded Funds) i.e. Coal mine workers, Tea plantation workers, Banking sector and Merchant navy.

Qualifying conditions

Normal pension age for earnings related pension scheme is 58 with minimum of 10 years of contribution and for earnings related provident fund schemes, it is 55 years.

To qualify for gratuity under Payment of Gratuity Act, 1972, an eligible employee has to put in at least five years of service.

Normal pension age for civil service pension scheme is 60 years (62 years for government teachers). A government employee is eligible for pension after completion of 20 years of service.

Benefit calculation

The Employees Provident Fund Act provides three benefits to participants:

Employees Provident Fund Scheme (EPF):

The employee contributes 12%[7] of his monthly PF Salary (Basic + Dearness Allowance) towards this fund and the employer matches this contribution. 3.67% of the Employer's share goes towards the EPF. This combined 15.67% accumulates as a lump sum. The corpus of this scheme earns an administered rate of return every year (For 2007-2008 it was 8.5%). The accumulation with interest is paid back on retirement. However, it must be noted that due to the relaxed withdrawal norms, the actual replacement rate is found to be very low as most of the accumulations are withdrawn during the working age. There is no annuity under the PF and full accumulations are paid on retirement from service after attaining 55 years of age. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

Employees Pension Scheme (EPS):

Of the 12% contribution payable by the employer as mentioned above, 8.33% is diverted to EPS and the Central Government contributes a subsidy of 1.16% of the PF Salary into EPS. This accumulation is used to pay various pension benefits on retirement or early termination. The kind of pension a member gets under the scheme depends upon the age at which he retires and the number of years of eligible services he has rendered.

Monthly pension = (pensionable salary[8] × pensionable service[9])/70

7) If an employee so desires, he can contribute at a rate higher than 12% of his salary. However in this case the employer is not obliged to contribute at such a higher rate.

8) Pensionable salary is the average monthly pay drawn during the contributory period in the span of 12 months preceding the date of exit from the Employees Pension Scheme. If a member was not drawing his full monthly pension during the last 12 months, then pensionable salary is calculated as the average salary of the last 12 months of contributory period for which full pay was drawn. The maximum pensionable salary is limited to Rs.6500. However an employee (a) at the time of joining service or (b) at the time his salary crosses beyond Rs.6500; can exercise an option to have his EPS contribution computed based on higher salary if his employer agrees to contributes 8.33% of this higher salary into the pension fund. In such a case, pensionable salary will be calculated on the basis of the higher actual salary

The maximum possible replacement rate is roughly 50%. To avail maximum benefit, a member would not only need to be a member of the scheme for 35 years, he would also need to opt for the option of contribution at higher salary at the time of joining the scheme. This option cannot be exercised retrospectively. Otherwise, if the worker salary is more than INR 6,500, the pension would be calculated based on INR 6,500 only.

The scheme is poorly funded and it is unlikely that with 8.33% contribution and an additional 1.16% subsidy by the government, it could provide such a high replacement. Within eight years of the scheme, in 2003, the EPS valuation reported a deficit of INR 192,910 million.

Self-employed persons, agricultural workers and cooperatives with less than 50 workers are excluded. A member also has the option to commute[10] his pension or opt for return of capital[11]. A member is entitled to receive pension as soon as he attains the age of 58 years.

Employees Deposit Linked Insurance Scheme (EDLI): In the event of death of an employee, his dependents are paid an insurance linked to the PF accumulation available to his credit. Contributions at the rate of 0.5% of PF salary come only from the employer and are capped at INR 6,500. An important point is that the employer pays all fees, charges, etc. for the administration of this entire plan (over and above the contribution). The accumulated fund is currently not debited with any administration or management costs. Employers are also required to submit information on member movement (joiners, resignations), total contributions, etc. on a monthly and yearly basis.

Payment of Gratuity Act, 1972: Gratuity is computed as 15 days salary for each year of service or part thereof (where a month's salary is determined on the basis of 26 days in a month) subject to a maximum gratuity of Rs. 350,000.

Benefits for government employees

Central government employees who joined service prior to January 1, 2004 are entitled to a defined benefit, final salary index linked pension. The pension benefit computation is done with respect to the mean wage over the last 10 months of employment. The benefit rate is computed as 1/66 for each year of service, subject to a cap of a 50%. The benefit is wage indexed. The price indexation is achieved through wage increase in the dearness allowance component of the wage.

All State government employees also get a similar pension under a defined benefit scheme similar

9) Pensionable service is the period of service for which contributions have been made on his account. In case of members who retire after attaining the age of 58 or after rendering at least 20 years of service the pensionable service is increased by adding a weight of two years.

10) A member is allowed to take a maximum of 1/3rd of his monthly pension as lump sum. The value of commutation would be hundred times the amount of monthly pension the member desires to take away. Thus if a member's monthly pension is INR 600 the maximum amount he can take as commutation is 1/3×600×100. In this case the balance of pension payable on a monthly basis is INR 400.

11) A member can also opt for drawing a reduced pension and avail the facility of return of capital. In this case, In this case the member gets less than the full amount of pension admissible to him and after his death a given lump sum is returned to his nominee.

to the one available to the central government employees.

Central government employees and employees of 19 State governments who have joined service post January 1, 2004 are entitled to a defined contribution system, wherein the employees and employer contribute at a rate of 10% of basic salary plus dearness allowances and dearness pay. The annuity factor is not yet determined. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates.

In addition to pension, all permanent government servants are entitled to gratuity benefits. They are also entitled to General Provident Fund (GPF) which is a non contributory provident fund. The subscriber can choose to contribute anywhere (it should be a whole number) between 6% and 100% of his emoluments.

The government employees are also entitled to deposit linked insurance scheme whereby on the death of a subscriber, the person entitled to receive the amount standing to the credit of the subscriber is paid an additional amount equal to the average balance in the account during the three years immediately preceding the death of such subscriber.

Non-standard careers

Early retirement

Earnings-related pension (EPS) could be claimed earliest from age 50 with 10 years of contribution and the benefits are reduced by 3% per year of early retirement. If a member leaves his job before rendering at least 10 years of service, he is entitled to a withdrawal benefit. The amount he can withdraw is a proportion of his monthly salary at the date of exit from employment. This proportion depends on the number of years of eligible services he has rendered. No pension is payable in cases where there is a break in service before 10 years.

In case of EPF, there are multiple scenarios which allow for early access to the accumulation. Partial withdrawals relate to marriage, housing advance, financing life insurance policy, Illness of members/family members, withdrawals are also permitted one year before retirement etc. In addition to various permitted partial withdrawals, employees can close their account and withdraw the full corpus in case they move from one employer to another or decide to retire early.

No Gratuity can be claimed before five years of service.

In case of government employees, pension, provident fund and gratuity benefits can normally be claimed only at the time of retirement.

Late retirement

It is not possible to start claiming pension after normal pension age.

Personal income tax and social security contributions

Taxation of workers

India follows a financial year beginning April. Given below are the rates applicable for 2007-08.

Annual income from all sources (INR)	Income tax Rates for		Education Cess
	Male below 65 Yrs	Women below 65 Yrs.	
Up to 110,000	Nil	Nil	Nil
110,001 - 145,000	10%	Nil	3%
145,001 - 150,000	10%	10%	3%
150,001 - 195,000	20%	20%	3%
195,001 - 250,000	20%	20%	3%
250,001 and above*	30%	30%	3%

* There is a surcharge @ 10% on incomes above INR 1,000,000.

Taxation of pensioners

Health insurance premium of up to INR 20,000 is deductible for senior citizens over 65 years.

Taxation of pension income

Defined contribution pension is tax exempted. The following tax rules apply to senior citizens over age 65. An education cess @3% is charged on the total tax amount.

Annual income (INR)	Tax rate
Where the total income does not exceed INR 195,000	Nil
Where the total income exceeds INR 195,000 but does not exceed INR 250,000	20% of the amount by which the total income exceeds INR 195,000
Where the total income exceeds INR 250,000	INR 11 000 + 30% of the amount by which the total income exceeds INR 250,000

Social security contributions payable by pensioners

Pensioners do not pay any social security contribution.

For the purpose of this exercise we will consider two possible outcomes:

1) Early withdrawal of 60% of the EPF, no ceiling on employee EPF, salary ceiling of INR 6,500 for computation of employer contribution to EPF and EPS.
2) Early withdrawal of 60% of the EPF, no ceiling on employee EPF, no ceiling on salary for computation of employer contribution to EPF and EPS.

Early withdrawal of 60% of the EPF, no ceiling on employee EPF, salary ceiling of INR 6,500 for computation of employer contribution to EPF and EPS

Pension modelling results: India

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	33.6	37.1	40.4	46.9	53.5
(% average gross earnings)	32.8	36.1	39.0	45.0	51.0
Net relative pension level	38.6	42.7	46.4	54.0	61.5
(% net average earnings)	37.3	41.0	44.4	51.2	58.0
Gross replacement rate	67.1	49.5	40.4	31.3	26.7
(% individual gross earnings)	65.6	48.1	39.0	30.0	25.5
Net replacement rate	76.3	56.2	46.4	38.8	38.2
(% individual net earnings)	74.5	54.6	44.4	35.8	34.7
Gross pension wealth	10.2	7.6	6.2	4.8	4.2
(multiple of average gross earnings)	10.9	8.1	6.6	5.1	4.4
Net pension wealth	10.2	7.6	6.2	4.8	4.2
(multiple of average net earnings)	10.9	8.1	6.6	5.1	4.4

Early withdrawal of 60% of the EPF, no ceiling on employee EPF, no ceiling on salary for computation of employer contribution to EPF and EPS

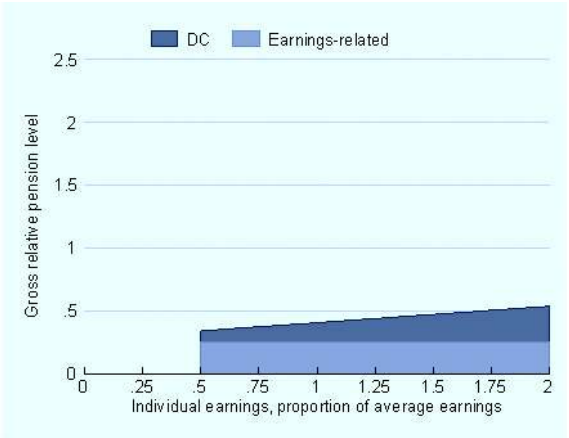
Pension modelling results: India

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	33.6	50.3	67.1	100.7	134.2
(% average gross earnings)	32.8	49.2	65.6	98.4	131.2
Net relative pension level	38.6	57.9	77.2	115.8	154.4
(% net average earnings)	37.3	55.9	74.5	111.8	149.1
Gross replacement rate	67.1	67.1	67.1	67.1	67.1
(% individual gross earnings)	65.6	65.6	65.6	65.6	65.6
Net replacement rate	76.3	76.3	77.2	83.1	95.9
(% individual net earnings)	74.5	74.5	74.5	78.3	89.4
Gross pension wealth	10.2	10.2	10.2	10.2	10.2
(multiple of average gross earnings)	10.9	10.9	10.9	10.9	10.9
Net pension wealth	10.2	10.2	10.2	10.2	10.2
(multiple of average net earnings)	10.9	10.9	10.9	10.9	10.9

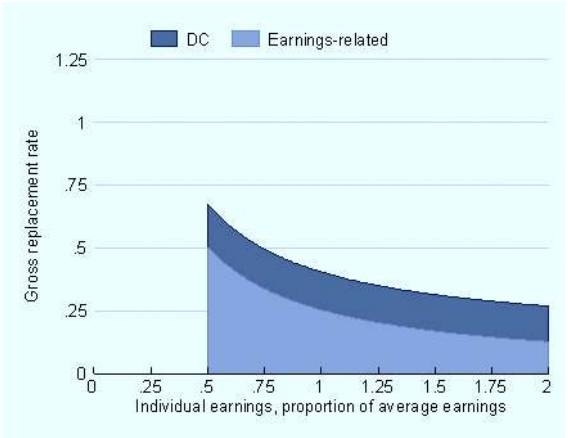
The graphs below are based on scenario 1, namely, early withdrawal of 60% of the EPF, no ceiling on employee EPF, salary ceiling of INR 6,500 for computation of employer contribution to EPF and EPS.

Pension modelling results: India

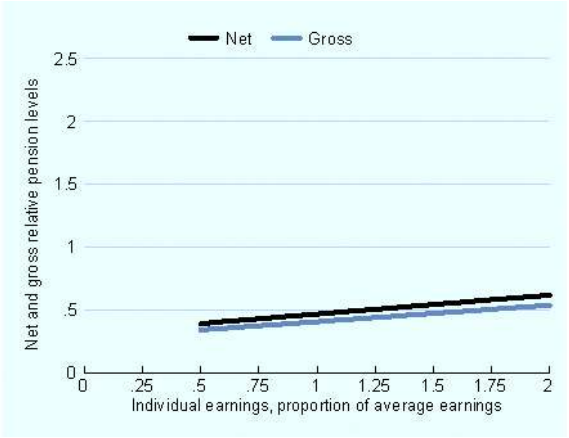
Gross relative pension level



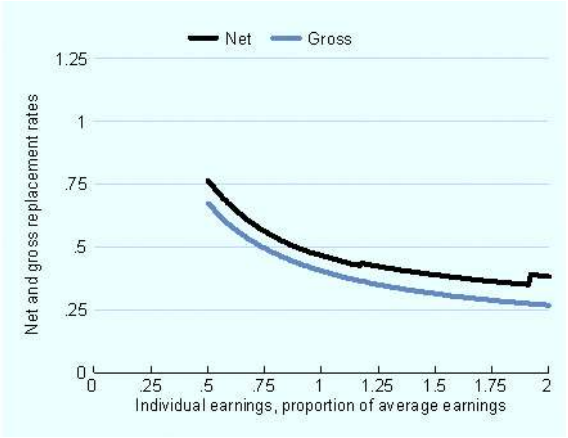
Gross replacement rate



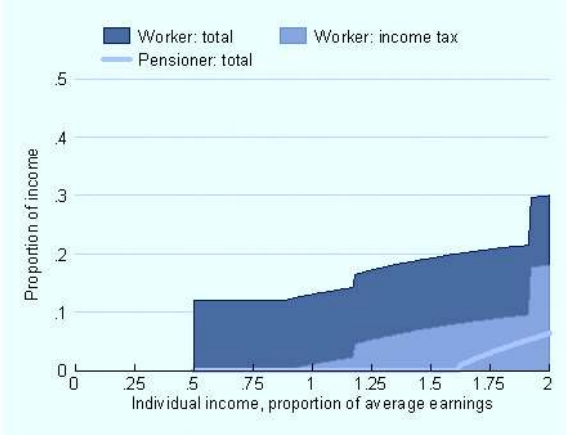
Net and gross relative pension levels



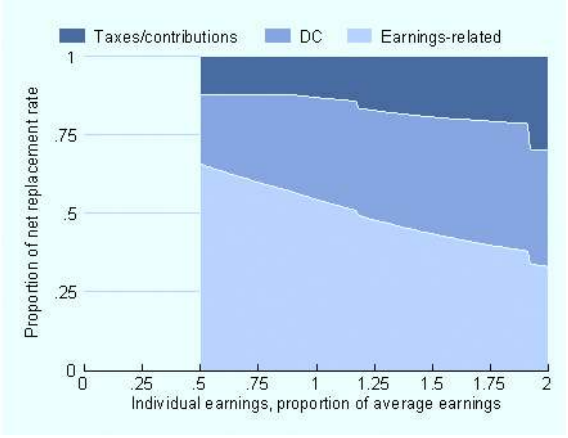
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Pakistan

Workers of an industry or establishment with 10 or more employees (20 or more for which were set up on or after July 2006) are required to be insured under earnings-related pension called employee old age benefit institution scheme.

According to the labour laws, every commercial or industrial organization with 20 or more employees will provide either a lump-sum gratuity benefit (years of service x last drawn gross salary/wages) or defined contribution pension (i.e. registered under Voluntary Pension System (VPS)) or defined contribution scheme (called Provident Fund).

Employers will match employee contribution in case of Provident Fund or VPS to fulfil labour laws requirements.

The model assumes that workers are covered by earnings-related pension (EOBI). Civil servants are covered by earnings-related plan and notional accounts.

The per capita income is PKR.50930 in 2006 (USD847, conversion rate PKR60.13 = USD1). The average civil servant salary used is PKR.115000.

According to the ADB report, the number of insured and pensioners under EOBI are 1.65 million and 170,000 respectively. However, as per last statutory valuation, the number of insured and pensioners under EOBI are 1.52 million and 239,000 respectively.

Qualifying conditions

Normal pension age for earnings-related pension is age 60 for men and 55 for women. The 15 years of contribution is required for both men and women.

Normal pension age for employees is 60 for both men and women. Civil servants could retire any time once minimum service period of 25 years is fulfilled.

Benefit calculation

Earnings-related

Accrual rate is 2% for each year of contribution and an earning base is the average of the last 12 months wage (amended to last drawn wage through Finance Bill 2007). Indexation rule for pension in payment is discretionary and the model assumes price-indexation.

Minimum pension

Minimum pension is Rs 1,300 per month in 2006. Indexation for pension in payment is discretionary and the model assumes price-indexation.

The amount of (both maximum and minimum) insured monthly wage is Rs. 4,000.

Earnings-related pension for civil servants

Accrual rate is 7/300 for each year of service subject to a maximum of 70% (i.e. maximum 30 years service). Earning base is last drawn basic pay plus (in some cases small element of) non-wage pay. Various allowances that are part of the compensation package are not included in the earning base for pensions. The relevant earning measure is about 41% of the total wage. Indexation for pension in payment is discretionary and the model assumes price-indexation. The pensioners are entitled to commute 35% of their gross pension at retirement calculated as per the defined commutation factors.

Non-standard careers

Early retirement

For the private sector employees, the earliest age at which men can start claiming pension is 55 and this is 50 for women. In the civil service pension, individuals could start claiming pension after 25 years of service.

The reduction applied (for EOBI) is 0.5% for each completed month by which age at retirement falls short of 60 (55 years for women). This reduction is also applicable to the minimum pension. However, no reduction is applied to government workers. They are entitled to receive 100% of their accrued pension after 25 years service.

Late retirement

It is possible to start receiving pension after normal pension age. However, any service beyond normal retirement age is not considered for pension benefit.

Personal income tax and social security contributions

Taxation of workers

The amount paid to Workers' welfare fund and Workers' participation fund by the employer is deductible allowance (expense) for employer.

Taxation of worker's income

Following tax rule is applied to workers whose salaried income is not more than 50% of their total taxable income.

Taxable income	Rate of tax
Where taxable income does not exceed Rs. 100 000	0%
Where taxable income exceeds Rs. 100 000 but does not exceed Rs. 150 000	7.5% of the amount exceeding Rs. 100 000
Where taxable income exceeds Rs. 150 000 but does not exceed Rs. 300 000	Rs. 3 750 plus 12.5% of the amount exceeding Rs. 150 000
Where taxable income exceeds Rs. 300 000 but does not exceed Rs. 400 000	Rs. 22 500 plus 20% of the amount exceeding Rs. 300 000
Where taxable income exceeds Rs. 400 000 but does not exceed Rs. 700 000	Rs. 42 500 plus 25% of the amount exceeding Rs. 400 000
Where taxable income exceeds Rs. 700 000	Rs. 117 500 plus 35% of the amount exceeding Rs. 700 000

Social security contributions payable by workers

Employer pays 6% of the insured earnings (Rs. 4,000) and employee pays contribution at the rate of 1% of earnings.

Taxation of pensioners

The additional tax relief for older people is 50% for taxable income less than or equal to Rs. 400,000.

Taxation of pension income

Monthly Pension income of civil servants and pension benefits from approved Pension Fund at Normal Retirement Age is not taxed. However, Pension payments from EOBI are nominal and do not cross taxable limits although they are not exempt by any specific provision.

Social security contributions payable by pensioners

Pensioners do not pay any social security contribution.

Pension modelling results: Pakistan

Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	35.0	52.5	66.0	66.0	66.0
(% average gross earnings)					
Net relative pension level	35.0	52.5	66.0	66.0	66.0
(% net average earnings)					
Gross replacement rate	70.0	70.0	66.0	44.0	33.0
(% individual gross earnings)					
Net replacement rate	70.0	70.0	66.0	44.0	33.0
(% individual net earnings)					
Gross pension wealth	9.9	9.9	9.4	6.2	4.7
(multiple of average gross earnings)	13.3	13.3	12.5	8.3	6.3
Net pension wealth	9.9	9.9	9.4	6.2	4.7
(multiple of average net earnings)	13.3	13.3	12.5	8.3	6.3

Pension modelling results: Pakistan

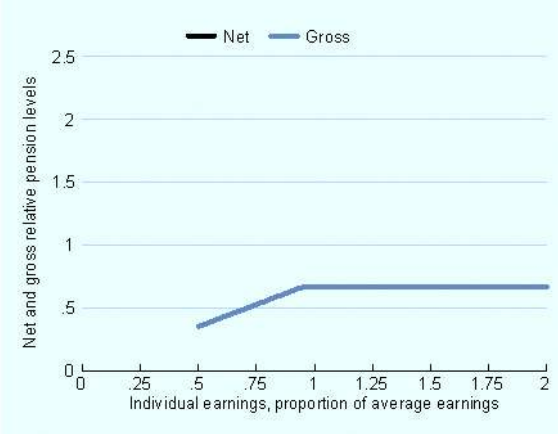
Gross relative pension level



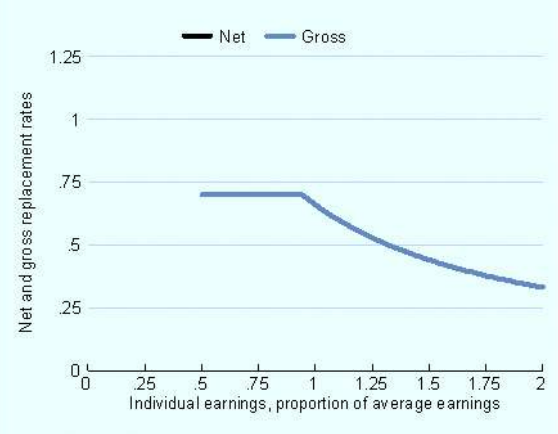
Gross replacement rate



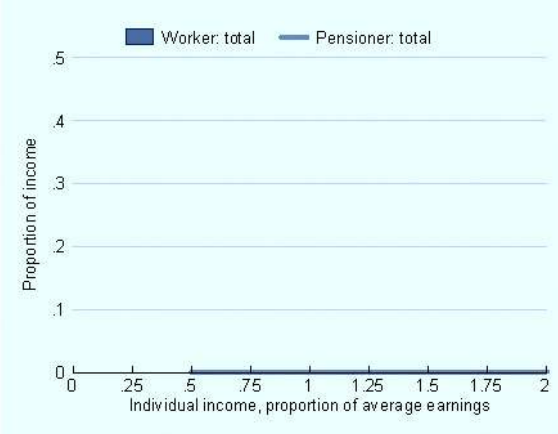
Net and gross relative pension levels



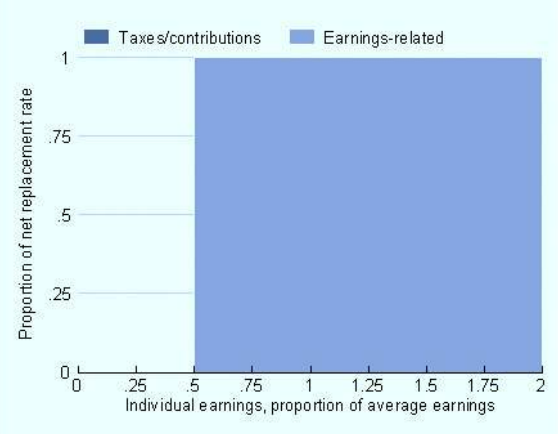
Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate



Sri Lanka

Employees in the formal private sector are covered by defined contribution plans: employee private fund, which is used in the model, employee trust fund or approved private sector provident fund. Civil servants were formally covered by public sector pension scheme, but since 2003 they contribute to defined benefit type social security scheme called contributory pension scheme.

Average income for income receivers is Rs 164,460 in 2006.

Qualifying conditions

Age 55 for men or 50 for women and retire from covered employment. At any age if the company is closed by the government or the employed women who get married.

Normal pension age for public sector workers is 60.

Benefit calculation

Defined-contribution

Employee provident fund is a fully-funded defined-contribution plan and employees contribute 8% of wage and employers pay 12%. The entire lump sum is paid at the time of exit. For comparison with other countries, for replacement rate purposes the pension is shown as a price-indexed annuity based on sex-specific mortality rates. It is possible to withdraw funds from the account every five years.

Non-standard careers

Early retirement

At any age if the government closes the place of employment, if emigrating permanently, or for employed women who marry.

Late retirement

It is not possible to start claiming pension after the normal pension age.

Personal income tax and social security contributions

Taxation of workers

There is no income tax relief and the deduction of work-related expenses.

Taxation of worker's income

Following taxation rules are applied in 2005.

Annual income band (Rs.)	Tax rate
<=300 000	0
300 001-540 000	10%
540 001-780 000	20%
>780 000	30%

Social security contributions payable by workers

Employees' contributions are deductible up to a limit of Rs. 25,000 per annum.

Taxation of pensioners

All purchased annuities of retirees are exempt.

Taxation of pension income

Annual income band (Rs.)	Tax rate
<=2 000 000	0
2 000 001-2 500 000	5%
2 500 001-3 000 000	10%
>3 000 001	15%

Social security contributions payable by pensioners

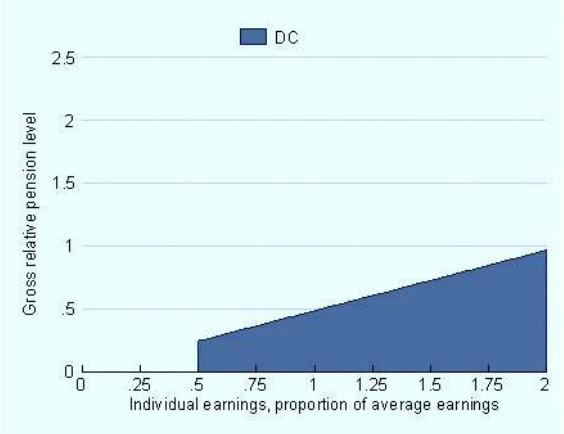
Pensioners do not pay any social security contribution.

Pension modelling results: Sri Lanka

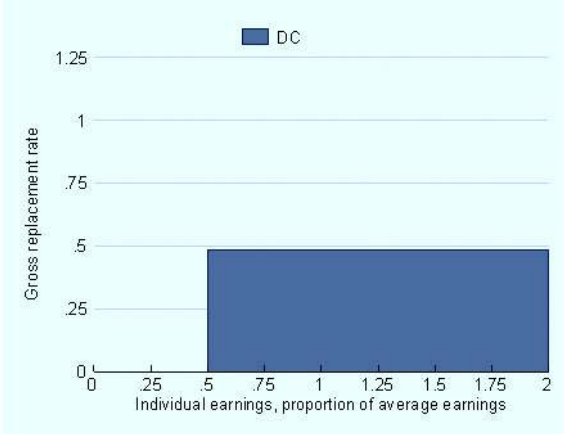
Men	Individual earnings, multiple of average				
Women (where different)	0.5	0.75	1	1.5	2
Gross relative pension level	24.1	36.2	48.3	72.4	96.5
(% average gross earnings)	15.9	23.8	31.8	47.7	63.6
Net relative pension level	26.2	39.3	52.5	78.7	104.9
(% net average earnings)	17.3	25.9	34.6	51.8	69.1
Gross replacement rate	48.3	48.3	48.3	48.3	48.3
(% individual gross earnings)	31.8	31.8	31.8	31.8	31.8
Net replacement rate	52.5	52.5	52.5	52.5	52.5
(% individual net earnings)	34.6	34.6	34.6	34.6	34.6
Gross pension wealth	9.2	9.2	9.2	9.2	9.2
(multiple of average gross earnings)	7.6	7.6	7.6	7.6	7.6
Net pension wealth	9.2	9.2	9.2	9.2	9.2
(multiple of average net earnings)	7.6	7.6	7.6	7.6	7.6

Pension modelling results: Sri Lanka

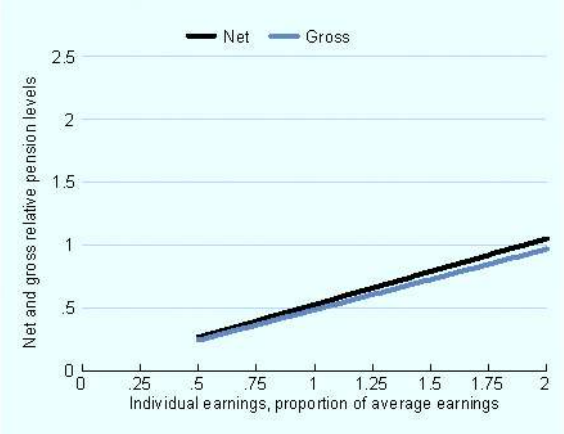
Gross relative pension level



Gross replacement rate



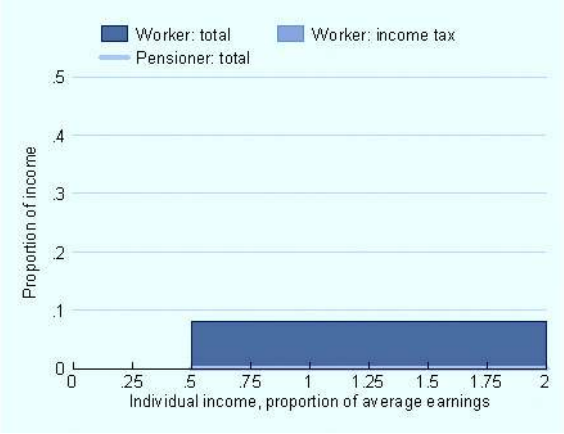
Net and gross relative pension levels



Net and gross replacement rates



Taxes paid by pensioners and workers



Sources of net replacement rate

