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Republic of Indonesia

Technical Report

Actuarial Study on the Reform of the Indonesian BPJS Ketenagakerjaan

Social Protection Department, Geneva
Decent Work Team for East and South East Asia and the Pacific, Bangkok
Country Office for Indonesia and Timor-Leste, Jakarta

January 2017

Republik Indonesia

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Abbreviations and acronyms

ABND	Assessment-Based National Dialogue
BPJS	Badan Penyelenggara Jaminan Sosial
ALM	Assets and Liabilities Management
CSST	Santé et de la Sécurité au Travail
DB	Defined Benefit
DC	Defined Contribution
DWT	Decent Work Team
ESB	End-of-Service Benefit
GAP	General Average Premium
GDP	Gross Domestic Product
ILO	International Labour Office/Organization
IMF	International Monetary Fund
NRA	Normal Retirement Age
PAYG	Pay-As-You-Go
RER	Reserve-to-Expenditure Ratio
ROR	Rate of Return
SOCPRO	Social Protection Department (of the ILO)
TFR	Total Fertility Rate
UN	United Nations
UP	Uang Pesangon (Severance Pay)
UPMK	Uang Penghargaan Masa Kerja (Reward for Working Time)
UPH	Uang Penggantian Hak (Compensation Fee)
WICB	Working Injury Compensation Board
YOI	Yield of Income

Acknowledgements

This actuarial assessment is carried out under the terms of an agreement concluded between the Ministry of Manpower and Transmigration, the Badan Penyelenggara Jaminan Sosial (BPJS) Ketenagakerjaan of Indonesia and the International Labour Office (ILO).

The Director of the ILO Country Office for Indonesia and Timor-Leste, Mr Francesco D'Ovidio, is pleased to submit to the Government of Indonesia, represented by the President Director of the BPJS Ketenagakerjaan, Mr Agus Susanto, the technical report on *Actuarial Study on the Reform of the Indonesian BPJS Ketenagakerjaan*.

The ILO Country Office in Jakarta and the Decent Work Team (DWT) in Bangkok sought the technical collaboration of the Social Protection Department (SOCPRO) to undertake the present study. The SOCPRO has been responsible for the technical implementation of this actuarial assessment with the general policy guidance and supervision of Mr Nuno Cunha Meira Simoes, Senior Social Protection Specialist. Mr Hiroshi Yamabana has been assigned as the senior actuarial policy supervisor along with coordination by Mr Andre Picard, F.S.A., F.C.I.A. and the assistance of Mr Stefan Urban and Mr Alexandre Landry of SOCPRO as well as Gregoire Yameogo of the ILO Country Office in Jakarta. This report is based on the draft submitted by the consulting actuary Mr Georges Langis, F.S.A, F.C.I.A. He visited Indonesia from 11 to 22 August 2014 to gather necessary data for the assessment in collaboration with BPJS staff and held discussions with stakeholders of the scheme, including BPJS senior management staff and representatives of workers' and employers' organisations. Mr Langis received assistance from Ms Ratnawati Muyanto, of the ILO Country Office in Jakarta. Mr Hiroshi Yamabana visited Jakarta in November 2015 to validate the final design of the new scheme and policy reform scenarios to be analysed and presented in this report.

The ILO team wishes to extend its gratitude to all the technical specialists of the Ministry of Manpower and Transmigration, BPJS Ketenagakerjaan and government institutions for their valuable collaboration, especially to all the management and administrative staff of the BPJS Ketenagakerjaan.

The Director General of the ILO wishes to extend his gratitude to the President Director of the BPJS for his trust in the ILO and his compliments to the Minister of Manpower of the Republic of Indonesia.

Executive summary

On 1 July 2015, BPJS Ketenagakerjaan, which replaced the former Jamsostek, started operations as one of the new social security institutions in Indonesia. BPJS Ketenagakerjaan provides work-related accident benefits, old age, invalidity and survivors' pensions, old-age lump sums and death benefits to private sector workers.

This actuarial study assessed the financial sustainability of the new pension system that has been in place since 1 July 2015. The generic ILO pension model was fine-tuned in line with the finalized design, and the policy reform designs of the new pension scheme for the financial assessment.

The base scenario of the projection was in principle carried out in line with the finalized design of the scheme stipulated in the law and regulations (namely government regulation No.45/2015), except for the adjustment factors for maximum insurable earning, maximum and minimum pensions. According to government regulation No. 45/2015, the maximum insurable earnings will be adjusted annually with GDP growth, while the maximum and minimum pension amounts are adjusted with inflation (CPI growth). The base scenario assumes that the three parameters are adjusted with wage growth.

As these factors have substantial long-term consequences regarding the adequacy of pensions, as well as incentives for members to contribute, it is recommended that these changes should be realized as soon as possible.

The new pension scheme will take decades until the pay-as-you-go (PAYG) cost rate, namely the total expenditure as a percentage of total insurable earnings, becomes stable. Projections were carried out to see the financial development of the new scheme by taking into account the scheme design, including the current contribution rate of three per cent.

The main results of the financial projections are as follows:

- The general average premium (GAP), namely a constant contribution rate over the whole projection period of 100 years with the condition of a reserve-to-expenditure ratio of five at the end of the projection period was assessed at 10.2 per cent.
- Annual contributions will meet all annual expenditures consisting of benefits and administrative expenditure until 2043.
- From 2044 until 2049, investment income, in addition to contribution income, will be used to meet annual expenditure. The absolute amount of reserves will grow at a slower pace.
- From 2050 until 2057, total income will no longer meet annual expenditure and the absolute amount of reserves will decrease.
- During 2058, the reserves will be depleted.
- From 2059 onwards, the required annual contribution rate to meet all expenditure will become the PAYG cost rate, for example, 7.1 per cent in 2061, 19.7 per cent in 2093 and 22.5 per cent in 2115.

It is important to bear in mind that the contribution rate of three per cent will need to be increased in the future. In many countries, the contribution rate has been and will be gradually increased, and it is essential to have a plan to gradually reform the pension system, including such reforms as increases of contribution rates and retirement ages.

This actuarial study provides main recommendations as follows:

a. The introduction of a universal pension is recommended. This report assesses the financial magnitude of establishing a universal pension.

b) The level of an old age benefit of the new pension system cannot meet the minimum standards stipulated in ILO Convention 102. As it is desirable that social security benefits should be provided in the form of periodical payments instead of lump sum payments, it is recommended to conduct a study to reallocate the resources of termination benefits stipulated in the Labour Law 13/2013 and/or the provident fund to the new pension scheme.

c) Some modifications to the scheme design are proposed, including provision of free service periods to those near retirement age at the inception of the scheme so that periodical payments should be provided soonest to members.

d) A financing policy, for example, a minimum reserve ratio as well as the ultimate contribution level and the future contribution increase schedules, should be established so that the scheme is continuously reformed. The financing policy should also include reform schedules for parameters, such as the retirement ages and the contribution rate to maintain financial sustainability.

e) A long-term investment policy should be established by paying due attention to the different benefit characteristics of each branch, namely, employment injury benefit, death benefit, provident fund and pension. For the new pension scheme, a long-term investment strategy, taking into account returns and risks of assets, should be adopted in line with risk management principles and international guidelines.

More details of the recommendations are found in Chapter 6 of this report.

Introduction

On 1 July 2015, BPJS Ketenagakerjaan, which replaced the former Jamsostek, started operations as one of the new social security institutions in Indonesia. BPJS Ketenagakerjaan provides provident fund, work-related accident, death and pension benefits.

The ILO was requested by the Ministry of Manpower and BPJS Ketenagakerjaan to support the design, and the actuarial assessment of the four benefits managed by BPJS Ketenagakerjaan.

The ILO assigned Georges Langis, F.S.A, F.C.I.A to conduct the study. Mr Langis has worked in close collaboration with a team from the ILO to produce this study. Mr Langis went to Jakarta during the period of 11 to 22 August 2014. He collected necessary data for the study, held discussions with stakeholders of the scheme and conducted actuarial training with different stakeholders in Indonesia, in collaboration with Ms Ratnawati Muyanto of the ILO Country Office for Indonesia and Timor-Leste in Jakarta.

Hiroshi Yamabana and Andre Picard of the ILO SOCPRO assumed responsibility for the supervision, review and editing of this actuarial review with the assistance of Stefan Urban and Alexandre Landry of SOCPRO and Gregoire Yameogo of the ILO Country Office in Jakarta.

This report consists of six chapters. Chapter 1 presents a brief description of the social security system in Indonesia. Chapter 2 presents the general population as well as macroeconomic frames. Chapter 3 presents demographic and financial projections of old age, invalidity and survivor pensions, and funeral benefits in line with the provisions discussed and proposed at the time of the expert's mission. The section on pensions, including the financial projections, was then updated to include the final provisions in the issued government regulation. Chapter 4 deals with policy considerations and Chapter 5 provides a series of sensitivity analyses. Chapter 6 summarizes the conclusion and recommendations of the report.

1 Social security system in Indonesia

1.1 The Laws

Since the late 90s financial crisis, Indonesia has undertaken numerous actions to extend social protection coverage to the entire population. The right to social security for all was included in the Constitution in 2002. Two important laws were inaugurated, namely, the Law No. 40/2004 on the National Social Security System, or SJSN Law, and the Law No. 24/2011 on Social Security Providers, or BPJS Law.

The SJSN Law is a framework law that stipulates categories of social protection benefits, namely health, employment-related accident, pension, provident fund and death as well as eligibility conditions, the definition of covered salary and the nature of the contributions as a proportion of salary. Administrative and institutional issues such as the composition of the National Social Security Board are also stipulated in the Law.

The BPJS Law was enacted in 2011. The law stipulates two social insurance providers as non-profit public legal entities: BPJS Kesehatan for health benefits and BPJS Ketenagakerjaan for the four other benefits, namely employment-related accident, pension, provident fund and death benefit[1]. BPJS Kesehatan started its operations in 2014, while BPJS Ketenagakerjaan started on 1 July 2015.

While the SJSN Law intends to compulsorily cover all the population of Indonesia, coverage will be gradually expanded by taking into account the contribution capacity of the population. During the transition phase, while work injury, death and old age lump sum benefits are mandatory for all formal and informal economy workers, pension benefit is mandatory only for formal economy workers in enterprises of a certain size. The phasing rules are set by the Presidential regulation Number 109 Year 2013 as follows:

1 BPJS Kesehatan and BPJS Ketenagakerjaan took over the responsibility of PT Askes and PT Jamsostek, two state-own enterprises in charge of social insurance in Indonesia.

Table 1.1 Phasing rules related to the different benefits, formal private sectorl[2]

Size of the firm (# of employees)	Phase I (starting in July 2015)	Phase II
Large (100 and +)	WI, OAP, OALS, D	
Medium (20 – 99)	WI, OAP, OALS, D	
Small (5 – 19)	WI, OALS, D	OAP
Micro (1 – 4)	WI, D	OAP, OALS

WI: Work injury; OAP: Old age pension; OALS: Old age lump sum; D: Death

The Presidential regulation regarding the gradual stages for participation in the workers social security programmes (No.109/2013) stipulates that all formal workers should participate in the pension scheme by 2029.

Table 1.2 Phasing rules related to the different benefits, informal sector

Type	Phase I (starting July 2015)	Phase II
Employers	WI, OALS, D	OAP
Workers	WI, D	OAP, OALS

WI: Work injury; OAP: Old age pension; OALS: Old age lump sum; D: Death

BPJS Kesehatan took over the responsibility of PT Askes. It aims to gradually expand social health care to the entire Indonesian population. BPJS Kesehatan has been in operation since 1 January 2014 and plans to reach universal coverage by 2019.

BPJS Ketenagakerjaan took over the mandates of PT Jamsostek, a provident fund providing protection against work injury, old age and death. Even though the coverage was mandatory, PT Jamsostek covered only around 12 million members, or 30 per cent of formal sector workers. The benefit rights and assets accumulated in PT Jamsostek were transferred and maintained by BPJS Ketenagakerjaan. The BPJS Law defines two categories of assets, namely the BPJS assets to be used to provide new pensions and the social security fund assets to be used to provide retirement lump sums. The social security fund assets included the contributions of the members, the investment and the members' assets transferred from PT Jamsostek. According to Article 52 of the BPJS Law, no cross subsidization is allowed between programmes. This means that the assets transferred to BPJS Ketenagakerjaan should not be used for new pension benefits.

The employees of the government (civil servants), the army and the police were not covered by PT Jamsostek, but respectively by PT Taspen and PT Asabri. In the new social security system, the civil servants, the armed forced and the police will be covered by BPJS Ketenagakerjaan. However,

2 Formal private sector workers are defined as those who are private-sector salaried workers except civil servant. Informal sector workers are defined as non-salaried workers.

the coverage of these workers will be phased in: work injury, old age lump sum and death benefit are to be provided by BPJS Ketenagakerjaan in the first phase starting in 2015, and pension benefit is to be provided in the second phase starting in 2029. Detailed transition rules regarding the integration of the civil servants scheme into the social security pension scheme, for example, benefit calculations, asset transfers and treatment of past contribution periods, are not yet established. Because of the non-availability of the information, this study does not take into account the integration of civil servants, the army and the police with the new pension scheme. Another projection should be carried out to measure the financial impact of scheme integration once details are established.

Some employers adopt voluntary and supplemental private pension plans. The number of participants in private pension plans increased from 2.8 million in 2010 to three million in 2011. Private pension assets increased from Rp 91.17 trillion in 2007 to Rp 141.58 trillion in 2011. The introduction of a new social insurance pension benefit may lead to adjustments of some of these private pension plans.

The Labour Law No. 13/2003 stipulates the following three kinds of benefits an employee is entitled to in case of work termination:

1. Severance pay (UP – Uang Pesangon);
2. Reward for working time (UPMK – Uang Penghargaan Masa Kerja); and
3. Compensation fee (UPH – Uang Penggantian Hak).

The benefit amount is calculated by the monthly wage and the number of years of service. The wage components used for calculating severance pay (UP) are composed of the basic salary and the fix allowances. The UP and UPMK are based on the number of years of service. The UP is nine months of salary for more than eight years of service. The UPMK is ten months of salary for more than 24 years of service. The compensation fee (UPH) is equal to 15% the amount of UP and UPMK.

Under certain conditions, for example, someone having more than 24 years of service at the time of retirement, a lump sum equal to 32.2 months of salary is to be paid according the following formula[1 2]:

$$2 \times UP + UPMK + 15\% \times (2 \times UP + UPMK)$$

$$= (2 \times 9 + 10) \times 1.15 \times \text{monthly salary}$$

$$= 32.2 \times \text{monthly salary}$$

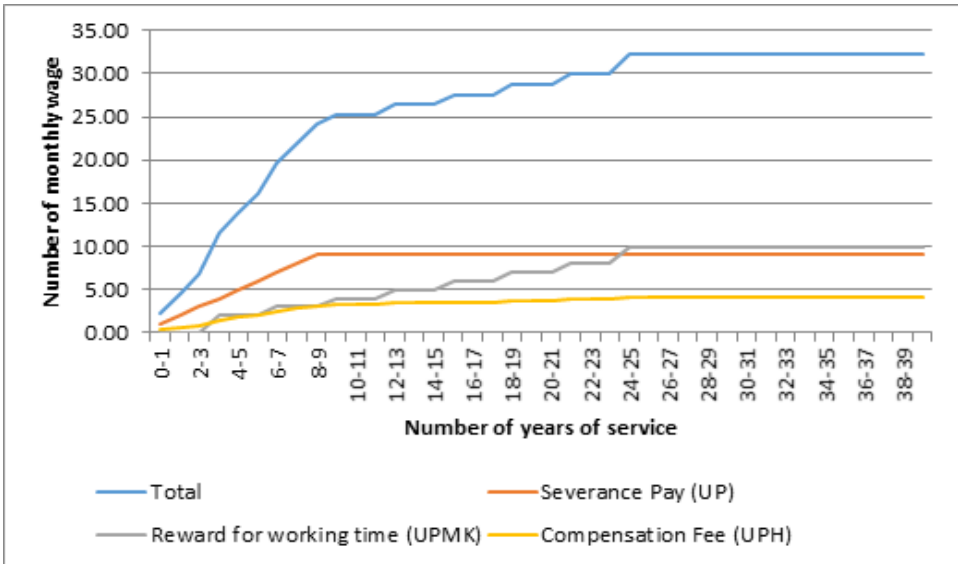
If an employer is contributing to a private pension plan, the total amount is lower and does not include, for example, the UP.

The following figure shows the severance pay scale (UP), reward for working time (UPMK), the compensation fee (UPH) and the total lump sum payment at retirement. An analysis of the income replacement rate is presented in the next section of the report by combining the Labour Law No. 13/2003, provident fund and the new pension.

3 DAYAMANDIRI DHARMAKONSILINDO, Employee Welfare in Indonesia: System, Cost, and Funding

4 More details on the formula to calculate the lump sum payment is provided in table 1.8.

Figure 1.1 Severance pay, compensation fee and reward for working time



1.2 The design of the new scheme

On June 2015, a new statutory social security pension plan under BPJS Ketenagakerjaan (BPJS Employment, formally Jamsostek) was introduced, with the passing of regulation No. 45/2015, In addition, new regulations were passed for the three programmes which existed under the former Jamsostek, namely government regulations No. 44/2015 (work injury and death) and No.46/2015 (old age provident fund). This section presents the design of each benefit under the new BPJS Ketenagakerjaan.

1.2.1 Work injury benefits

The design of the new work injury benefit is similar to that of the previous system. It is important to note that the concept of the return to work program is a part of the regulation with modalities described in Ministry of Manpower regulation No 10/2016.

The following table compares the provisions of the old work injury protection to the new one.

Table 1.3 Comparison of the provisions of the old and new system – employment injury benefit

Provisions	Old system	New system as per government regulation No.44/2015
Covered population	All employees working for an employer having 10 employees or more or with total monthly salary of 1 million rupiah or more	All employees, including expatriates, who have been working for more than 6 months
Contribution rate paid by the employers for wage earners	Five classes of risk with different contribution rates: Class 1: 0.24% of the monthly wage Class 2: 0.54% of the monthly wage Class 3: 0.89% of the monthly wage Class 4: 1.27% of the monthly wage Class 5: 1.74% of the monthly wage	Depending on the level of risk of the working environment, which is evaluated at least once every two years, and fixed as follows: Level 1: (very low risk): 0.24% of the monthly wage Level 2: (low risk): 0.54% of the monthly wage Level 3; (medium risk): 0.89% of the monthly wage Level 4: (high risk): 1.27% of the monthly wage Level 5: (very high risk): 1.74% of the monthly wage
Eligibility	No minimum qualifying period	No modifications
Temporary disability benefit	100% of the insured's wage[6] the first four months; 75% for the next four months; 50% thereafter until rehabilitation or the determination of permanent disability	100% of the insured's wage[6] the first six months; 75% for the following six months; 50% thereafter until rehabilitation or the "declaration" of partial/ permanent disability
Permanent disability benefit	Lump sum payment = 70% of 80 months of the insured person's wage[3] plus 200,000 rupiah a month for 24 months (lump sum)	No modifications
Partial disability	Lump sum = 80 months of insured's wage in the month before the disability began multiplied by the assessed degree of disability according to a schedule in law	No modifications

5 The wage is defined as the wage during the month preceding the disability.

6 The wage is defined as the wage during the month preceding the accident.

Provisions	Old system	New system as per government regulation No.44/2015
Disability pension	N/A	Those who are disabled because of an employment injury are eligible to receive a pension as defined in the new pension scheme (see section 1.2.4)
Medical benefits (treatment, hospital care, dental and eye care, and prostheses)	Subject to a maximum of 12 million rupiah per accident	*No maximum in-kind benefit*
Medical rehabilitation expenses	N/A	Aids (orthoses) and/or tool change (prostheses) with the benchmark price set by the Rehabilitation Centre /Government General Hospital plus 40% of the price and the cost of medical rehabilitation
Death benefit	60% multiplied by 80 multiplied by monthly gross income, subject to a minimum of 14.2 million rupiah	60% multiplied by 80 multiplied by monthly gross income, subject to a minimum of 16.2 million rupiah.
Funeral benefit	2 million rupiah	3 million rupiah
Scholarship benefit for children	N/A	12 million rupiah
Transportation allowance	Up to 1.5 million rupiah depending on the mode of transportation	Up to 2.5 million rupiah depending on the mode of transportation

The work environment risk level is determined based on types of business groups. The SJSN Law has extended the coverage to all employees, wage as well as non-wage workers. The contribution base of a wage worker is their non-tax wage, while that of a non-wage worker is a 12-month average of the nominal wage received periodically. A correspondence table on income and contribution for non-wage earners participating in the JKK programme is part of the government regulation No.44/2015.

Some parameters were modified for temporary disability, medical, death, funeral benefits, disability pensions and transportation allowances, while medical rehabilitation expenses and scholarship benefits for children were newly introduced, with the aim of increasing the overall benefit level. Modifications of the employment injury benefits are also to improve the protection of injured workers. The introduction of a disability pension in the new pension scheme is a considerable improvement, although the benefit level is lower than that specified in the ILO Convention 102.

To better assess the risk of employment injuries, it is recommended that disability pensions due to employment-related accidents and occupational diseases should be measured and financed not by the new pension scheme, but by the work injury scheme. It is essential to separate employment-related injury benefit cost for each risk class to determine each contribution rate for each risk class. It is also recommended to adopt a terminal funding method for permanent disability employment injury benefits so that each generation of employers should fully bear the cost of employment injury benefits falling under their responsibility.

Table 1.4 Minimum standards, ILO Convention 102, Employment Injury Benefits

Type of benefits	Income replacement rate (%)	Qualifying conditions	Benefit duration
Temporary disability	50	No qualifying conditions	Throughout the contingency
Permanent disability	50		
Death of the breadwinner	40		

Although the new regulation does not specify whether the fixed amount of lump sums, for example the amount of funeral benefits, scholarships and transportation allowances, are to be annually increased in line with the cost of living, it is recommended that the amount should be increased in line with inflation and by taking into account the actual reasonable average cost of funerals/education/transportation.

Under the new regulation, the employer is obliged to put in place a preventive mechanism for employment injuries. The mechanism would be set up with BPJS Ketenagakerjaan in accordance with the safety and health conditions guidance. The new regulation also stipulates that every employee suffering from occupational diseases and employment injuries is entitled to the return to work programme, whose details are stipulated in the Ministry of Manpower regulation No 10/2016.

It is well known that occupational injuries considerably affect an individual's social and financial conditions, and the economy as a whole due to the loss of experienced workers. Hence, the implementation of an employment injury system is beneficial to all stakeholders as it is expected to eventually decrease the cost of production and the price of goods and services. In principle, it is the employers' solo obligation to bear the cost of the system.

It is a fundamental right for a worker to work in a safe environment and for a worker who suffers a work injury or illness to have access to rehabilitation and return to work programmes. Prevention activities and the commitment of employers and workers to the early return to work of injured workers have an impact on overall productivity. The new regulation indicates a good step in that direction, introducing aids (orthoses) and tools (prostheses), while covering their benchmark price, set by the Rehabilitation Centre, plus 40% of the cost of medical rehabilitation.

Article 26 of ILO Employment Injury Convention No. 121 reads:

1. Each Member shall, under prescribed conditions:
   a) Take measures to prevent industrial accidents and occupational diseases;
   b) Provide rehabilitation services which are designed to prepare a disabled person wherever possible for the resumption of their previous activity, or, if this is not possible, the most suitable alternative gainful activity, having regard to their aptitude and capacity; and
   c) Take measures to further the placement of disabled persons in suitable employment.
2. Each Member shall, as far as possible, furnish in its reports upon the application of this Convention submitted under Article 22 of the Constitution of the International Labour Organisation, information concerning the frequency and severity of industrial accidents.

One of the keys to the success of a return to work program is to maintain an employment link between the worker and their employer. The longer an employee is outside the workplace, the less likely they will return to work. Early intervention and collaboration of all stakeholders, including trade unions, employers' associations, doctors and the BPJS Ketenagakerjaan, are essential. Appendix 4 provides a summary of the return to work program in Québec.

Advantages of a return to work program are:

- Make communication and contact between employer and employees easier;
- Help employees to continue working;
- Reduce or eliminate wage loss for employees;
- Minimize lost productivity;
- Reduce the cost of retraining new employees;
- In many cases, reduce the risk of re-injury;
- May reduce work injury premiums.

It is also important to reward employers who implement a safe work environment and set up rehabilitation and return to work programs.

It is also well known that the risk of employment injury varies widely among different types of economic activities. For that reason, a structure of risk classification depending on the economic activities is a good practice. It is currently the case in Indonesia as the contribution rates of an employer depend on the company's industrial risk classification. In the current and proposed systems, there are five categories of risk classification, each having a different contribution rate. According to the new regulation, the contribution rate of each category will be revised every two years. The following table summarizes the risk classification and related contribution rates.

Table 1.5 Employment injury, categories of risk and contribution rates

Category	Industrial classification*	Contribution rates**
I	Tailor, clothes, textile, trade, grocery, bank, trade union, zoo, museum, barber, fishery, public servant	0.24%
II	Agriculture, cigarette, laboratory, watch repair, musical instrument industry, sport industry, theatre	0.54%
III	Industries of: forestry, meat, milk, fish, fruit, vegetable bakery, alcohol	0.89%
IV	Kerosene, car workshop, train, bus, airplane reparation	1.27%
V	Mining, Airline	1.74%

* Sample of Industries

** Discussions and studies are under way for the estimation of contribution rates.

In a specific category, some employers perform better or worse than others in terms of the number of cases, the duration and the level of employment injury benefits and the implementation of safe work environment and return to work programs. It will be possible in the future to reward better performers by reducing the contribution rates as a means to promote occupational safety and health practices.

There are different ways to introduce such an individual contribution rating system. It is recommended that future reforms of employment injury benefits should assess the feasibility of an individual contribution rating system that takes into account the performance of the employer on benefit experiences, the prevention activities and the return to work program. Experience rating aims to reduce the number of injuries and their duration and encourages employers to put in place and maintain prevention mechanisms and return to work programs.

Developing a comprehensive rating system that takes into account the employers' risk is, however, out of the scope of the present study.

Under an experience rating system, the contribution rate that an employer pays for a given industrial classification (or risk classification) is adjusted upward or downward depending of the performance of the employer. Rebates and supplements to the contribution rate should reasonably take into account magnitude in the experience variations and the size of the employer. An experience rating system does not apply to very small employers. Large and medium size employers are those that are normally targeted in an experience rating system.

Proponents[7] of experience rating assert that this rating system results in a more equitable distribution of compensation costs among employers, and creates an incentive for prevention programmes and a stimulus for claims management programmes. Opponents argue that experience rating compromises the collective solidarity in social security, encourages employers

7 Employment Injury Insurance in the Republic of Moldova, Options for contribution rates, ILO 2013

to control cost through under-reporting of accidents, diverts attention away from accident prevention to claims cost controls, increases litigation and generates additional administrative expenses.

Experience rating systems require reliable databases pertaining to each employer and advanced tools for the billing of individual employers. They also generate the need for more and/or better trained staff in the administrative body, which entails higher administrative costs for the system. In theory, a more sophisticated system can create better incentives for prevention and an increased number of workers returning to work, although the cost of administering the system is higher. However, if higher administrative costs can be offset by a reduction in the total cost of employment injuries, the experience rating system can be considered appropriate. This trade-off is not automatic and, in order to achieve the desired result, the policy and its implementing strategy need to be carefully designed in view of the country's administrative capacity.

1.2.2 Death benefits

Table 1.6 Comparison of the provisions of the old and new system – death benefits

Provisions	Old system	New system as per government regulation No.44/2015
Covered population	All employees working for an employer having 10 employees or more or with total monthly salary of 1 million rupiah or more	All employees including expatriates who have been working for more than 6 months
Contribution rate	0.3% of the salary	0.3% of the salary for wage workers and 6 800 rupiah per month for non-wage workers
Death benefit	14.2 million rupiah (lump sum) and 0.2 million rupiah for 24 months	16.2 million rupiah (lump sum) and 0.2 million rupiah for 24 months
Funeral benefit	2 million rupiah	3 million rupiah
Children's education scholarship	-	12 million rupiah for children of participants who die after having contributed for at least 5 years.
Adjustment to the benefit	Every two years	No modifications

The SJSN Law has extended the coverage to include all employees. Wage and non-wage workers are included. The contribution amount (0.3%) for a wage worker is based on their non-tax wage and for a non-wage worker a fixed amount of 6,800 rupiah per month.

The provisions under the death benefit scheme have been improved, with death benefit payments totalling 16.2 million rupiah, paid as a lump sum and 0.2 million rupiah, paid for 24 months, and funeral benefits increased to 3 million rupiah. In addition, the scheme also

provides children`s education scholarships at 12 million rupiah for children whose participating parents have contributed for at least five years.

1.2.3 Old age lump sum benefits (savings benefits)

PT Jamsostek was a provident fund that provided old age, disability and death benefits. These benefits continue to be paid under the new scheme run by BPJS Ketenagakerjaan. While some modifications have been made, the contribution rate is unchanged. government regulation No. 46/2015, which was regulating the programme when this study was conducted, has been used as reference. Later, a new regulation (PP No.60/2015) was passed, modifying the conditions upon which workers can withdraw their contributions to the fund.

Table 1.7 Comparison of the provisions of the old and new systems – provident fund (lump sum benefit)

Provisions	Old system	New system as per government regulation No.44/2015
Covered population	All employees working for an employer having 10 employees or more or with total monthly salary of 1 million rupiah or more	All employees, including expatriates, who have been working for more than 6 months. In the transition phase, the provident fund should not apply to employees working for an employer having less than 5 employees.
Contribution rate	Employer's contribution rate: 3.7% Employee's contribution rate: 2.0% Self-employee: 2.0%	No change
Withdrawals	Possible to withdraw the value of the account if someone: • Leaves the employment and is unemployed for at least 1 month (should have contributed for at least 5 years); • Leaves and is now covered by civil servant plan • Leaves Indonesia	Possibility to withdraw 30% of the amount accumulated in the individual account for housing, plus 10% for other miscellaneous purposes after 10 years of contribution
Survivors benefit	Payment of the account (contributions + interest) to the heirs	No change
Disability benefit	Payment of the account (contributions + interest) in case of permanent disability	No change
Old-age benefit	Payment of the account (contributions + interest) at age 56 and over	No change

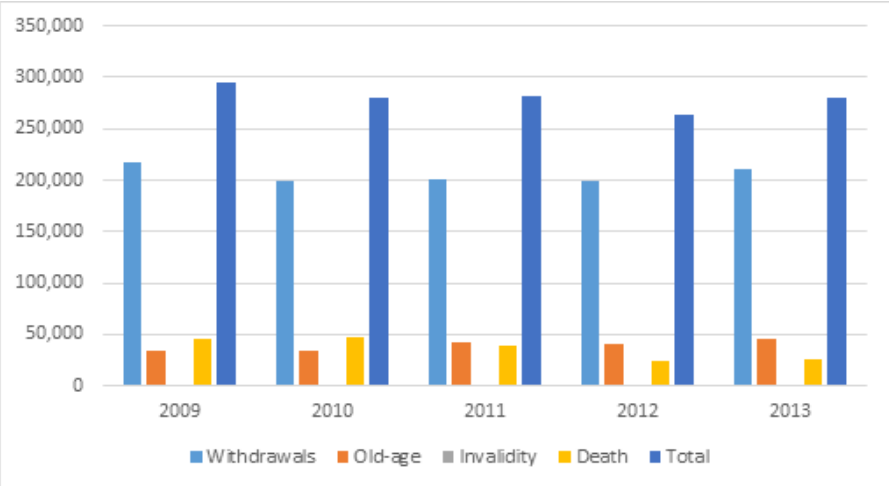
The SJSN Law has extended the coverage to all employees working in enterprises with five and more employees. The ILO Convention No. 102 requires 50% of all employees to be covered, while the ILO higher standard Convention No. 128 requires all workers should be covered; or 75% of the economically active population when the self-employed are covered. In the law, wage and non-wage self-employed workers are included.

The maximum contribution rate for the self-employed is, however, the same as that for salaried workers, namely, 2% of the income. This means that, all other things being equal, they will receive at retirement a lump sum payment that is 65%, namely 2% divided by 5.7%, lower than that for salaried workers. Employees working in enterprises with less than five employees are not covered by the provident fund.

Another important difference between the old and new system is withdrawal from the account. As per government regulation No.46/2015, withdrawals are only allowed for housing, with a maximum withdrawal of 30% of the individual account value, and to a limited extent of 10% of the individual account value for miscellaneous purposes. In the old system, nearly all the money in the accounts was withdrawn before retirement. Around 75 per cent of all the benefits paid by PT Jamsostek, or over 210,000 claims paid in 2013, were withdrawals and thus have left few financial resources at retirement. However, in the regulation, the members would have the right to withdraw a maximum of 40%, namely 30% plus 10%, of the account during the contributory period. This change would result in a better retirement lump sum from the provident fund compared to the old system. However, the change didn't last long and the withdrawal condition was revised in government regulation No.60/2015. In this new regulation, workers can now withdraw 100% of the accumulated amount (workers and employers' contributions) upon retirement, permanent total disability, death, resignation, employment termination or when permanently leaving the country. As this modification will definitely put the fund under pressure, a comprehensive assessment of its impact needs to be conducted. The timing of this study didn't allow us to take into account this modification.

It is recommended to introduce an unemployment insurance scheme equipped with active labour market programmes such as job search facilitations and vocational training. The role of the provident fund as a means to provide income protection in times of old age should be strengthened, including by transferring the fund resources to the new pension scheme which better functions for old age income protection through provisions of periodical payments instead of lump sum payments.

Figure 1.2 Number of benefits paid by PT Jamsostek, 2009 to 2013



Source: BPJS

Accessibility to the accumulated amount in the provident fund, in case of job loss, can be seen as a kind of unemployment benefit. According to the Labour Law (Law No.13/2003), as discussed previously, an employee is entitled to direct benefits from employers once their relationship with the employer ends, namely:

- Severance pay (UP – Uang Pesangon);
- Reward for working time (UPMK – Uang Penghargaan Masa Kerja); and
- Compensation fee (UPH – Uang Penggantian Hak).

The following table summarizes benefits paid for different reasons for employment termination.

While the analysis of benefits in employment terminations is out of the scope of this report, it is worthwhile to mention the importance of coordinating all different programs of social security and labour protection provisions in the analysis and policy formulations for protection at the time of unemployment.

It is also important to bear in mind that the current amount of assets accumulated in each member's provident fund account is transferred to the provident fund in the new system to finance lump sum payments financed out of the new scheme.

Table 1.8 Reasons for work termination and benefits paid under Labour Law 13/2003

Reason for working relation termination	Benefit
Resigned voluntarily	Eligible for UPH
Not passed probation period	No compensation
End of contract	No compensation
Employee broke the working contract	1 time UP, 1 time UPMK, UPH
Resigned because company broke the rules	2 time UP, 1 time UPMK, UPH
Intra-company marriage	1 time UP, 1 time UPMK, UPH
Force majeure	1 time UP, 1 time UPMK, UPH
Lay off due to employer downsizing	2 time UP, 1 time UPMK, UPH
Merger, acquisition but the company does not lay off the employee	1 time UP, 1 time UPMK, UPH
Merger, acquisition but the company keeps the employee	2 time UP, 1 time UPMK, UPH
Company goes bankrupt	1 time UP, 1 time UPMK, UPH
Employee dies	2 time UP, 1 time UPMK, UPH
Employee did not work for 5 days simultaneously	UPH
Employee was sick and experienced injury for 12 months	2 time UP, 2 time UPMK, UPH
Entered pension period	Optional
Employee jailed	1 time UPMK UPH
Employee legally guilty and jailed	1 time UPMK UPH

Source: ILO

1.2.4 Pension benefits

Permanent disability pensions, survivors' pensions and retirement pensions will be provided by the new pension scheme. Key design features include the coverage, eligibility conditions, benefit calculation and contributions.

The following table describes the main provisions of the new pension plan.

Table 1.9 Main provisions of the new pension plan, as per government regulation No.45/2015

Provisions	Description
Covered population	Employees of the formal sector working in medium or large scale enterprises.
Eligibility conditions for the pension	Disability: 15 years of contributions or having contributed at a density of 80%[8] and incident causing permanent total disability occurs after a membership of at least 1 month. Contribution density rate is the ratio between years of contribution divided by years of membership Survivors: 15 years of contributions or having contributed at a density of 80% and a member passed away after a membership of at least 1 year. Pension: 15 years of contributions
Retirement age Pension age	56 until 2019. Increases to 57 in 2019 and then 1 year increment every three years up to a maximum of 65 years old
Pension formula	1% x number of years of service x average career indexed salary.[9]
Lump sum payment	For those not qualifying for old age benefits on retirement with less than 15 years of contribution, they will receive reimbursement of contributions plus interest.
Widow pension	a. 50% of old age pension benefit formula for participant who passed away prior to receiving pension benefit; or b. 50% of disability pension benefit for participant who passed away after receiving pension benefit
Orphan pension	a. 50% of old age pension benefit formula for participant who passed away prior to receiving pension benefit and does not leave widow; or if two children 100% is payable or 50% for the 2 children (25% each) b. 50% of disability pension benefit for participant who passed away after receiving pension benefit and does not leave widow c. 50% of pension benefit for widow or widower if the widow passed away or remarried

8 This seems to be too strict as a measure for precluding contribution evasions and benefit abuses and may be subject to further studies.

9 Past insured earnings are revalorized in line with the average salary increase till the retirement age and the revalorized past insurance earnings are to be used for calculations of newly awarded pensions.

Provisions	Description
	When there are 2 children, each child receives 50% of pension payable until the child dies, marries, works, or reaches the age of 23 years. At most 2 children.
Relative pension (mother, father)	a. 20% of old age pension benefit formula for participant who passed away prior to receiving pension benefit; or b. 20% of disability pension benefit for participant who passed away after receiving pension benefit Payable to the parent of a participant who dies before retirement and is not married and has no children. The pension ends when the parent passes away. Limited to 1 parent.
Contribution rate	3% (employer 2% and worker 1%). To be re-evaluated at least every three years and gradual increase to 8%. No clear schedule indicated.
Maximum monthly Salary (Ceiling)	Highest monthly wage used as a basis to calculate the pension benefit for 2015 is 7 million rupiah. Adjusted to annual GDP (growth rate) of the previous year. Monthly wage (basic salary and fixed allowance/benefit) is used as a basis for the calculation of contribution. The ceiling refers to the same wage.
Maximum annual Pension	3.6 million rupiah per month, adjusted annually based on the inflation rate (CPI) in the previous year.
Minimum monthly Pension	300 000 rupiah per month, adjusted annually based on the inflation rate (CPI) in the previous year.
Adjustment to pensions in payment	100% of inflation (CPI)

Only employees in the formal sector working for medium and large scale enterprises are covered under the new scheme. Civil servants, military and police workers will remain in their current plan until 2029 and join the new scheme thereafter. As not all employees are covered by the new pension scheme, the scheme is not considered as providing universal protection.

The new old age, disability and survivors benefits meet the requirements of the ILO Convention No. 102 in terms of coverage, eligibility conditions and duration of benefits. However, the income replacement level of the old age pension does not satisfy the minimum replacement rate of 40% after 30 years of contributions as stipulated in ILO Convention 102. The new pension plan provides only 30 per cent income replacement after 30 years of contribution. It is also unclear if after reaching 15 years of contribution, the disability and the survivors' pensions meet the requirements of the ILO Convention 102 since a contributor with 15 contributing years receives a pension of 15% of the reference salary, subject to the minimum pension.

Table 1.10 ILO Convention No. 102, old age, disability and survivors benefits, minimum replacement level

Type of benefits	Income replacement rate (%)	A standard beneficiary and contribution years	Duration of benefits
Old-age	40	Man with wife and two children 30 years	Lifetime
Disability	40	Man with wife and two children 15 years	Lifetime or until old age pension is paid
Survivors	40	Widow with two children 15 years	Widow(er): lifetime, until remarriage, Orphan: attainment of a certain age, e.g. end of education

It is recommended that some parameters should be annually adjusted differently: for example, maximum pensions should be adjusted in line with the average wage increase instead of inflation (CPI increase). This is important to maintain the replacement level in an appropriate manner and is discussed in more detail in the following chapters.

The proposed retirement age of 56 is planned to be gradually increased up to 65, with an increase to 57 in 2019 and further increases by one year every three years until it reaches 65. Planning the beginning of an increase in retirement is a good practice as it gives the people and society ample time to adapt to the inevitable changes of the future retirement age increase. The sustainability and benefit adequacy of this new pension system is discussed in the following chapters of this report.

1.3 Tentative estimates of the total income replacement rate of the new old-age pension system

Before the introduction of the new pension scheme, the following were major income sources after retirement:

- Income from the provident fund;
- Severance pay, compensation fees and reward for working time stipulated in the Labour Law;
- Income from private pension plans; and
- Income from private savings.

The fifth source of retirement income, namely old age pensions from BPJS Ketenagakerjaan, was added as of 1 July 2015.

This section deals with tentative estimates of the total income replacement rate by taking into account all these major income sources after retirement by converting provident fund lump sums into periodical payments based on different assumptions. This exercise is to have an idea of the potential income replacement rate of the old age income protection system and not to verify if the benefits are all satisfying the ILO Convention No. 102. The Convention requires that old age pensions should be paid in the form of periodical payments throughout the life of the retired, excluding lump sum benefits. However, this exercise could provide some insights to reallocate money from the lump sum components of the provident and provisions in the Labour Law to periodically benefit components of the new pension scheme.

In the following estimates, it is assumed that:

- The annual accrual rate of the new pension plan is 1% per year;
- The salary of the workers increases at the same rate as the average salary;
- The contribution rate of the provident fund is 5.7%;
- The individual takes their retirement at age 56;
- The contribution period is 30 years and the individual has accumulated 30 years of service on retirement;
- At the moment of retirement, income from the provident fund and the Labour Law are commuted to an annuity for comparison purposes;
- The inflation rate is 4.5%;
- Estimates have been performed according to scenarios of different real rates of returns on assets and different real salary increase rates.

The following table summarizes the results of the estimates. It should be noted that the replacement level is sensitive to the relation between the real salary increase and the real rate of return on assets, and hence cannot be guaranteed beforehand.

Table 1.11 Estimated income replacement level by combining the provided fund, Labour Law provisions and pensions, for a male, retirement age at 56 with 30 years of service

Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	51	55	61	67	75
3	50	54	59	65	71
4	49	53	57	62	68
5	48	52	56	60	66
6	48	51	55	59	64

Table 1.11 shows that the estimated total income replacement rate is higher than 40 per cent. In the case women, the estimated income replacement rate is slightly lower than that of men, but still more than 40 per cent[10].

Table 1.12 shows the case of a man who retired at age 60 with 35 years of services. The minimum replacement rate is increased from 48 per cent in Table 1.11 to 55 per cent in Table 1.12. Each source of income has contributed in each different degree to the increase in the income replacement level.

Table 1.12 Estimated income replacement level by combining the provided fund, Labour Law provisions and pensions, for a male, retirement age at 60 with 35 years of services

Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	60	65	72	80	91
3	58	63	69	76	85
4	57	61	66	72	80
5	56	60	64	70	76
6	55	59	63	67	73

The following tables show the breakdown of the income replacement level of each source of income for the two examples presented above. The new defined benefit (DB) pension plan provides the highest income replacement rate among all plans and in principle provides a stable source of income after retirement. Variations of the income replacement rate of the provident fund are significantly dependent on the combination of different assumptions of real rate of return on assets and real rate of increase in salaries. The income replacement level of the provident fund lies between 5 and 25 per cent, based on the same contribution rate of 5.7 per cent.

Compared to the provident fund, the benefit provided under the Labour Law is more stable since neither the real salary increase nor the return on investment does not influence the level of lump sums in relation to the salary at the time of retirement, but the rate of return on investment would influence the replacement level due to a different return on the lump sum amount during the retirement period. Only the number of years of service and the way salaries evolve affect the benefit level.

This example does not illustrate the longevity risk. If life expectancy increases more in the future than anticipated, it will cost more to buy an annuity and the level of income replacement will go down. In a DB pension scheme, the income replacement will not decrease unless additional costs due to a higher life expectancy are neutralized by a decrease in the benefits offered. In a defined contribution (DC) scheme, if life expectancy continues to increase, people will face a higher risk of not having enough money after their retirement.

10 The difference in life expectancy at age 56 between a man and a woman is about 2.5 years.

Table 1.13 Breakdown of the estimated income replacement level for different segments of provisions, namely the provident fund, Labour Law provisions and pensions, for a male, retirement age at 56 with 30 years of service

Labour Law

Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	13	14	16	18	20
3	13	14	16	18	20
4	13	14	16	18	20
5	13	14	16	18	20
6	13	14	16	18	20

Provident fund

Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	8	11	15	19	25
3	7	10	12	16	21
4	6	8	11	14	18
5	6	7	9	12	16
6	5	6	8	11	14

Pension benefits

Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	30	30	30	30	30
3	30	30	30	30	30
4	30	30	30	30	30
5	30	30	30	30	30
6	30	30	30	30	30

Total

Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	51	55	61	67	75
3	50	54	59	65	71
4	49	53	57	62	68
5	48	52	56	60	66
6	48	51	55	59	64

*Sums may not add up due to rounding.

A comparison between tables 1.13 and 1.14 shows the impact on the income replacement level of contributing five years more to a pension system. For a DB plan, it is relatively straightforward. Five additional years of service increases the affect directly on the pension. The impact on the provident fund is more significant in some cases. For example, with a real salary increase and a return on assets of both 3 per cent, the income replacement rate increases by 20 per cent (from 10 per cent to 12 per cent) compared to the change in the DB plan where the increase is 17 per cent (from 30 per cent to 35 per cent).

Table 1.14 Simulation, income replacement level according the provident fund, Labour Law and the pension benefit, male, retirement age at 60 with 35 years of service

Labour Law					
Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	14	16	18	20	21
3	14	16	18	20	21
4	14	16	18	20	21
5	14	16	18	20	21
6	14	16	18	20	21

Provident fund					
Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	11	14	19	26	35
3	9	12	16	21	29
4	8	10	14	18	24
5	7	9	12	15	20
6	6	8	10	13	17

Pension benefits					
Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	35	35	35	35	35
3	35	35	35	35	35
4	35	35	35	35	35
5	35	35	35	35	35
6	35	35	35	35	35

Total					
Real salary increase (%)	Real return on assets (%)				
	2	3	4	5	6
2	60	65	72	80	91
3	58	63	69	76	85
4	57	61	66	72	80
5	56	60	64	70	76
6	55	59	63	67	73

*Sums may not add up due to rounding.

The tables also give us an insight concerning the cost to finance the benefits provided under the Labour Law. If the annual real salary increase is 4 per cent and the rate of return on assets is the same, with a 5.7 per cent contribution rate, it is possible to provide 11 per cent of the income under the provident fund, while the cost to provide 16 per cent of the income under the Labour Law provision is 8.3 per cent (16/11 x 5.7) if financed the same way as the provident fund (over 30 years for example).

This exercise suggests that reallocating funds from the cost of the Labour Law 13/2013 benefits and the provident fund to the new pension scheme would allow the system to provide higher periodical benefits payments, meeting ILO standards for pension systems.

Under the proposed pension system, by choosing a partially funded financing system, each generation is partly responsible for the payment of pensions for previous generations: redistribution takes place not only inside each generation but also among generations. It is important to make sure that the cost will be bearable for future generations. Under the Labour Law, employers are fully liable for paying employment termination benefits and those liabilities should be incorporated in their annual financial statements. Because benefits are to be financed out of book reserves of each employer, workers are at risk of not being able to recover the complete amount of termination benefits if an employer is bankrupt. In order to better protect the workers from such situations, it is recommended that the new DB benefit assumes this function or that well-funded and designed private pension plans replace the employers' direct compensation schemes. It is important to bear in mind that the ageing population will put more financial pressure on employers to directly finance termination benefits.

The current proposed system does not meet ILO standards in terms of coverage and types of benefits to be paid. There is room to reallocate some resources to a more simple and efficient way that satisfies the requirements of the ILO Convention.

It is also important to understand that the majority of workers will not reach a 30-year contribution period by the retirement age. Following the provisions of the government regulation No.60/2015 regarding the conditions of the funds withdrawal by participants, many people will use their provident fund in case of unemployment and that will lead to decreased retirement income. It is therefore important that more comprehensive reforms take place in the future on old age income security and income security in the case of unemployment.

1.4 Coverage

The SJSN Law has extended the coverage to include all employees, including wage and non-wage (self-employed) workers, except for the pension scheme (which is currently targeting workers from medium and large formal sector companies. For the provident fund, the maximum contribution rate for the self-employed person is, however, the same as for the salary employee, namely 2% of income. This means that, all other things being equal, they will receive on retirement a lump sum that is 65% (= 3.7% / 5.7%) lower than for salaried workers. Employees working for employers having less than five employees are currently not covered by the provident fund. In order to reach the objective of universal coverage, a clear plan to progressively phase in these categories of workers and provide them with an adequate level of protection needs to be adopted and implemented.

At the 100th Session of the International Labour Conference in 2011, a strategy on the extension of social protection was adopted by ILO members. The goal was to ensure universal access to essential health care and income security in line with the Social Protection Floors Recommendation (No. 202), which was adopted the following year (2012). The social protection floor should be guaranteed and defined at the national level in order to alleviate or prevent poverty, vulnerability and social exclusion. These guarantees should be defined in national laws and regulations and should ensure at a minimum that, over the life cycle, all in need (children, people of working age and old age) have access to essential health care and basic income security. National social protection floors should comprise at least the following four social security guarantees:

1. Access to essential health care, including maternity care;
2. Basic income security for children, providing access to nutrition, education, care and any other necessary goods and services;
3. Basic income security for persons of active age who are unable to earn sufficient income, in particular in cases of sickness, unemployment, maternity and disability; and
4. Basic income security for older persons.

A social protection assessment-based national dialogue (ABND) exercise has been carried out in many countries[11] including Indonesia[12]. In Indonesia, support from the relevant ILO stakeholders of the national social protection system and other development partners was engaged to assess the social protection situation in the country, identify policy gaps and implementation issues, and draw appropriate policy recommendations for the achievement of a comprehensive social protection floor in Indonesia.

The main recommendations for the elderly were:

- To extend existing pension schemes to greater segments of the population or introduce a universal social pension;
- To increase benefit levels of existing old age allowance; or
- To index benefits on inflation or poverty line.

11 Cambodia, Indonesia, Thailand, Viet Nam

12 Valérie Schmitt and Rachael Chadwick, International Social security Review, ISSA

As will be further elaborated in Chapter 2, Indonesian society will age considerably in the coming years. The population aged 60 and over was 20.8 million in 2014, (8.3 per cent of the total population), and it is expected to increase to more than 80 million in 50 years, which would be around 25 per cent of the population. Making sure that Indonesian citizens are going to receive adequate old age benefits should be addressed today and should at least be part of a reform process on pensions. Relevant reform options should be part of the discussions that are taking place on old age benefits. The introduction of universal coverage should not stand alone, but be part of the entire retirement system with better integration and coordination.

The inexistence of a minimum floor of income protection for a large part of the population, and the low replacement rates for new pensioners in the coming years (one should bear in mind that it will take 40 years before the new pension plan reaches maturity), raises questions concerning the adequacy of retirement protection. Even if more and more people receive pension payments, there is a risk that a large part of the population will receive no old age benefits. Only those who worked and meet the eligibility conditions, namely a 15-year minimum contribution period, will receive pensions.

According to Priebe and Howell[13], in 2012, there was 12.65 per cent of people aged 60 and considered poor comparative to 11.95 per cent for the non-elderly population. The poverty rate also tends to increase with age, reaching 15.42 per cent for people aged 75 and over. The poverty line by month in 2013 was 289,042 rupiah in urban areas and 253,273 rupiah in rural areas.

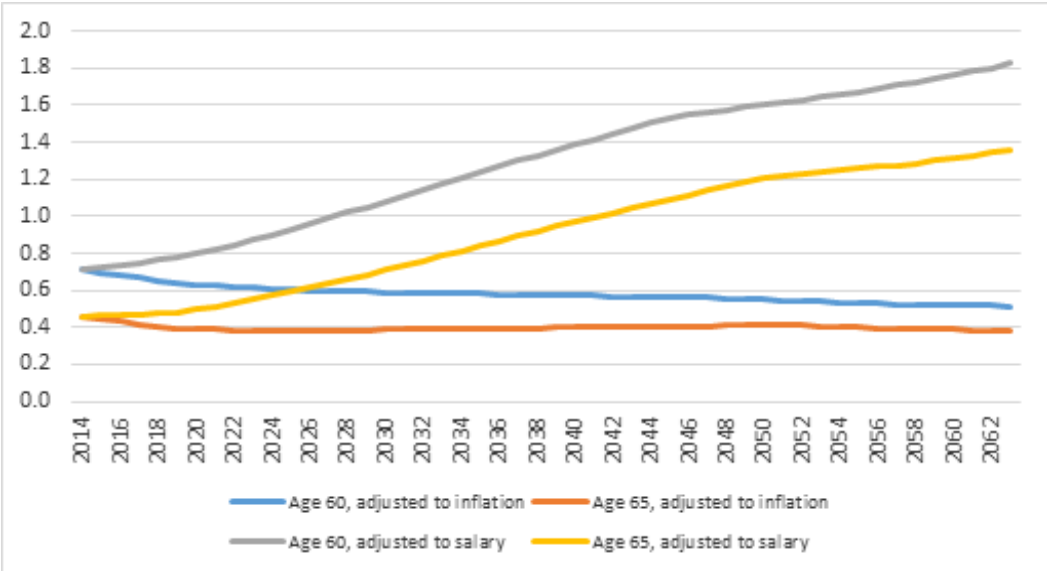
The following exercise does not intend to provide solutions or recommendations concerning a particular level of the universal pension, but to demonstrate the magnitude of the cost for implementing a universal pension. The universal pension is, in general, provided to all people over a certain age, for example, between 60 and 65. People would receive this benefit as well as other benefits such as those provided by the social security pension scheme and private pension plans. This universal pension is also a way to diversify the risk from an individual perspective since the total amount of the pension would no longer be tied to the labour force eligibility conditions, but to the criteria of residency. This kind of universal pension reduces the impact of a low retirement pension due to frequent unemployment during one's career. The following table shows the cost of providing a universal benefit according to different scenarios:

- Scenario 1: Universal pension provided to all people aged 60 and over. The initial amount is the 2014 poverty line adjusted each year according to the inflation rate;
- Scenario 2: Universal pension provided to all people aged 65 and over. The initial amount is the 2014 poverty line adjusted each year according to the inflation rate;
- Scenario 3: Universal pension provided to all people aged 60 and over. The initial amount is the 2014 poverty line adjusted each year according to the increase in salary;
- Scenario 4: Universal pension provided to all people aged 65 and over. The initial amount is the 2014 poverty line adjusted each year according to the increase in salary.

According to these scenarios, the cost to provide a universal pension ranges from 0.5 per cent to 0.7 per cent of the GDP in 2014 and from 0.4 per cent to 1.8 per cent of GDP fifty years later.

13 Old age poverty in Indonesia: Empirical evidence and Policy Options, Australian Aid, March 2014

Figure 1.3 Cost of providing universal pension in per cent of GDP



1.5 Statement of income, assets and investment policy

1.5.1 Analysis of the experience

In January 2014, the former Jamsostek was transformed to BPJS Ketenagakerjaan. This section gives an overview of the financial statements of Jamsostek concerning the provident fund, work injury and death benefits. The health benefits are excluded from this section since these benefits are not part of the study.

Table 1.15 Summary of contribution income and benefits expenditure, Jamsostek, 2011 to 2013, (in billion rupiah)

	2011	2012	2013
Workers injury			
Contributions income	1 562	1 732	2 365
Benefits expenditure	499	507	563
Increase in technical reserve[14]	1 018	1 002	1 897
Surplus (deficit) before investment income and operating expenses	45	223	(96)
Death benefit			
Contributions income	729	812	1 095
Benefits expenditure	275	357	407
Increase in technical reserve	219	249	85
Surplus (deficit) before investment income and operating expenses	235	206	604

14 Technical reserves are reserves allocated to cover possible loss due to payment of non-JHT benefits in excess of contribution received.

	2011	2012	2013
Provident fund			
Contributions income[15]	13 859	15 431	20 814
Benefits expenditure	8 641	9 719	10 704
Surplus (deficit) before investment income and operating expenses	5 219	5 712	10 110

It is difficult to have a clear picture of the performance of each branch since operating expenses and investment expenses are not allocated to each branch. As the BPJS Law does not allow any cross subsidization between each branch, financial statements separated by each branch should be produced in the future.

Over the three-year period, the ratio of benefits over contributions was on average 28% and 39%, respectively, for employment injury benefits and death benefits. Although it is not the objective of this report to present a complete analysis of the financial statements of Jamsostek, the increase in the technical reserve seems substantial in both death and employment injury benefits. In the financial statements, it is written that, in December 2013, 8,278 billion rupiah and 2,407 billion rupiah were held as liabilities, respectively, for employment injury benefits and death benefits. Together, these amounts represent 7.4% of all the participant liabilities.

While operating expenditure cannot be separated by each branch, an overview is shown in the next table. On average, over the three-year period, the operating expenses represented about 11 per cent of the contributions income. This proportion is expected to decrease in the future because in the new pension system, more people are expected to become members and the scheme administration is expected to benefit from economies of scale.

Table 1.16 Summary* of total contributions income, operating expenses, Jamsostek, 2011 to 2013, (in billion rupiah)

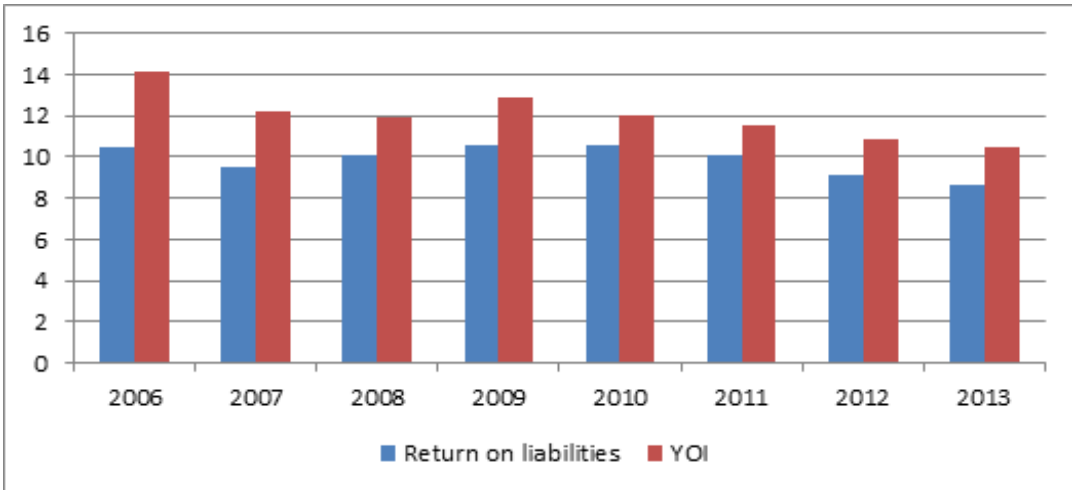
	2011	2012	2013
Total contributions	16 788	20 369	26 924
Total operating expenditure	2 169	2 088	2 758
Ratio of operating expenses to contributions (%)	12.9	10.2	10.2

* This table includes all branches, including health

15 Estimation by the author.

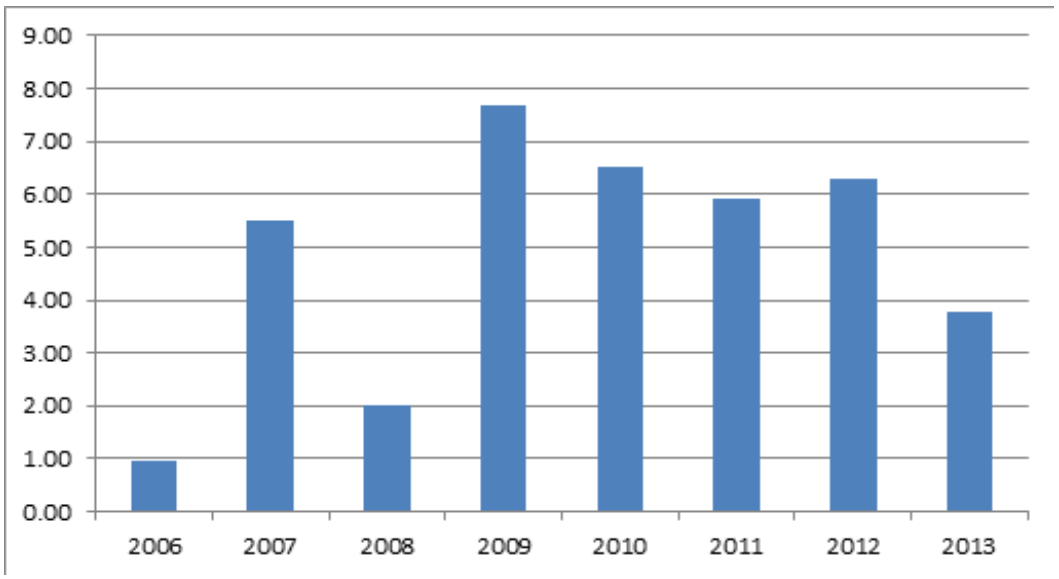
The following table presents the return on individual savings in the provident fund over the last eight years, compared with the gross yield of income (YOI) that is earned on all Jamsostek assets. The YOI is 2 per cent higher than the return earned on the individual savings of the members.

Figure 1.4 Return on the liabilities and gross yield of income, Jamsostek, 2006 to 2013, per cent



The real return on assets (nominal return less the inflation rate) considerably affects the level of income replacement at the time of retirement. Over the period of the last eight years, the real return on individual savings was on average 4.8 per cent.

Figure 1.5 Real rate of return, Jamsostek, 2006 to 2013, per cent



Achieving a good return on assets is dependent on an adequate long-term investment policy. In December 2013, the invested assets of Jamsostek were divided in the following investment categories.

Table 1.17 Composition of investment portfolio, Jamsostek, 2013

	Amount invested (000 000 000)	Proportion (%)
Investment banks	10	0.0
Time deposits	40 180	26.9
Shares	31 811	21.3
Mutual funds	11 767	7.9
KIK EBAs	244	0.2
Corporate bonds	25 895	17.3
Government bonds	33 121	22.2
Sukuks	5 793	3.9
Contribution receivables	102	0.1
DPKP loans	492	0.3
Total	149 416	100.0

Source: page 353 of the annual statement

The highest category of assets is time deposits, which represents 27 per cent of the entire investment portfolio. Government bonds, shares and corporate bonds follow with the proportion of all assets at 22 per cent, 21 per cent and 17.3 per cent, respectively.

1.5.2 Investment policy

According to the BPJS Law[16], BPJS Ketenagakerjaan shall manage two kinds of assets:

- BPJS assets; and
- Social Security Fund assets.

BPJS Ketenagakerjaan must separate BPJS assets and the Social Security Fund assets. The Social Security Fund assets are not BPJS assets.

BPJS assets can be used for[17]:

- The operational costs of administering the social security programs;
- The cost of procurement of goods and services to support the operation of the social security programs;

16 Article 40

17 Article 41 (2)

- The costs of increasing service capacity; and
- Investment in the investment instruments in accordance with the statutory laws/ regulations.

The sources of BPJS assets are as follows[18]:

- Initial capital from the government, which is state money separated for this purpose and not divided into shares;
- The assets transferred from the state-owned enterprises which administer social security programs;
- The investment yields of BPJS assets;
- Operational funds taken from the Social Security Fund; and/or
- Other legitimate sources in accordance with statutory laws/regulations.

Social Security Fund assets can be used for:

- Payment of benefits or social security services;
- Operational costs for administering the social security programs; and
- Investments in investment instruments in accordance with the statutory regulations.

The sources of the Social Security Fund assets are:

- Contributions including contribution assistance;
- The investment yields of the Social Security Fund;
- Each participant assets transferred from state owned enterprises previously administering the social security program; and
- Other legitimate sources in accordance with the statutory laws/regulations.

According to the BPJS Law, there should not be cross-subsidization between each branch (employment injury, death, provident fund and pension). The absence of cross-subsidization means that, for each branch, a tailor made funding and investment strategy should be adopted. An appropriate amount of reserves should be held in the financial statement according to appropriate actuarial and accounting standards. Currently, employment injury and death benefits are mainly lump sums. Because of the short-term nature of these benefits, there is a need to adopt an investment strategy based on short-term investment (bonds, time deposits) in order to secure financial liquidity for payments. The adoption of an investment portfolio with long-term objectives would not be appropriate for the short-term benefits. However, if periodical payments of permanent disability and survivors' benefits are to be introduced in the future, long-term investment strategies should apply to finance these benefits.

It will be shown in the coming section that BPJS is expected to accumulate a substantial amount of assets, and a long-term investment policy should be in place as there is a long time lag between when the contributions and benefits of individuals and assets are accumulated to

18 Article 41 (1)

prepare for the payment of future benefits. The accumulation of assets has a secondary role to maintain more equity of contributions and benefits of different generations. A pension plan should adopt an investment policy with a long-term perspective in order to maximize the expected return of the fund under a certain tolerance criteria of associated investment risks. An investment portfolio, composed of, for example, stocks, real estate, private equities, and long-term government bonds, needs to be established by taking into account the long-term nature of the investment of pension schemes.

It is important to note that there should be a proper balance between the objective of higher investment returns on the one hand, and the long-term stability of the assets on the other. A well documented investment policy should be implemented and be based on strong risk management principles and international guidelines. This investment policy should be adopted at the inception of the scheme. In the setting of the investment policy and the investment activities, it is important to bear in mind that the assets should be invested for the sake of better members benefits and the financial stability of the scheme, kept separate from political influences and invested in line with investment rules and policies. Audit mechanisms of the investments should be put in place.

The choice of the financing strategy will considerably affect the amount of assets to be held in the fund, and the amount of assets held will considerably affect the future contribution rates. In designing future pension reforms, it will be important to answer such crucial questions as: what is the maximum level of assets that can be properly and efficiently invested? What amount of assets is sociably acceptable? What is the maximum contribution rate that a society can afford? Answering these questions will help in implementing a contribution schedule.

When establishing the investment policy for the pension scheme, it will be important to bear in mind the specific context in Indonesia of the investment opportunities and the very long-term horizon of the scheme. For example, during the first decades of the scheme, the liquidity of the investments may not be a major concern since contributions may be in excess of expenditure.

The following table shows the distribution of assets for some countries.

Table 1.18 Distribution of fund assets, 2010

	Fixed income securities	Variable income securities
Canada (without Québec)	32.5	67.5
Republic of Korea	68.5	31.5
United-States	100.0	-
Finland	43.0	57.0
France	47.4	52.6
Ghana	59.7	40.3
Grenada	84.5	15.5
Jordan	34.7	65.4
Paraguay	85.0	15.0
Philippines	65.0	35.0
Poland	86.0	14.0

	Fixed income securities	Variable income securities
Portugal	78.0	22.0
Québec	30.0	70.0
Sweden	36.0	64.0
Switzerland	62.0	38.0
Tanzania	61.0	39.0

Source: Comparison of demographic and economic assumptions in the actuarial analysis of 24 social security schemes, Régie des rentes du Québec

Investment diversification is a way to reduce the overall risk of the portfolio, and includes the portion of domestic and foreign investments. In the medium term, it may be appropriate to invest, for example, 20% of total assets outside Indonesia, as over-exposure in the domestic market could negatively impact the investment performance, especially during a long economic downturn. Currency exchange risks should be managed and monitored in cases of investment abroad. The investment policy statement should contain a policy about currency risk, for example, what kind of protection measures against currency risk should be implemented.

For provident fund benefits, a long-term investment policy similar to for pensions should be adopted. It is important to bear in mind that, in defined contribution plans, unfavourable investment returns have a direct and significant impact on the level of retirement income and an investment strategy that is based on life-cycle investment strategies and smoothing techniques. According to life-cycle investment strategies, the risk and return profile of the portfolio evolves during the working years. When a member is young, a more risky investment policy can be adopted and the investment portfolio will slowly move toward a more conservative portfolio aiming at preserving the invested capital near retirement.

Putting in place a more optimal investment strategy is a complex task that needs an appropriate framework and regulations. An investment policy should be developed by professionals having abundant experience in the investment of social security schemes. For each branch, it will be necessary to put in place an investment policy statement that describes the structure, responsibilities and duties of the investment committee, the responsibilities of the board and the role of the investment department. The investment policy statement also includes guidelines on investments and limits on single investment categories. The investment policy statement should be reviewed periodically, at least every three years. The investment policy should be designed in line with the funding policy.

1.6 Financial system and funding policy

The social security code provides that contribution rates must be fixed so that the total income makes covers the technical expenses and the administrative costs. Also, a specified amount of reserve should be constituted. However, there are different factors that will affect the achievement of this goal:

- The natural increase in the level of expenditure over a long period, especially for a new scheme;
- The desire to have a stable contribution rate so that employees and employers should remain confident in the scheme, and to have a contribution rate that will not become a burden on contributing members of the scheme; and
- The duration of the equilibrium period and the level of reserves that must be maintained for each equilibrium period.

A partial funding system is usually adopted for the financing of a social security pension scheme. This seems to be the choice for the new pension scheme in Indonesia. At the inception it is usual that a given period should be chosen as the equilibrium period to maintain the initial contribution rate. Over this period, there must be enough income, including contributions, to pay all benefits and administrative costs and to constitute a level of reserves.

If a long equilibrium period is set, the contribution rate of the second equilibrium period could be substantially high. To avoid this situation, it is often proposed to gradually raise the contribution rates. Frequent and periodical actuarial valuations are necessary to monitor the financial situation of the scheme and make adjustments as necessary. If the contribution rate is not properly adjusted, a burden might fall on future generations of contributors, and/or benefits might have to be substantially reduced in the future. Adjustments to the scheme should be planned in advance by using periodical actuarial valuations in order to avoid drastic changes to future contribution rates and benefits.

The equilibrium period and the minimum level of reserves should ideally be included in the laws and regulations and/or the funding policy of the new pension system. This would help establish a common ground for every stakeholder in order to avoid situations where these major objectives could change from one actuarial valuation to another.

Many pension schemes have a funding policy. A funding policy is a long-term plan about the funding and financing of the pension scheme. Many pension schemes have investment policies, namely long-term plans about the investment of the reserves. Pension schemes also should establish documents stating the objectives of funding and how the scheme should be funded to attain these goals.

A funding policy would clarify many elements related to the funding of the scheme. First, the type of funding would be clearly explained. The new pension scheme in Indonesia is a partially funded social security scheme with accumulations of reserves, which means that reserves will not cover all the future liabilities of the scheme. Future contributions from employees and employers are necessary to pay future benefits, but reserves will be constituted to help gradual increases in contribution rates. The scheme relies on future contributions, which depend on the level of employment, salaries, and investment income. For example, if the level of employment and salaries is lower than expected, the contribution increase schedule needs to be faster. However, it is not as fast as in the case of a scheme run on a pay-as-you-go basis without reserves. A formal explanation of the funding method of the scheme will strengthen the transparency and clarity of the scheme and cater for stakeholders' better understanding of the scheme[19].

19 Employers, employees, beneficiaries and the Government.

The funding policy would also specify the risks of the scheme, and how these risks are mitigated and shared among the different players. In an employment downturn, the reserves and the investment income on assets could reduce the impact on the contribution rate increases. In a financial market downturn, if salaries and employment increase, the impact on the contribution increase schedule will be mitigated. Another aspect of the funding policy is adjustments to the scheme to be specified in a transparent manner so that timely adjustments of major parameters such as contribution rates and retirement ages can be carried out without unreasonable political influence. Automatic adjustment mechanisms of major parameters of the scheme can be part of the funding policy.

The funding objectives have to be clearly stated in the funding policy. Currently, many social security schemes have no clearly stated objectives with regard to the level of reserves to be maintained. These objectives are often stated in actuarial valuation reports, but are usually not discussed among major stakeholders of the scheme. The funding objectives and their consequences should be clearly documented and well understood by all stakeholders. This would contribute to increasing their confidence in the scheme.

Since the scheme is partially funded, a plan of action can be set in advance, for example, gradual reduction of benefits as well as contribution rate increases. By delaying necessary actions to maintain the financial sustainability of the scheme, future generations would suffer from more benefit reduction and/or more contribution rate increases.

Frequency of actuarial valuations should be stated in the funding policy. The new pension system, being a young scheme, needs frequent actuarial valuations to make sure that the scheme evolves in the right direction. It is recommended that the financial situation of the scheme should be monitored at least every three years by periodical actuarial valuations and at any time major scheme reforms occur.

Here is a summary of elements that should be considered when drafting a funding policy.

Funding policy is a useful tool to:

- Formalize the long-term funding objectives of the scheme;
- Better understand the risks and advantages of financing options;
- Plan that sufficient assets are maintained to deliver the promised benefits; and
- Improve the scheme's governance by increasing transparency.

Funding rules must address the interests of stakeholders, including:

- Current plan participants as contributors to the financing of the system and former participants as beneficiaries of the system;
- Employers and the government as parties sharing responsibility for financing the pension system; and
- The general public.

The funding policy would specify:

- Contribution rates;
- Risks faced by the scheme and how these risks can be managed;

- Risk tolerance;
- Allocation of risks among stakeholders;
- Funding objectives (such as contribution stability or improving the funding ratios);
- Frequency of actuarial valuations, method of actuarial projections and the level of margins to be included in the assumptions;
- Funding methods such as partial funding or pay-as-you-go funding;
- Goals related to intergenerational equity; and
- All other funding issues.

It is recommended that a written funding policy should be well thought out, established and periodically reviewed.

2 Projections of the general population and of the economy

BPJS Ketenagakerjaan's future income and expenditure substantially depends on the size and age structure of the population, employment levels and major macroeconomic indicators such as real wage growth, inflation, and rates of return on investments. Hence, it is important to establish robust demographic, macroeconomic and labour market frames before starting financial projections of the scheme.

Population projection is the basis to estimate the labour supply, namely, the size and composition of the labour force, while projections of gross domestic product (GDP) and productivity growth are key parameters for the labour demand, namely how many workers are needed in the economy and what their likely income will be. Since these factors are interrelated, consistent demographic and economic frames should be established. This study assumes a projection horizon of 100 years.

Given the significant uncertainty in determining assumptions for a long period, sensitivity analysis is carried out on the demographic projection to assess impacts on the future financial situation of the scheme. Further details on the methods and assumptions can be found in Appendix 2.

2.1 Population of Indonesia

Population projections require assumptions on mortality, fertility and migration. The projection starts in the year 2010 and extends over 100 years in the future. Table 2.1 shows the age and sex breakdown of the population of Indonesia in 2010 based on the last National Census of its population.

Table 2.1 Population of Indonesia, by age and sex, 2010

Age	Male	Female	Total
0- 4	11 658 856	11 013 204	22 672 060
5- 9	11 970 804	11 276 366	23 247 170
10-14	11 659 310	11 018 180	22 677 490
15-19	10 610 119	10 260 967	20 871 086
20-24	9 881 969	9 996 448	19 878 417
25-29	10 626 458	10 673 629	21 300 087
30-34	9 945 211	9 876 989	19 822 200
35-39	9 333 720	9 163 782	18 497 502
40-44	8 319 453	8 199 015	16 518 468
45-49	7 030 168	7 005 784	14 035 952
50-54	5 863 756	5 693 103	11 556 859
55-59	4 398 805	4 046 531	8 445 336
60-64	2 926 073	3 130 238	6 056 311
65-69	2 224 273	2 467 877	4 692 150
70-74	1 530 938	1 924 247	3 455 185
75-79	853 911	1 138 771	1 992 682
80-84	576 399	776 423	1 352 821
85-89	186 268	284 808	471 076
90-94	30 820	56 131	86 951
95-	3 601	7 921	11 522
Total	**119 630 913**	**11 8010 413**	**237 641 326**

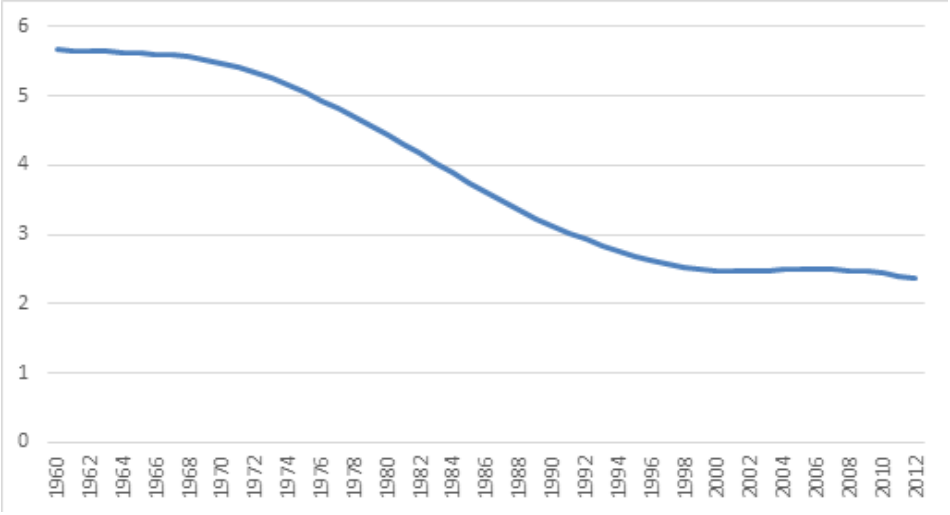
Source: BPJS Ketenagakerjaan

2.1.1 Fertility

Over the last five decades, the total fertility rate has considerably decreased, as shown in Figure 2.1. Recent experience of the last ten years has shown more stability of the total fertility rate, oscillating at around 2.5. The total fertility rate is assumed to decrease gradually to 1.9 in 2045 and to remain constant at this level thereafter. The sex ratio at birth, namely a ratio of male births to female births, is assumed to remain constant at 1.05 in the future.

Table 2.2 shows the ultimate total fertility rate and age specific fertility rates used in this study for the years 2010 and 2045.

Figure 2.1 Total fertility rate, Indonesia, 1960 to 2012



Source: Bank Dunia

Table 2.2 Age-specific and total fertility rates (TFR), 2010 to 2012 and 2045

Age group	2010-2012	2045
15-19	0.05065	0.02734
20-24	0.12934	0.08544
25-29	0.13271	0.10777
30-34	0.10399	0.09346
35-39	0.05966	0.05009
40-44	0.01842	0.01344
45-49	0.00522	0.00246
TFR	**2.50**	**1.90**

2.1.2 Mortality

The initial mortality rates in 2010 of the Indonesian general population are used as the starting mortality rates of the population projections. Mortality improvements are based on the 2015 revision of *World Population Prospects*[20].

Life expectancies at birth of the general population were estimated at 66.4 years for males and 70.5 years for females in 2010, and assumed at 77.6 and 81.4 in 2085 respectively.

Age-specific mortality rates assumed for the years of 2010, 2035 and 2060 are given in Table 2.4.

20 United Nations (UN): *World Population Prospects, 2012 revision*, Population Division of the Department of Economic and Social Affairs (New York, 2012), available at: http://esa.un.org/wpp/.

Table 2.3 Life expectancy at selected ages, Indonesia's general population, 2010, 2035, 2060 and 2085

Year	Men			Women		
	At 0	At 20	At 60	At 0	At 20	At 60
2010	66.4	49.6	15.2	70.5	53.3	17.8
2035	70.1	52.1	16.5	74.9	56.4	19.4
2060	73.6	54.8	18.0	78.4	59.1	21.1
2085	77.6	58.2	20.1	81.4	61.7	22.9

Table 2.4 Mortality rates at selected ages, 2010, 2035 and 2060 (per 1,000 persons)

Selected ages	Males			Females		
	2010	2035	2060	2010	2035	2060
0	29.9	18.8	11.1	23.4	12.3	6.2
5	1.3	0.7	0.3	1.1	0.4	0.2
10	0.5	0.3	0.2	0.5	0.3	0.1
15	1.1	0.6	0.4	0.8	0.4	0.2
20	1.8	1.2	0.7	1.2	0.6	0.3
25	2.0	1.3	0.8	1.4	0.8	0.4
30	2.1	1.4	0.8	1.7	0.9	0.5
35	2.6	1.7	1.0	2.2	1.2	0.6
40	3.5	2.4	1.5	2.9	1.7	0.9
45	5.2	3.7	2.5	4.0	2.5	1.5
50	8.7	6.5	4.5	6.3	4.1	2.6
55	12.5	9.8	7.3	8.1	5.8	3.9
60	21.3	17.1	13.0	13.4	9.8	6.9
65	34.8	28.6	22.4	22.4	17.0	12.4
70	52.7	44.7	36.6	36.0	28.5	22.0
75	84.4	72.7	60.8	62.5	50.7	40.2
80	128.6	113.2	97.2	103.7	86.6	71.1
85	201.4	182.3	161.8	171.5	148.9	127.7
90	318.9	296.9	272.7	283.8	256.7	230.0
95	503.1	482.0	458.0	469.7	442.2	414.0

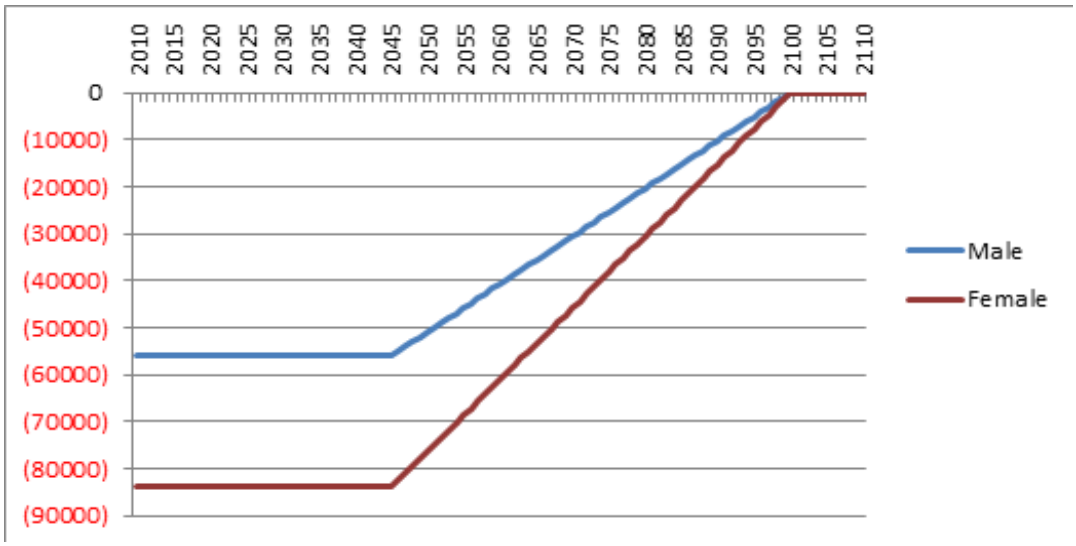
2.1.3 Migration

Indonesia is recognized as having one of the largest numbers of migrant workers in South-East Asia[21]. According to a study, the number of migrant workers from Indonesia was 748,825 in 2008 and is still increasing. Unemployment, poverty, inadequate infrastructure, a complicated regulatory environment, and regional inequality are factors driving massive international migration.

Net migration represents the difference between the number of persons who permanently enter and leave Indonesia and is the one of the most difficult assumptions for a demographic projection. Internal and external environments considerably affect the number of immigrants and emigrants.

For this actuarial study, the net migration assumption is based on the one in the 2015 revision of *World Population Prospects*. Since women represent the larger part of migrant workers, female migrants are assumed as 60% of all migrants. The following graph shows the assumption of net migrants used for the projection.

Figure 2.2 Number of net migrants, Indonesia, 2010 to 2110



2.1.4 Population projection of Indonesia

The total population of Indonesia was 237,641,326 in 2010, and is projected to increase to 324,400,796 in 2060 and 314,043,909 in 2110. The average annual growth rate of the population is 0.6 per cent during the period 2010 to 2060 and -0.1 per cent during the period 2060 to 2110. Table 2.5 shows the growth rates of different periods.

21 International migration and migrant workers' remittance in Indonesia, International Organization for Migration

Table 2.5 Projected annual average growth rates of population, Indonesia, 2010 to 2110 (percentage)

Period	Annual average growth rate
2011-2015	1.27
2016-2020	1.14
2021-2030	0.90
2031-2040	0.56
2041-2050	0.31
2051-2060	0.16
2061-2070	0.05
2071-2080	-0.01
2081-2090	-0.06
2091-2100	-0.10
2101-2110	-0.20

The ratio of the Indonesian population aged 60 and over to the total population will increase from 7.6 per cent in 2010 to 21.0 per cent in 2060 and 28.9 per cent in 2110. This clearly illustrates the ageing process that the Indonesian population is expected to experience over the coming decades, as shown in Figures 2.3 and 2.4.

Highlights of the population projection are:

1. Average annual growth of the population over the whole projection period is 0.3%;
2. The total population will increase to 325,952,588 in 2073 and will gradually decrease thereafter;
3. At the end of the projection period, the number of deaths will be higher than the number of births;
4. In 2010, there were 13.0 persons aged between 15 and 64 for each person aged 65 and over. This dependency ratio will drop to 4.3 in fifty years and to 2.7 at the end of the projection period;
5. The average age of the population was 28.8 years old in 2010 and will increase to 42.5 years in 2110.

Figure 2.3 Demographic projections, Indonesia, 2010 to 2110

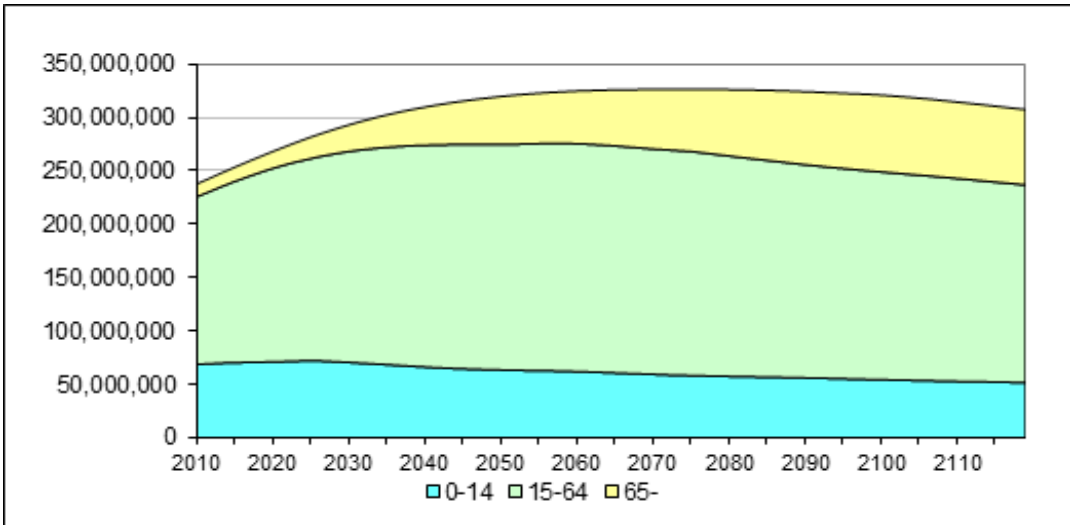
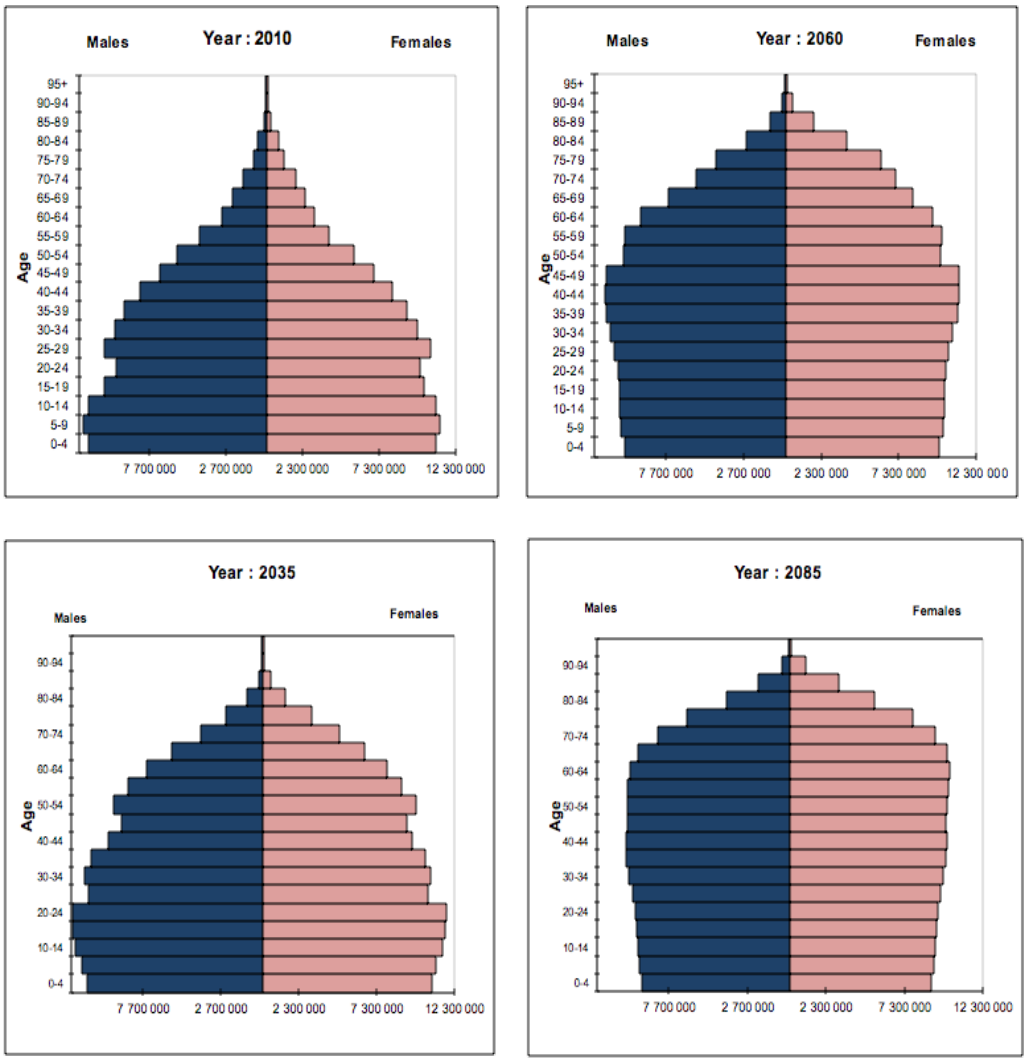


Table 2.6 Indonesian population and dependency ratio, 2010 to 2110

Year	Age group				
	Total	0-14	15-64	65 +	Ratio 15-64/65 +
2010	237,641,326	68,596,720	156,982,218	12,062,388	13.0
2015	253,293,077	70,203,187	169,802,255	13,287,635	12.8
2020	268,084,851	71,025,724	181,213,193	15,845,934	11.4
2030	292,999,980	70,476,135	197,616,307	24,907,538	7.9
2040	309,769,060	66,162,854	207,873,404	35,732,802	5.8
2050	319,673,987	63,417,158	211,177,804	45,079,025	4.7
2060	324,816,414	61,892,500	213,547,927	49,375,987	4.3
2070	326,366,145	59,300,682	211,280,862	55,784,601	3.8
2080	326,204,569	57,392,060	206,573,224	62,239,285	3.3
2090	324,250,843	55,963,625	199,822,954	68,464,263	2.9
2100	320,997,258	54,245,326	194,779,958	71,971,975	2.7
2110	314,540,625	52,761,323	190,144,210	71,635,092	2.7

Figure 2.4 Indonesia, population pyramid, 2010 to 2085

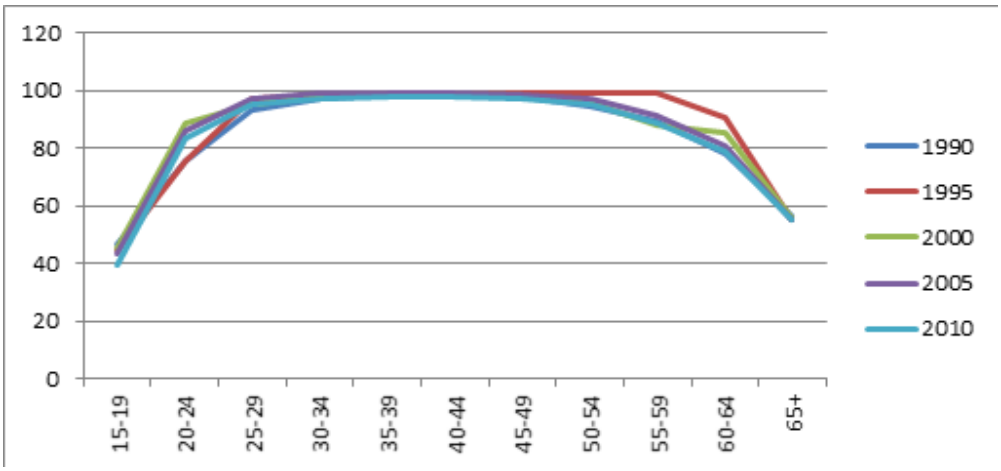


2.2 Macroeconomic framework

2.2.1 Labour force

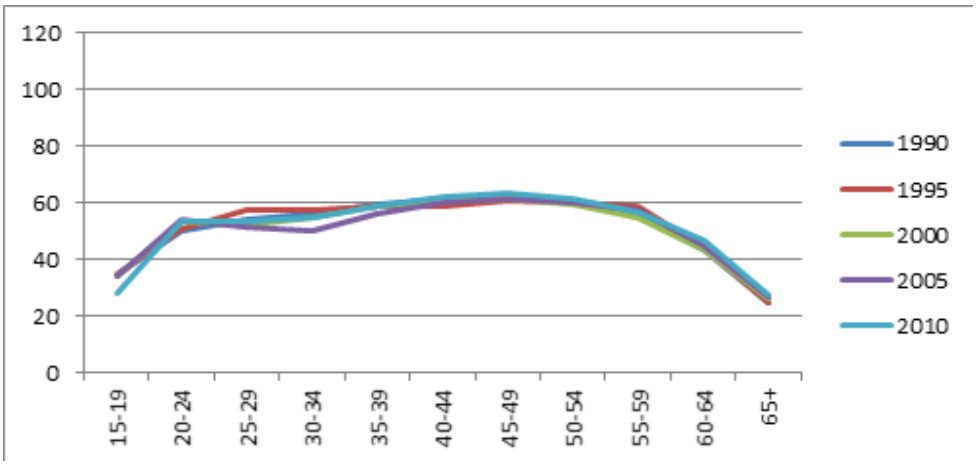
The projection of the labour force is performed by applying age and sex wise labour force participation rates to the projected age and sex wise population groups of Indonesia. Age and sex wise labour force participation rates have been stable during the last two decades.

Figure 2.5 Labour force participation rates by age group, male, Indonesia, 1990, 1995, 2000, 2005, 2010 (in per cent)



Source: ILO

Figure 2.6 Labour force participation rates by age group, female, Indonesia, 1990, 1995, 2000, 2005, 2010 (in per cent)

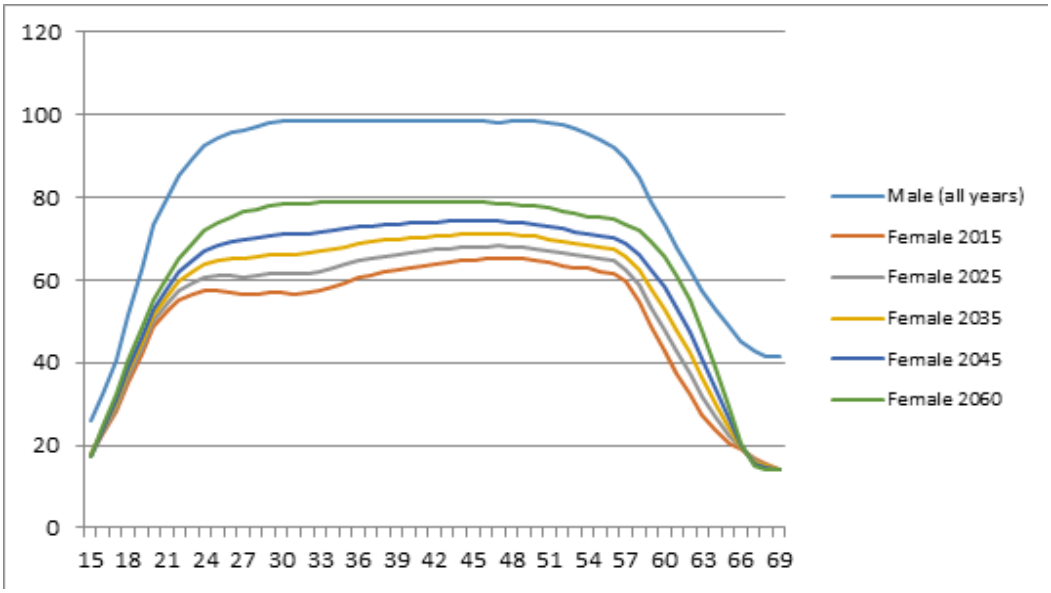


Source: ILO

The following labour force participation rates have been assumed for the projections:

- Age wise labour force participation rates of males are stable during the whole projection period;
- Age wise labour force participation rates of females will increase over the next 50 years as illustrated in the graph below and hold constant thereafter.

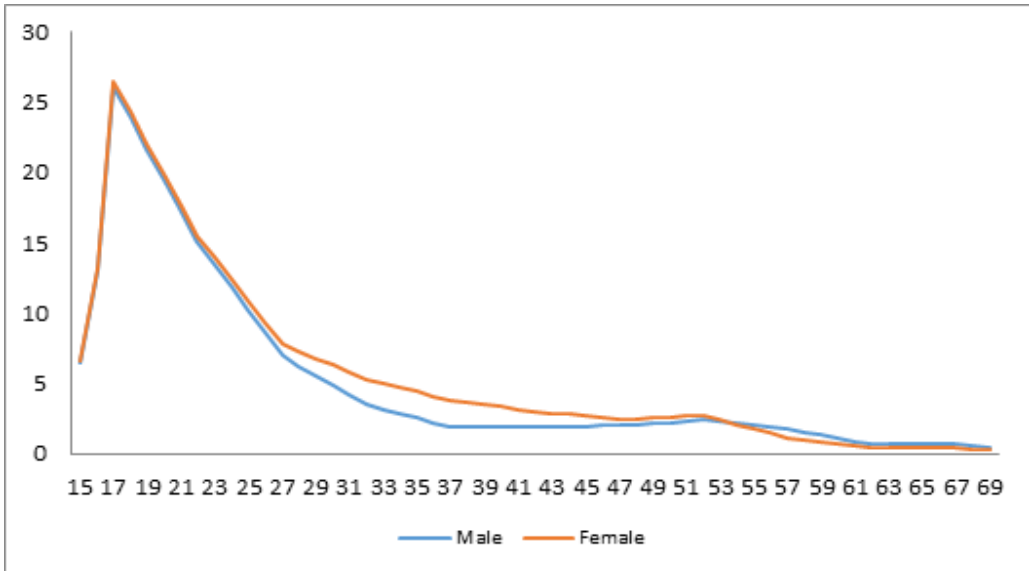
Figure 2.7 Labour force participation rates by age and sex group, Indonesia, 2015, 2025, 2035, 2045 and 2060
(as a percentage of population)



2.2.2 Unemployment

Unemployment rates are considerably different by age; youth unemployment rates are especially higher. The unemployment rate in 2012 was about 6 per cent. Age wise unemployment rates stay constant throughout all the projection period.

Figure 2.8 Unemployment rates by age group and sex, Indonesia, 2012 to 2110, (as percentage of labour force)



Source: BPJS Ketenagakerjaan

The overall unemployment rate will gradually decrease during the projection from an initial 6 per cent in 2012 to reach 4.9 per cent in 2110. The decrease in the overall unemployment rate is due to the ageing process of the labour force. As the proportion of older workers who have lower unemployment rates increase, the overall unemployment rate will decrease.

Age and sex wise employed persons are calculated as the difference between the projected labour force and unemployed persons.

2.2.3 Formal and informal sector

Workers in the informal sector are not assumed to be covered by the new pension scheme. Projections assume the percentage of formal economy workers in the future.

The proportion of workers in the formal sector has increased considerably, from 31 per cent to around 40 per cent over the last three years. World Bank data shows the proportion of self employed persons decreased from 67.4 per cent in 2009 to 60.6 per cent in 2011.

Table 2.7 Proportion of formal sector workers and self employed persons, 2004 to 2112

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Proportion of workers in the formal sector	30.3	30.7	31.1	31.0	30.4	30.7	33.1	37.8	39.9
Proportion of workers that are self employed (WB)	68.1	66.4	66.1	66.0	67.4	66.6	64.6	60.6	N/A

Source: Formal sector (BPJS Ketenagakerjaan)/self employed (World Bank)

The following graphs show assumed age and sex wise participation rates in the formal sector over the next 50 years.

Figure 2.9 Assumed participation rates in the formal sector by age group, male, Indonesia, 2012 to 2110,
(as percentage of employed population)

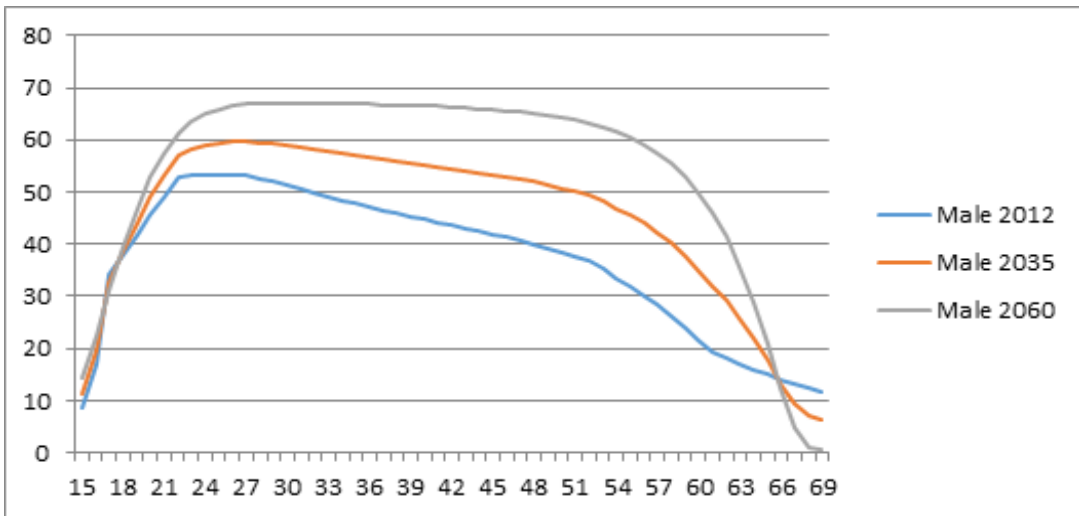
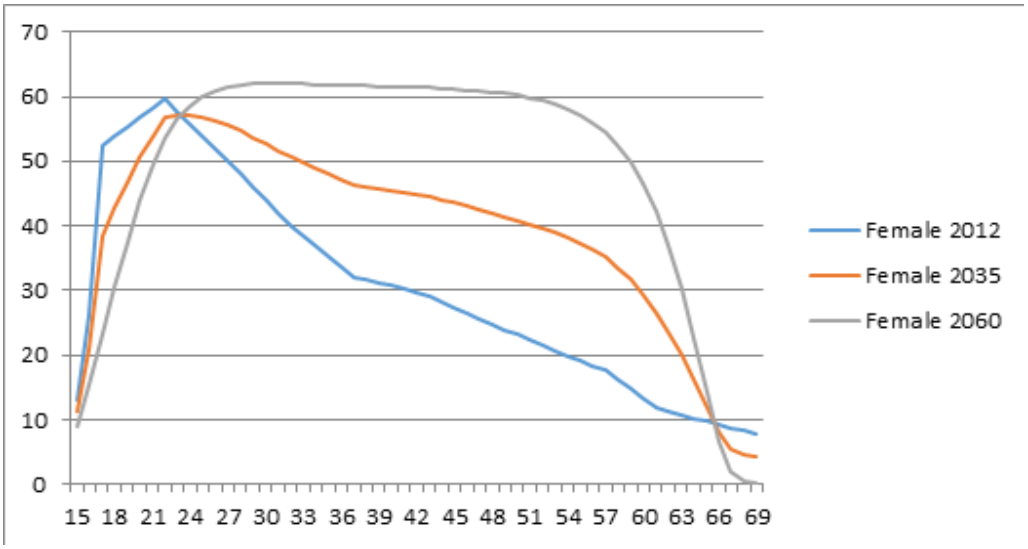


Figure 2.10 Assumed participation rates in the formal sector by age group, female, Indonesia, 2012 to 2110
(as a percentage of employed population)



2.2.4 Labour market balance

The resulting labour market balance of Indonesia is presented in Table 2.8.

Table 2.8 Labour market balance, Indonesia, 2013 to 2113

	2013	2038	2063	2088	2113
Population (no. of persons)					
Males	124,297,566	153,416,654	161,957,588	161,823,177	156,442,626
Females	122,653,445	153,376,057	163,177,702	162,573,315	155,429,372
Total	246,951,012	306,792,711	325,135,290	324,396,492	311,871,998
Population aged 15-69 (no. of persons)					
Males	85,242,838	110,527,427	116,326,028	111,810,024	105,265,454
Females	84,426,016	109,041,799	113,247,381	108,646,221	101,542,592
Total	169,668,855	219,569,225	229,573,409	220,456,245	206,808,045
Labour force participation rate (%)					
Males	85	84	84	83	83
Females	53	59	66	65	65
Total	69	71	75	74	74

	2013	2038	2063	2088	2113
Labour force (no. of persons)					
Males	72,848,108	92,845,385	97,784,281	92,858,310	87,325,245
Females	44,514,248	64,134,621	75,069,164	70,923,947	66,344,788
Total	117,362,356	156,980,006	172,853,445	163,782,258	153,670,033
Unemployment rate (%)	6.3	5.6	5.0	4.9	4.9
Employed persons (no. of persons)					
Males	68,540,915	87,948,192	93,148,531	88,540,260	83,277,783
Females	41,445,056	60,347,724	71,057,427	67,207,684	62,873,877
Total	109,985,971	148,295,915	164,205,958	155,747,944	146,151,660
Employed persons in formal sector (no. of persons)					
Males	29,691,836	47,919,500	56,229,876	52,760,306	49,553,954
Females	14,711,271	29,864,928	40,097,099	37,592,525	35,174,789
Total	44,403,107	77,784,428	96,326,975	90,352,831	84,728,743
Proportion in formal sector (%)	40.4	52.5	58.7	58.0	58.0

2.2.5 Inflation and salary increases

The nominal increase in the remuneration of an insured person consists mainly of three components: inflation, productivity increase of the entire economy and increase in personal wages due to work experience and seniority.

Inflation is measured by the Indonesia Consumer Price Index (CPI). The cost of living increased at an annual average rate of 7.2 per cent during the period of 2004 to 2013 (See Table 2.9).

According to the monetary statement, Bank Indonesia will strengthen coordination with the government in terms of inflation control, especially through the Inflation Control Team along with regional control teams, to steer inflation toward its target corridor of 4.5 $\pm$ 1% in 2014 and 4.0 $\pm$ 1% in 2015. Taking this inflation targeting forecast of the government and the IMF inflation data into account, it is assumed that the cost of living increase will be 6.4 per cent, 6.8 per cent, 5.4 per cent, 4.7 per cent and 4.5 per cent respectively in the years 2014, 2015, 2016, 2017 and 2018. It is assumed it will further decrease to 4.0 per cent by 2021, with an additional gradual decrease after 2027, reaching an ultimate inflation rate of 3 per cent after ten years. The inflation rate is kept constant for the rest of the projection period.

Table 2.9 Annual inflation rate (change in Consumer Price Index), Indonesia, 2004 to 2013

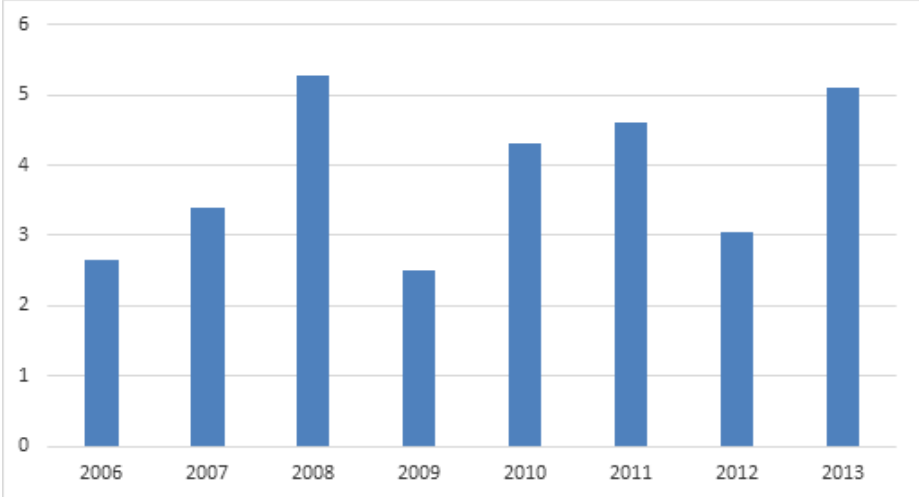
Period	Inflation rate
2004	6.2
2005	10.5
2006	13.1
2007	6.4
2008	9.8
2009	4.8
2010	5.1
2011	5.4
2012	4.3
2013	6.4
Average	**7.2**

Source: Bank Dunia.

Salary adjustments mainly depend on the evolution of the productivity of employees, defined as the GDP divided by the number of employed workers. During the period 2006 to 2013, the real labour productivity average annual increase was 3.9 per cent. For this actuarial study, it is assumed that the increase rates of labour productivity and salaries are the same. The real salary increase is assumed to vary between 3.9 and 4.7 per cent from 2014 to 2025, and to gradually decease thereafter to reach an ultimate assumption of 1.5% from 2049.

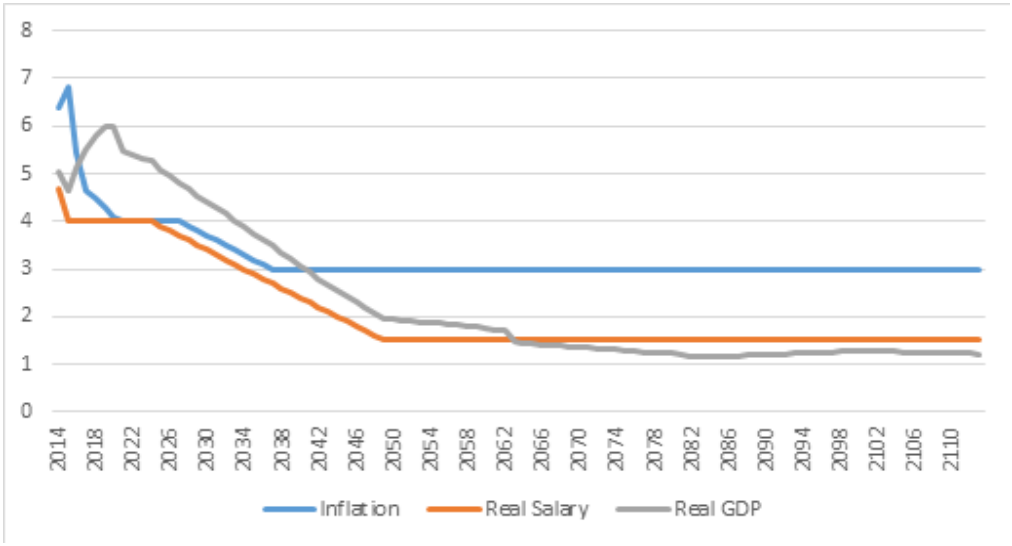
The increase in personal wages due to work experience and seniority is reflected in the age wise salary scales as seen in Appendix 2. Appendix 2 also shows assumptions used for the investment return on assets. An ultimate annual nominal interest rate of return of 6.0 per cent is assumed in this actuarial study.

Figure 2.11 Annual real labour productivity increase, 2006 to 2013, Indonesia



The following figure presents a summary of the assumptions of annual inflation, real salary increases and real GDP growth assumed in this actuarial study. Real GDP growth assumptions until 2020 are taken from the IMF projection.

Figure 2.12 Assumptions of annual inflation, real salary increase and real GDP growth, 2014 to 2113



3 Demographic and financial projections

This study deals with the financial sustainability of the pension scheme to meet its future benefit obligations at the time they fall due. Future contributions and benefits are calculated in line with the demographic and economic assumptions presented in Chapter 2 and on the basis of the database and scheme specific actuarial assumptions presented in Appendix 1.

Long-term benefits will attain a mature state only after the youngest people of the first generation of contributors have become pensioners, have died and all survivors' pensions paid on their behalf have ceased. This requires that the scheme's situation be analysed over a long-time horizon. The projection period of the current study is over 100 years from 2015 to 2115.

The methodology of the ILO actuarial valuation model is described in Appendix 3. A base scenario was based on the best estimate assumptions, and additional scenarios were provided for better understanding of major factors that have impacts on the financial soundness of BPJS Ketenagakerjaan.

The main purpose of the study is to find out whether the financing of BPJS Ketenagakerjaan is on course over the long term and not to exactly forecast numerical values. Due to the long-term nature of assumptions, absolute figures include a high degree of uncertainty and therefore results have to be interpreted carefully. Future actuarial reviews will have to be undertaken on a regular basis by taking into account actuarial assumptions in light of the actual experiences of the scheme.

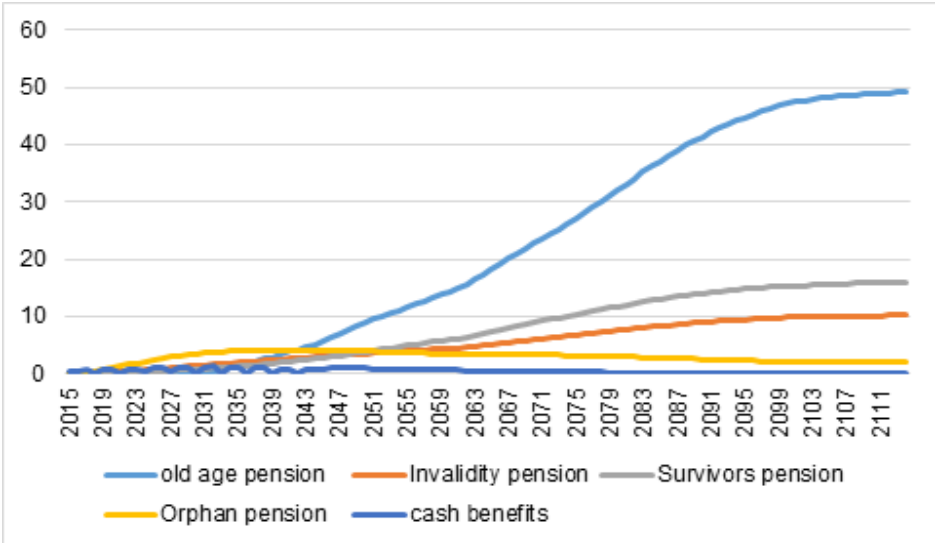
It is important to bear in mind that the projections in this study do not take into account the inclusion of civil servants, the army and the police in the new scheme in 2029 as no information mission on how the integration will take place was available at the time of the expert's visit. For example, the level of civil servant benefits in the new scheme, treatment of past services, and how assets will be transferred. It is important in coming years to put in place clear rules concerning the integration of the civil servants scheme to the social security pension scheme and to undertake a proper analysis of the impact of the inclusion of civil servants.

3.1 Demographic projections

Demographic projections are shown in Figure 3.1 and Table 3.1. Figure 3.1 shows the projection of the demographic ratios of old age, invalidity and survivors' benefits and cash benefits. The demographic ratio is defined as a ratio of pensioners to active contributors. The total number of contributors follows a rate of growth derived from the projections of the general population, labour force, employed population and formal sector workers as described in Chapter 2. The

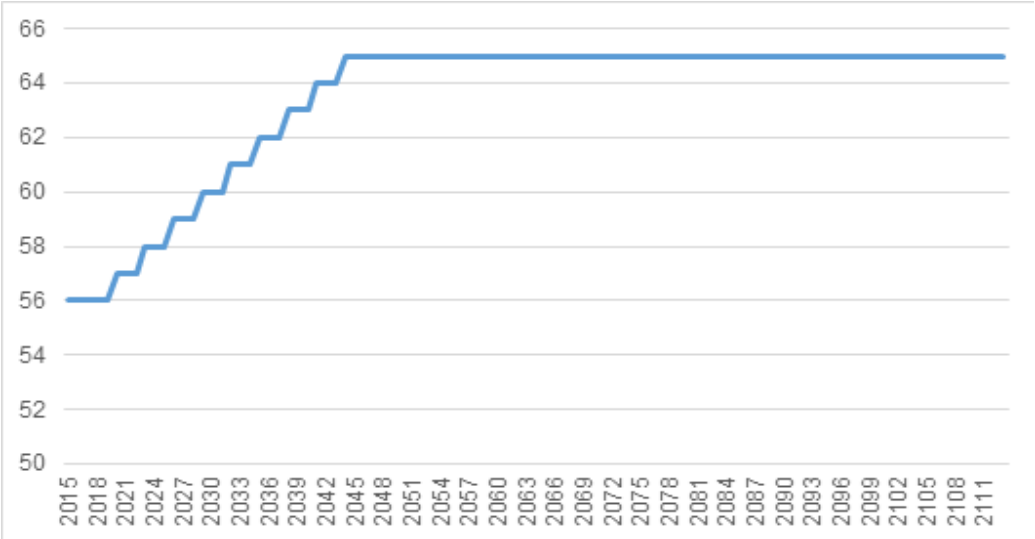
number of pensioners will rapidly grow during the projection period. This is due to the fact that the scheme started in 2015 and has yet to become mature. As a result, the scheme's demographic ratio, defined as a ratio of all old age, disability and survivors pensioners to contributors will grow from 0 in 2015 to 75.2 per cent in 2115. The scheme's demographic ratio is a good indicator of the cost increase of the scheme due to the ageing of the population since this directly affects the PAYG cost rate.

Figure 3.1 Scheme demographic ratios by benefit type, 2015 to 2115, in per cent



The trends shown in Figure 3.1 contain small jumps. This is explained by the progressive increase of the pensionable age. The following figure shows the pattern of increases in retirement age used in the projection.

Gambar 3.2 Jadwal peningkatan usia pensiun, 2015-2115



It could be possible to introduce reduction factors for early retirement in the future. This could be implemented, for example, when the normal retirement age (NRA) is set higher than 60. Reduction factors will ensure that insured members receive actuarially equivalent pension amounts, regardless of the retirement age. Early retirement factors make possible earlier access to an old age pension without jeopardizing the financial sustainability of the scheme.

Table 3.1 Scheme demographic projections, 2015 to 2115

	Numbers of active members and beneficiaries								Demographic ratio				
		Pension			Cash benefits				Pension				
Years	Contributors	Old age	Disability	Survivors	Old age	Disability	Survivors	Funeral	Old age	Disability	Survivors	Total	Cash benefits
2015	13,977,326	0	0	0	45,074	13,145	29,515	29,515	0.00%	0.00%	0.00%	0.00%	0.84%
2016	14,427,511	0	0	0	72,555	14,861	31,997	31,997	0.00%	0.00%	0.00%	0.00%	1.05%
2017	14,888,865	0	4,873	2,126	93,262	6,790	13,951	34,367	0.00%	0.03%	0.01%	0.05%	1.00%
2018	15,362,949	0	16,650	7,325	32,174	4,334	8,575	36,733	0.00%	0.11%	0.05%	0.16%	0.53%
2019	15,848,635	0	31,538	14,147	103,136	3,948	7,762	39,757	0.00%	0.20%	0.09%	0.29%	0.98%
2020	16,347,497	0	48,319	22,109	129,790	4,028	7,661	42,321	0.00%	0.30%	0.14%	0.43%	1.12%
2021	16,859,169	0	66,738	30,986	41,470	4,262	7,703	44,792	0.00%	0.40%	0.18%	0.58%	0.58%
2022	17,380,326	0	86,757	41,030	143,292	4,632	8,095	48,198	0.00%	0.50%	0.24%	0.74%	1.17%
2023	17,906,621	0	108,388	52,310	153,162	4,867	8,196	50,816	0.00%	0.61%	0.29%	0.90%	1.21%
2024	18,436,557	0	131,694	64,593	58,012	5,100	8,441	53,498	0.00%	0.71%	0.35%	1.06%	0.68%
2029	21,166,848	6,916	273,067	148,426	259,054	5,403	9,795	69,730	0.03%	1.29%	0.70%	2.02%	1.63%
2034	24,239,881	286,128	450,362	281,953	279,731	7,451	10,944	92,183	1.18%	1.86%	1.16%	4.20%	1.61%
2039	27,533,640	797,027	668,334	496,167	14,494	7,175	11,651	120,931	2.89%	2.43%	1.80%	7.12%	0.56%
2044	31,038,504	1,619,649	920,123	822,023	250,062	6,003	14,112	166,476	5.22%	2.96%	2.65%	10.83%	1.41%
2049	34,696,011	2,921,548	1,202,122	1,268,126	367,432	5,685	9,744	211,766	8.42%	3.46%	3.65%	15.54%	1.71%
2054	38,494,264	4,285,114	1,514,600	1,814,586	298,391	4,295	8,067	269,250	11.13%	3.93%	4.71%	19.78%	1.51%
2059	42,269,476	5,831,627	1,843,859	2,440,304	293,695	3,819	5,680	338,793	13.80%	4.36%	5.77%	23.93%	1.52%
2064	43,981,513	7,647,467	2,182,258	3,103,261	242,650	2,064	3,469	416,625	17.39%	4.96%	7.06%	29.41%	1.51%
2069	43,605,343	9,517,103	2,528,150	3,753,142	195,169	1,017	2,003	494,564	21.83%	5.80%	8.61%	36.23%	1.59%
2074	43,089,643	11,213,366	2,862,904	4,350,507	150,864	703	1,330	568,901	26.02%	6.64%	10.10%	42.76%	1.68%
2079	42,400,726	13,185,030	3,165,195	4,878,075	115,277	463	888	639,700	31.10%	7.46%	11.50%	50.07%	1.78%
2084	41,694,995	15,091,377	3,427,037	5,336,951	58,360	301	595	708,863	36.19%	8.22%	12.80%	57.21%	1.84%
2089	41,057,336	16,689,510	3,648,730	5,708,949	16,199	253	429	770,065	40.65%	8.89%	13.90%	63.44%	1.92%
2094	40,517,280	17,887,598	3,812,303	5,966,404	5,307	247	359	815,668	44.15%	9.41%	14.73%	68.28%	2.03%
2099	40,049,970	18,710,553	3,924,738	6,091,304	4,098	245	328	873,917	46.72%	9.80%	15.21%	71.73%	2.19%
2104	39,581,119	19,038,296	3,968,461	6,162,326	3,932	243	324	951,292	48.10%	10.03%	15.57%	73.69%	2.41%
2109	39,060,653	19,028,137	3,959,761	6,183,245	3,932	240	320	996,225	48.71%	10.14%	15.83%	74.68%	2.56%
2114	38,499,086	18,905,881	3,923,079	6,127,259	3,961	237	315	1,005,942	49.11%	10.19%	15.92%	75.21%	2.62%

3.2 Financial projections under the base scenario

Even though the current provisions of the scheme provide that the maximum annual pension is annually adjusted in line with inflation, financial projections presented in this section and in the policy consideration and sensitivity scenario chapter, assume that the maximum annual pension will be adjusted annually in line with wage growth. The justification of this assumption is discussed in more detail in Section 3.3.

Tables 3.2 and 3.3 present the breakdown of benefits to be paid throughout the projection period.

Table 3.2 Financial projections: Breakdown of benefits, 2015 to 2115 (thousand rupiah)

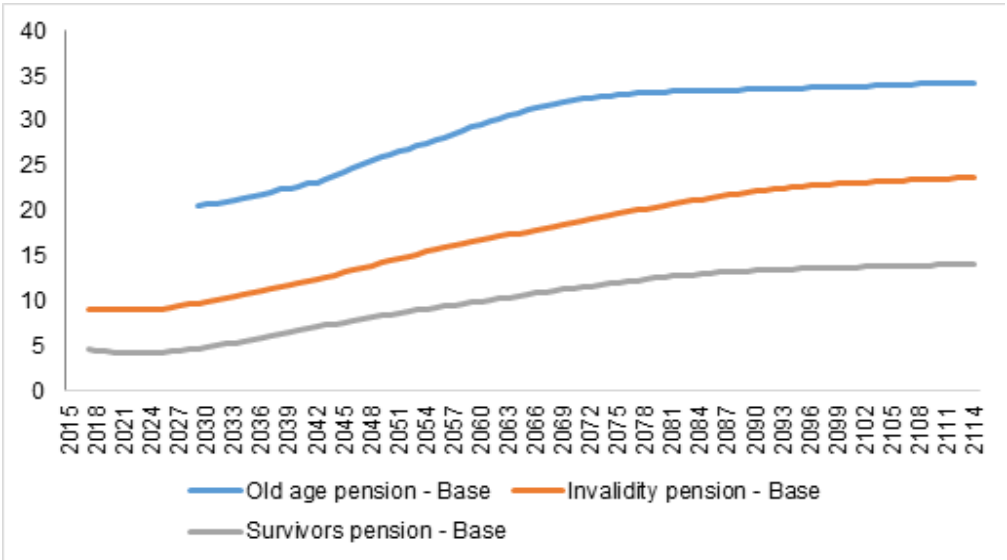
Years	Pension			Cash benefits				TOTAL
	Old age	Disability	Survivors	Old age	Disability	Survivors	Funeral	
2015	0	0	0	82	7	15	1,382	1,486
2016	0	0	0	223	14	32	1,602	1,871
2017	0	23	5	433	7	14	1,837	2,319
2018	0	84	18	251	4	9	2,092	2,458
2019	0	171	37	831	4	8	2,409	3,461
2020	0	284	61	1,245	4	9	2,725	4,328
2021	0	423	92	704	5	9	3,063	4,297
2022	0	596	130	2,129	6	10	3,502	6,373
2023	0	810	180	2,890	6	11	3,922	7,820
2024	0	1,075	243	1,771	7	12	4,384	7,492
2029	188	3,521	932	10,948	11	20	7,589	23,209
2034	11,285	8,887	2,887	15,324	20	30	12,450	50,882
2039	43,812	19,346	7,963	1,797	26	41	18,860	91,845
2044	123,378	37,929	19,621	27,596	26	60	28,950	237,559
2049	308,294	69,393	42,996	42,911	32	53	39,084	502,763
2054	605,897	120,189	85,142	50,710	30	54	52,540	914,562
2059	1,106,150	197,561	155,721	72,953	34	49	70,360	1,602,829
2064	1,920,830	310,794	266,099	80,135	24	38	92,843	2,670,763
2069	3,097,397	473,881	428,476	85,461	13	28	119,282	4,204,539
2074	4,641,103	703,647	655,194	88,148	12	24	150,790	6,238,919
2079	6,870,880	1,014,419	959,038	87,333	11	22	186,575	9,118,277
2084	9,825,476	1,424,193	1,354,294	55,627	10	20	227,836	12,887,457
2089	13,570,246	1,955,200	1,848,657	20,605	11	18	274,915	17,669,654
2094	18,185,853	2,606,807	2,443,329	9,254	14	19	327,355	23,572,630
2099	23,779,635	3,397,533	3,137,199	8,831	17	22	398,888	30,722,126
2104	30,259,419	4,329,446	3,990,313	10,487	21	27	501,152	39,090,865
2109	37,838,040	5,426,688	5,034,757	13,023	26	33	610,959	48,923,526
2114	47,013,875	6,731,118	6,278,703	16,296	32	41	723,179	60,763,243

Table 3.3 Financial projections: Breakdown of benefits, 2015 to 2115 (percentage)

Years	Pension			Cash benefits				TOTAL
	Old age	Disability	Survivors	Old age	Disability	Survivors	Funeral	
2015	0.0%	0.0%	0.0%	5.5%	0.4%	1.0%	93.0%	100.0%
2016	0.0%	0.0%	0.0%	11.9%	0.8%	1.7%	85.6%	100.0%
2017	0.0%	1.0%	0.2%	18.7%	0.3%	0.6%	79.2%	100.0%
2018	0.0%	3.4%	0.7%	10.2%	0.2%	0.4%	85.1%	100.0%
2019	0.0%	5.0%	1.1%	24.0%	0.1%	0.2%	69.6%	100.0%
2020	0.0%	6.6%	1.4%	28.8%	0.1%	0.2%	63.0%	100.0%
2021	0.0%	9.9%	2.1%	16.4%	0.1%	0.2%	71.3%	100.0%
2022	0.0%	9.4%	2.0%	33.4%	0.1%	0.2%	54.9%	100.0%
2023	0.0%	10.4%	2.3%	37.0%	0.1%	0.1%	50.2%	100.0%
2024	0.0%	14.4%	3.2%	23.6%	0.1%	0.2%	58.5%	100.0%
2029	0.8%	15.2%	4.0%	47.2%	0.0%	0.1%	32.7%	100.0%
2034	22.2%	17.5%	5.7%	30.1%	0.0%	0.1%	24.5%	100.0%
2039	47.7%	21.1%	8.7%	2.0%	0.0%	0.0%	20.5%	100.0%
2044	51.9%	16.0%	8.3%	11.6%	0.0%	0.0%	12.2%	100.0%
2049	61.3%	13.8%	8.6%	8.5%	0.0%	0.0%	7.8%	100.0%
2054	66.2%	13.1%	9.3%	5.5%	0.0%	0.0%	5.7%	100.0%
2059	69.0%	12.3%	9.7%	4.6%	0.0%	0.0%	4.4%	100.0%
2064	71.9%	11.6%	10.0%	3.0%	0.0%	0.0%	3.5%	100.0%
2069	73.7%	11.3%	10.2%	2.0%	0.0%	0.0%	2.8%	100.0%
2074	74.4%	11.3%	10.5%	1.4%	0.0%	0.0%	2.4%	100.0%
2079	75.4%	11.1%	10.5%	1.0%	0.0%	0.0%	2.0%	100.0%
2084	76.2%	11.1%	10.5%	0.4%	0.0%	0.0%	1.8%	100.0%
2089	76.8%	11.1%	10.5%	0.1%	0.0%	0.0%	1.6%	100.0%
2094	77.1%	11.1%	10.4%	0.0%	0.0%	0.0%	1.4%	100.0%
2099	77.4%	11.1%	10.2%	0.0%	0.0%	0.0%	1.3%	100.0%
2104	77.4%	11.1%	10.2%	0.0%	0.0%	0.0%	1.3%	100.0%
2109	77.3%	11.1%	10.3%	0.0%	0.0%	0.0%	1.2%	100.0%
2114	77.4%	11.1%	10.3%	0.0%	0.0%	0.0%	1.2%	100.0%

Figure 3.3 shows the evolution of the replacement ratio by benefit type. This ratio is defined as the average pension of pensioners over the average salary of active members. The general increasing trend of the replacement ratio is due to the maturing process of the scheme.

Figure 3.3 Replacement ratios by benefit type, 2015 to 2115, (percentage)



As shown in Figure 3.4, the pay-as-you-go (PAYG) cost rate, defined as the total expenditure as a percentage of total insurable earnings, will rise from 0.75 per cent in 2015 to 22.5 per cent in 2115. The PAYG cost rate represents a contribution rate that would be required to annually meet all the expenditures of the scheme, consisting of benefits, administrative and other expenses in the absence of reserves. This increase of the PAYG cost rate is mainly due to the increase of the demographic ratio described in the previous section and the increase of the replacement ratio due to the maturity of the scheme. Because the number of pensioners in relation to contributors increases gradually over the projected period and the average replacement ratio increase due to a longer contributing period, a higher contribution rate will be needed to pay for pensions.

Figure 3.4 Projected pay-as-you-go rates, 2015–2115 (in per cent of insurable earnings)

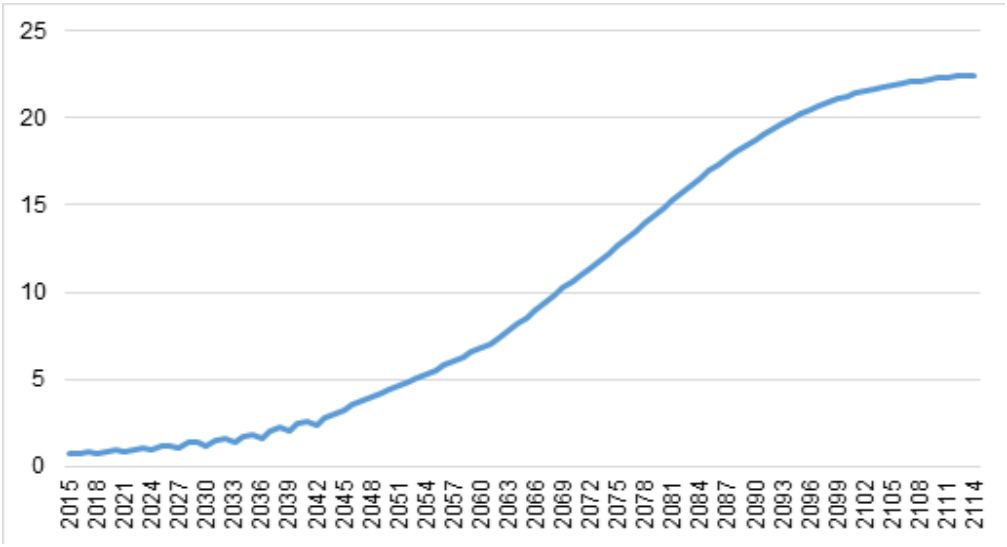


Table 3.4 shows the results of the financial projections of scheme's cash flow and reserves. In the base scenario with the contribution rate of 3 per cent for the pension branch, the main observations are as follows:

1. Until 2043, annual contributions are sufficient to pay for all annual expenditure. Thus, from 2015 to 2043, the absolute amount of reserves will steadily increase;
2. From 2044, annual contributions will no longer be sufficient to pay for all annual expenditure. From 2044 to 2049, annual investment income from the reserves must be partly used to pay for annual expenditure. During this period, the absolute amount of reserves will grow at a slower pace;
3. From 2050, the total annual income consisting of contributions, investment income and other income will be no longer sufficient to pay for all annual expenditure of the scheme. From 2050, the reserves will be used to pay for annual expenditure;
4. The reserves will be depleted during 2058. From that point, in order for the scheme to meet its obligations, a contribution rate increase and/or benefit reductions will have to be considered. If no change to benefits takes place, the required contribution rate to pay for all expenditure will need to be set at the PAYG cost rate.

The reserve ratio is the ratio of the end of year reserves over annual expenditure consisting of benefits, administrative costs and other expenses. It can be interpreted as the number of years during which annual expenditure can be paid only by the reserves without contributions, investment income or other income. The reserve ratio is expected to increase progressively from 3.1 to 18.0 between 2015 and 2024. The ratio is then projected to decrease from 2024 and become 0 in 2058.

Table 3.4 Financial projections: Cash inflow and outflow and reserves, 2015 to 2115, (million rupiah), contribution rate = 3%

	Income			Expenses					
Years	Contributions	Investment Earnings	Others	Benefits	Administrative Expenses	Surplus (Deficit)	Reserve (end year)	PAYG	Reserve Ratio
2015	18	1	0	1	3	14	14	0.8%	3.1
2016	20	2	0	2	3	17	30	0.8%	5.9
2017	22	3	0	2	4	19	50	0.8%	8.2
2018	25	4	0	3	4	23	73	0.8%	10.8
2019	28	6	0	4	5	26	99	0.9%	11.9
2020	32	8	0	5	5	30	128	0.9%	13.0
2021	35	10	0	5	6	35	163	0.9%	15.5
2022	40	12	0	7	7	39	202	1.0%	15.0
2023	44	15	0	8	7	44	245	1.1%	15.5
2024	49	18	0	8	8	51	297	1.0%	18.0
2029	83	40	0	25	14	84	648	1.4%	16.5
2034	133	70	0	56	22	125	1,214	0.0%	15.6
2039	202	110	0	101	34	177	1,969	2.0%	14.6
2044	296	158	0	253	49	152	2,790	3.1%	9.2
2049	421	185	0	527	70	9	3,179	4.3%	5.3
2054	590	147	0	949	98	-310	2,370	5.3%	2.3
2059	817	-32	0	1,650	136	-1,002	-1,062	6.6%	-0.6
2064	1,069	-498	0	2,734	178	-2,341	-9,728	8.2%	-3.3
2069	1,322	-1,493	0	4,287	220	-4,678	-27,988	10.2%	-6.2
2074	1,627	-3,351	0	6,343	271	-8,338	-61,728	12.2%	-9.3
2079	1,991	-6,569	0	9,245	332	-14,154	-119,897	14.4%	-12.5
2084	2,435	-11,882	0	13,038	406	-22,891	-215,502	16.6%	-16.0
2089	2,983	-20,297	0	17,843	497	-35,655	-366,371	18.4%	-20.0
2094	3,664	-33,189	0	23,770	611	-53,906	-596,852	20.0%	-24.5
2099	4,508	-52,432	0	30,948	751	-79,623	-940,091	21.1%	-29.7
2104	5,545	-80,547	0	39,366	924	-115,293	-1,440,619	21.8%	-35.8
2109	6,808	-120,923	0	49,266	1,135	-164,516	-2,158,423	22.2%	-42.8
2114	8,355	-178,221	0	61,188	1,393	-232,447	-3,176,081	22.5%	-50.8

Another important indicator of the financial projection is the general average premium (GAP), defined in two different ways.

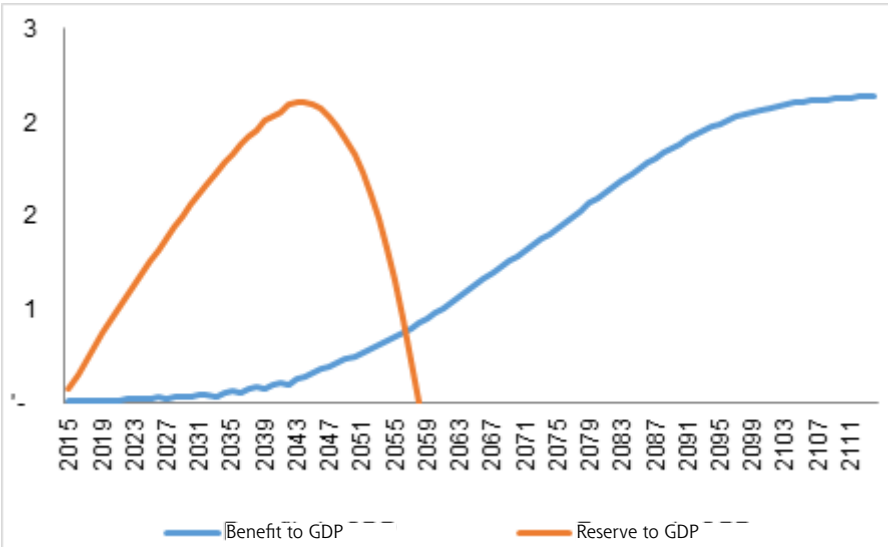
The GAP is calculated as the annual contribution rate, as a percentage of insurable earnings, necessary to pay for all expenditure over the projection period, assuming that the reserves will be exhausted at the end of the projection period. In the base scenario, if the scheme has to be funded by a constant contribution rate over the next 100 years, with no reserves at the end of the projection period of 100 years, this rate would be 9.6 per cent. As the scheme is not yet mature (and will only reach maturity at the end of the projection period), using a shorter period would result in a lower GAP. For example, the GAP calculated on 75 years would be 7.0 per cent for the base scenario. It is worth noting that regardless of the period used to calculate the GAP, the ultimate cost of the scheme will stay the same. It is tempting to use a period shorter than 100 years to calculate the GAP and have a lower GAP. However, this would not properly capture the expected long-term cost of the scheme. In theory, the cost of the scheme is expected to gradually increase in line with the population. Thus, taking a shorter period puts more emphasis

on the first years of the projection where population growth is higher and puts less emphasis on the last years of the projection period where population growth is substantially lower.

The problem with the abovementioned definition of the GAP is that financing the scheme at a contribution rate of 9.6 per cent over the next 100 years would result in no reserves left in 2115, meaning that the contribution rate would have to be immediately increased to the PAYG cost rate of 22.5 per cent after 2115. Such an increase may not be viable for the scheme. According to the other definition of GAP, the GAP can be calculated as the annual contribution, as a percentage of insurable earnings, necessary to pay for all expenditure over the entire projection period, and assuming that the reserve ratio at that time will reach a certain target level. For example, the annual contribution, as a percentage of insurable earnings that is necessary to pay for all expenditure over the entire projection period and maintain a reserve to expenditure ratio of 5 at the end of the projection period, is 10.2 per cent. This target level of the reserve ratio must be in line with the financing policy of the scheme, as described in Section 1.6. The contribution rate setting should include a strategy regarding the level of reserves that should be maintained over the projection period and this should be addressed in the financing policy.

Another way to illustrate the cost of a social security scheme is to express it in relation to GDP. The following figure shows the magnitude of contributions and accumulated reserves in percentage of GDP.

Figure 3.5 Projected benefits and reserves in relation to GDP, 2015 to 2115 (percentages)



3.3 Financial projections under the current provisions

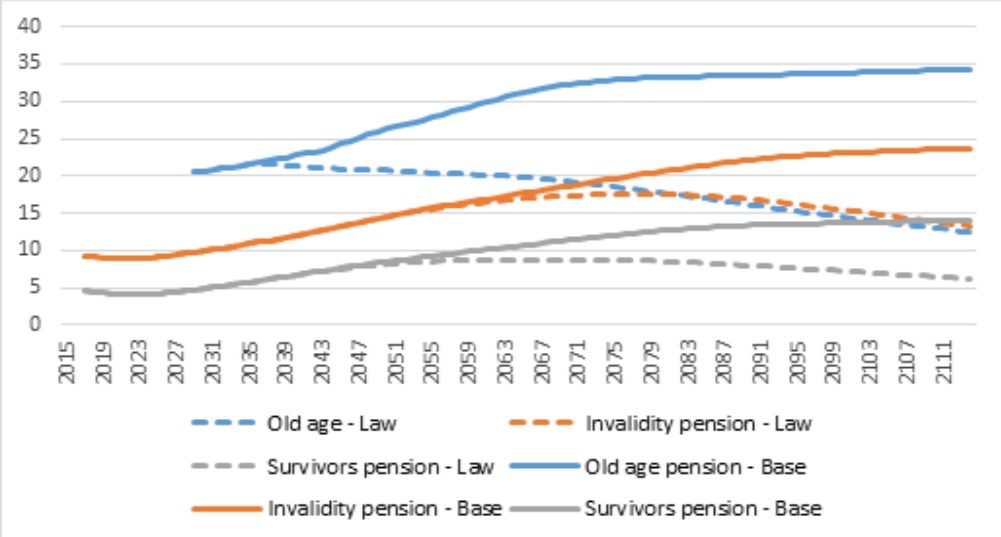
As stated in the previous section, even though the maximum annual pension is annually adjusted in line with the inflation rate under the current provisions, financial projections presented in Section 3.2 assume that the maximum annual pension will be annually adjusted in line with the average wage growth.

As the average annual wage increase is expected to be higher than the average annual inflation rate over the projected period, the indexation of the maximum annual pension in line with the CPI will result in serious problems in the long run.

Indexing the maximum annual pension in line with the CPI will result in a gradual reduction of the scheme replacement ratio. The replacement ratio is defined as the average pension benefit compared to the average earnings in a year. As the average annual wage increase is expected to be higher than the average annual inflation rate over the projected period, more and more pensioners, especially those with high income first and middle income thereafter, will reach the maximum pensions in the long run if the current law is kept unchanged, and thus the average replacement rate will gradually decrease in the future. By indexing the maximum annual pension in line with the average wage growth, the ratio of pensioners with the maximum pensions will be kept stable and will provide better income protection to the mid and high income earners.

Based on the projection, in 2115 the replacement ratio of old age pensions under the current provisions with the maximum pensions adjusted in line with inflation is expected to be around one third as much as the ratio projected under the base scenario, where the maximum pension is adjusted in line with the average salary growth. Figure 3.6 presents the projected replacement ratios under both the current law and the base scenario.

Figure 3.6 Replacement ratios, current law and base scenario, by benefit type, 2015 to 2115 (percentage)



Indexing the maximum pension in line with the CPI will create a disincentive for insured members to declare full earnings and contribute to the scheme. The current provisions will create a significant gap between the insurable earnings on which the members contribute and the earnings implicitly used to calculate pension benefits. Based on the demographic and economic assumptions presented in Chapter 2, the average insurable earnings required for an insured member with 30 years of service to obtain the maximum pension will be 75 per cent lower than the maximum insurable earnings in 2115. In other words, there will be no incentive for insured members to declare salaries over 25 per cent of the maximum insurable earnings as the contribution paid on the exceeding salary does not lead to an additional pension amount.

Figure 3.7 presents the projected PAYG cost rate for the current scheme provisions and for the base scenario where the maximum pension is increased in line with the average salary growth.

Figure 3.7 Projected PAYG rates, current law and base scenario, 2015 to 2115 (in per cent)

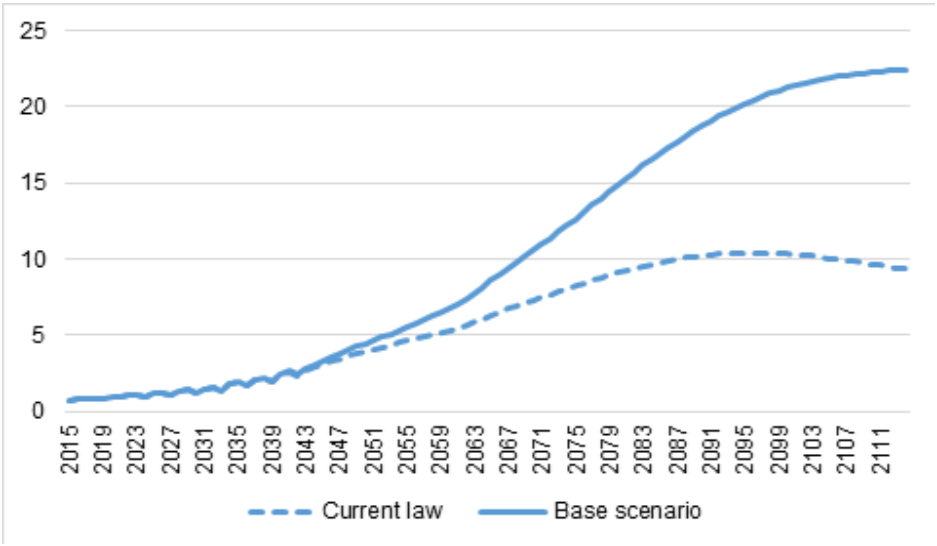


Table 3.5 presents the PAYG cost rate, the GAP and the year of exhaustion of reserves under the current provisions and the base scenario.

Table 3.5 Comparison of the PAYG, GAP and year of reserves exhaustion, current law and base scenario

Indicator	Current law	Base scenario
PAYG in 2020	0.9%	0.9%
PAYG in 2065	6.3%	8.6%
PAYG in 2115	9.3%	22.5%
GAP 100 years	6.2%	10.2%
Year of reserve exhaustion	2062	2058

Even though the cost of the scheme under the current provisions is significantly lower than the cost under the base scenario over the long term, it is observed that this is not expected to have a major impact on the projected level of reserves of the scheme over the next 50 years. The reserves are expected to be exhausted four years earlier in the base scenario than in the current provisions.

It is worth noting that the projected cost based on the current provisions may very probably be higher than shown above, as the potential disincentive for insured members to contribute to the scheme may have a negative impact on the contribution basis over the medium and long term. This may increase the ultimate cost of the scheme under the current provisions to a level similar to that of the base scenario.

4 Policy Options

This chapter introduces policy options in addition to the base scenario provided in Chapter 3.

4.1. Granting past service to initial members near retirement

It will take 40 years before the first cohort of pensioners are able to receive pensions of 35 per cent of their average insurable earnings. In order to ensure that an individual should have a faster access to a pension, providing a certain number of years of service to the initial insured members for calculating benefits is a policy option. To demonstrate the impact of this policy option, it is assumed that the initial insured members in 2015 aged 56 and over would be awarded with 15 years of service[23], those aged 55 would be granted 14.5 years of service, those aged 54 would be granted 14 years of service, and so on. The overall cost of this policy reform will not be very expensive as the contributory basis is expected to grow considerably in the future. The cost of this policy option could also be financed by a transfer from the provident fund. The following table and figures show the effect of this measure.

Table 4.1 Impact of granting past service

Scenarios	GAP[24] (%)	PAYG 2115 (%)	Year of reserve exhaustion
Base scenario	10.2	22.5	2058
Granting past service	10.6	22.5	2048

23 PRecognition of past service can be conditional of having contributed to the scheme for at least a given number of years.

24 GAP calculated using a reserve ratio target of 5 at the end of the projection period.

Figure 4.1 Granting past service, PAYG, in per cent

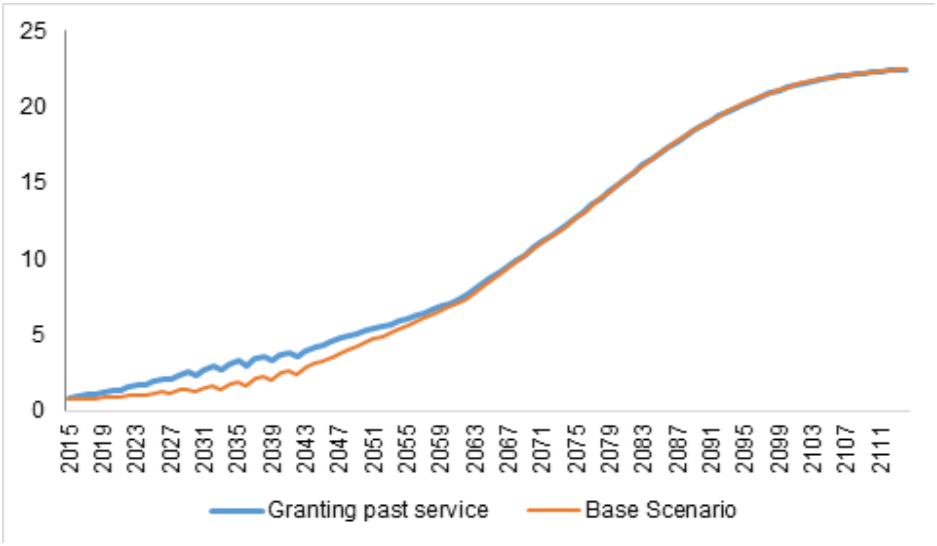
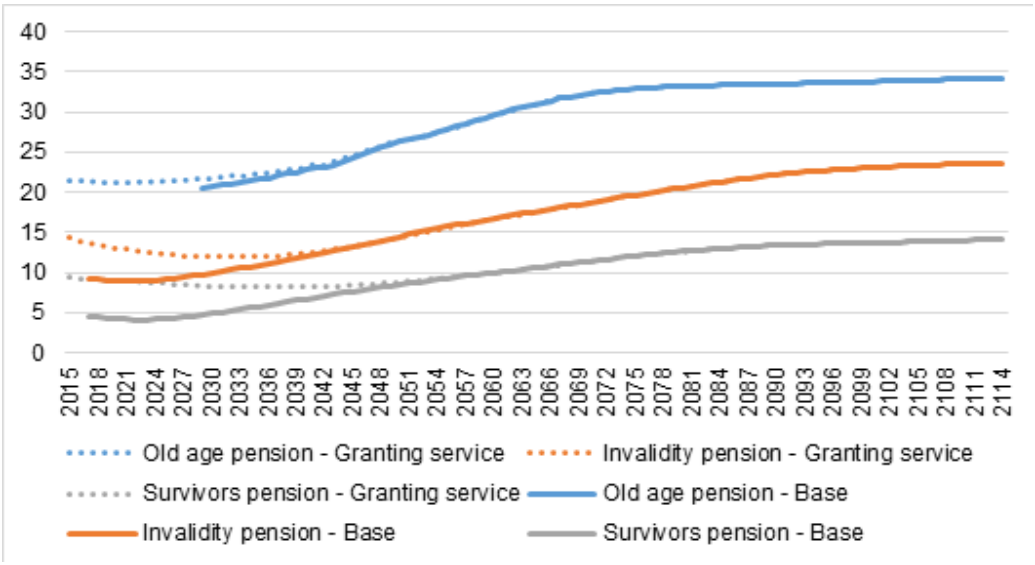


Figure 4.2 Granting past service, replacement ratios by benefit type, 2015 to 2115 (percentage)



As seen in Figure 4.1, the granting of past service to initial insured members in 2015 is expected to slightly increase the cost of the scheme. As the members who benefit from this granting of past service eventually die, the ultimate cost of the scheme will not increase. Figure 4.2 highlights the impact that the granting of past service to current members could have on the short and medium term replacement ratios.

4.2. A pension scheme that better fits the ILO convention 102

Some features of the new scheme do not comply with the ILO Convention No. 102.

- C. 102 provides that the replacement rate of an old age pension paid to a member with 30 years of contribution must be at least 40 per cent. The annual accrual rate for the old age pension under the current formulae is 1 per cent, resulting in a 30 per cent replacement ratio after 30 years of contribution. In order to satisfy the C. 102, the revision of the accrual rate for the first 30 years of contribution may be considered. The

annual accrual rate for the old age benefits should be at least 4/3 per cent (or 1.33 per cent) for the first 30 years of contribution in order to provide an income replacement ratio in accordance with the C. 102.

- Under the C. 102, the replacement rate of a disability or a survivor pension paid to an insured member with 15 years of contribution should be at least 40 per cent. The current provisions provide replacement rates of only 15 per cent to insured members with 15 years of service. To ensure the compliance of the scheme with C. 102, minimum disability and survivor pensions providing a replacement ratio of 40 per cent could be considered to be paid to members with 15 years of service and more.

The above-mentioned adjustments have been considered in order to estimate the financial impact of the reform option to comply with the C. 102. The following table presents the main results of this policy option.

Table 4.2 Sensitivity analysis: Minimum ILO standard

Scenarios	GAP (%)	PAYG 2115 (%)	Year reserve = 0
Base	10.2	22.5	2058
ILO standards	12.6	27.4	2053

Raising the provisions of the scheme to the ILO minimum standards will result in the increase of the PAYG rate by 4.9 percentage points in 2115 and in the increase of the GAP by 2.4 percentage points than that of the base scenario.

It is also possible to reallocate money from other social security programmes and labour protection programmes, for example, the Labour Law (No.13/2003) and the provident fund, to better comply with the ILO Convention No. 102. It is recommended that these benefit improvements should be discussed among stakeholders.

4.3. Adoption of a scaled premium contribution rate

The PAYG contribution rate required to pay for the scheme's expenses in 100 years is estimated at 22.5 per cent, seven and a half times higher than the current contribution rate of 3 per cent. As the medium and long-term cost of the scheme exceeds the current contribution rate of 3 per cent of insurable earnings, the contribution rate needs to be increased in the future in order to ensure the financial sustainability of the scheme. As it may be difficult to introduce a GAP constant contribution rate as high as 10.2 per cent at the implementation of the new scheme, gradual and phased increases of the contribution rate are recommended to ensure the long-term sustainability of the scheme. It is worth noting that the level of assets should also be addressed in parallel by taking into account investment opportunities.

A policy option of increasing the contribution rate by 2 per cent every ten years starting in 2025 is shown for consideration. The contribution rate will reach 23 per cent in 2115 and will be kept constant thereafter. This policy option is worth consideration because it decreases the level of assets to be invested at the beginning of the projection period, and gradually increases the contribution rate to an ultimate level in line with the economic development of the nation and the contribution affordability of members. As future contributors pay a more than seven times higher contribution rate than the first generations for similar benefits, it is essential that the intergenerational solidarity concept should be rooted in society to make this option possible.

Figure 4.3 PAYG versus the policy option of increasing the contribution rate by 2% every ten years, starting in 2025, (percentages)

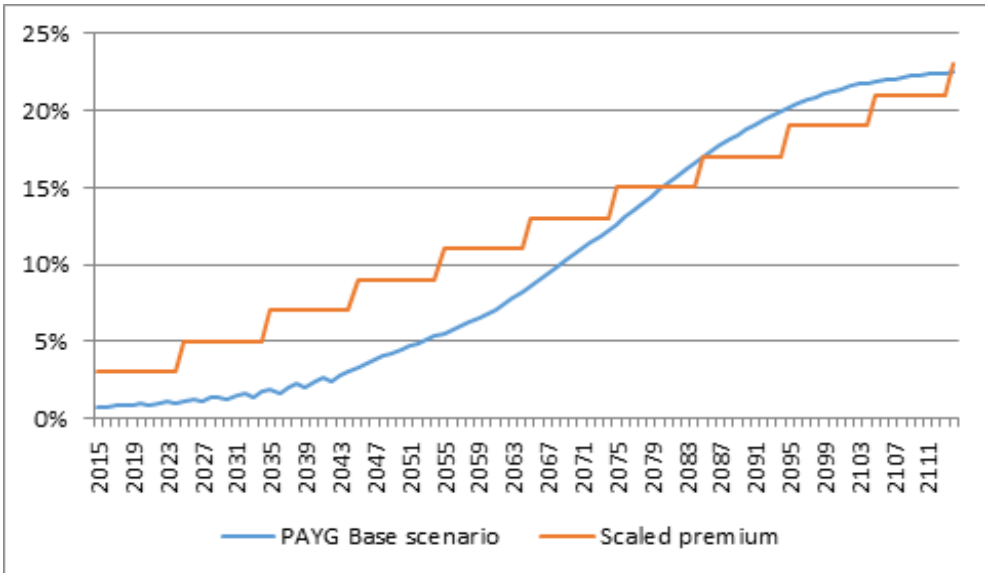


Figure 4.4 Comparison of the evolution of the reserve ratio in the base scenario and option of increasing the contribution rate by 2% every ten years starting in 2025

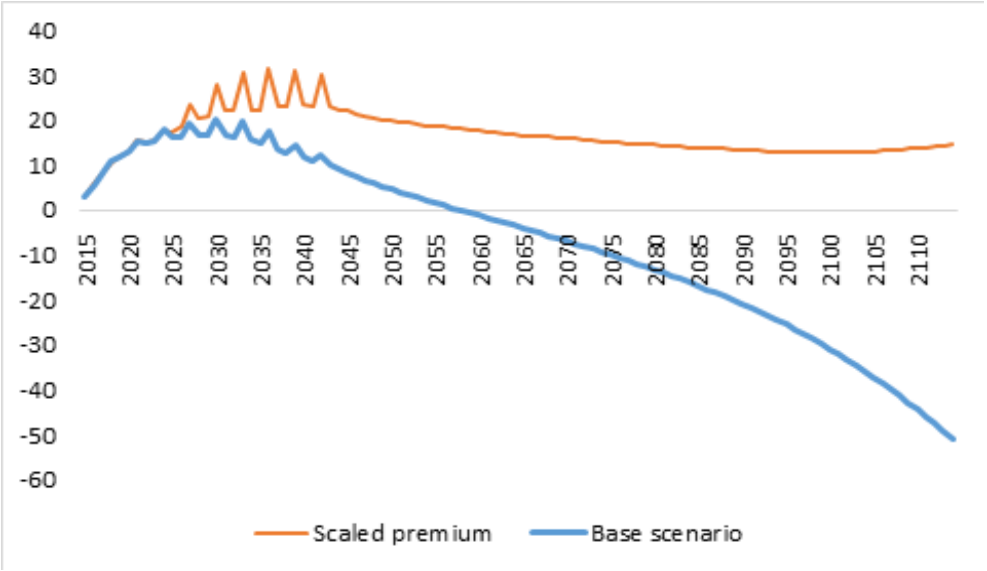


Figure 4.4 presents the evolution of the reserve ratio under this policy consideration and the base scenario where the contribution rate is fixed at 3 per cent of insurable earnings over the projection period. It can be observed that the gradual increase of the contribution rate contributes to ensure the scheme's sustainability over the long term.

Appendix 2 explains the distinction between the different approaches for financing a social security pension plan.

5 Sensitivity analyses and other issues

A sensitivity analysis assesses the cost of the scheme under different scenarios and is a useful tool for those who may want to understand the cost factors of the scheme and the order of impacts. This chapter discusses sensitivity analyses of some scenarios.

Under the base scenario, a GAP contribution rate of 10.2 per cent is necessary to pay all the expenditure of the scheme for the next 100 years, with a reserve ratio of five at the end of the projection period. In addition to the GAP, impacts for each scenario are shown by the PAYG rate at the end of the projection period and by the year the reserve will be depleted.

5.1 Return on assets

The annual real rate of return on assets in the base scenario is assumed at 3 per cent for the entire projection period. Table 5.1 presents the impact of an annual real rate of return 1 per cent lower and 1 per cent higher than the one assumed in the base scenario. A change in the return on assets has no impact on the PAYG cost rate.

Table 5.1 Sensitivity analysis: Return on assets

Scenarios	GAP (%)	PAYG 2115 (%)	Year of reserve exhaustion
Base	10.2	22.5	2058
+ 1%	8.4	22.5	2060
-1%	12.3	22.5	2057

With a lower return on assets of 1 per cent, the reserve will be depleted in 2057, one year earlier than in the base scenario. The impact on the year of reserves exhaustion is low, mainly due to the fact that the initial reserves and contribution rate are low. As the initial reserves are null and the current contribution rate is not high enough to build up a substantial amount of reserves, the investment returns that the assets can generate during the projection period are limited.

5.2 Average salary increase

In this sensitivity test, the impact of the salary growth rate and the rate of return on investment is measured. Both the return on assets and the average salary growth are increased by 1 per cent in the high growth scenario, while both are decreased in the low growth scenario. Table 4.2 shows that the results are sensitive to these variations, mainly due to the discrepancy between the wage growth, leading to higher contributions and inflation used for pension adjustments.

Table 5.2 Sensitivity analysis: Return on assets and average salary increase

Scenarios	GAP (%)	PAYG 2115 (%)	Year reserve = 0
Base	10.2	22.5	2058
Base + 1.0%	10.8	19.3	2059
Base – 1.0%	8.9	25.0	2059

5.3 Insured population growth

The following figures show the evolution of the coverage rate by gender and age group used in the base scenario. Table 5.3 presents the resulting growth rate of the covered population. The assumption on the growth of the insured population is one of the most important assumptions of a projection. If the future insured population growth is lower than expected, the contribution rate is going to be higher than projected. Lower population growth means that there will be less insured members available to cover the scheme benefits. Hence the PAYG cost rate and the GAP are sensitive to the assumption on insured population growth.

Figure 5.1 Coverage rate, male, age group, year of projection (percentages)

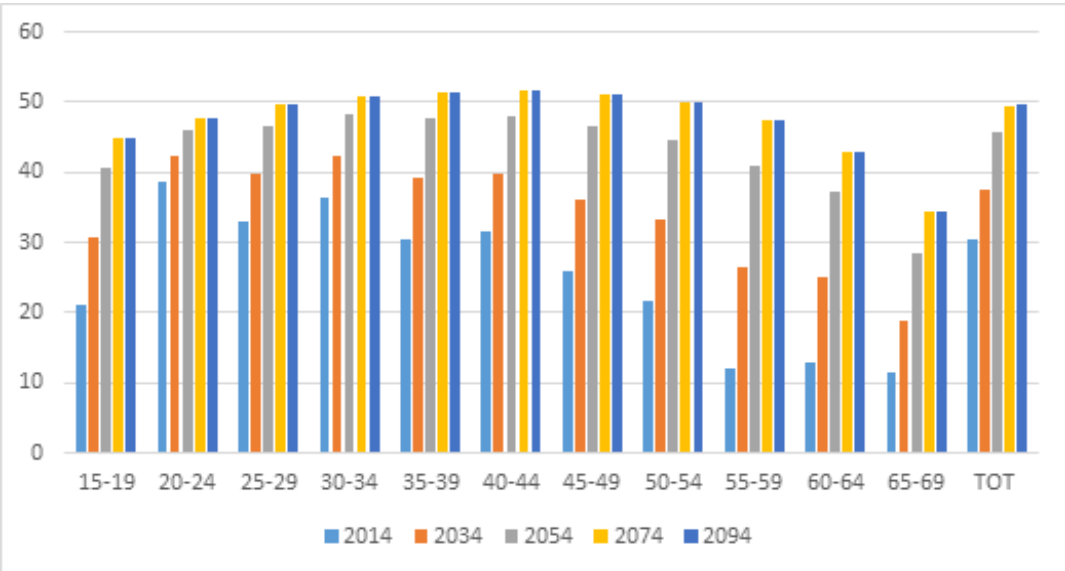


Figure 5.2 Coverage rate, female, age group, year of projection (percentages)

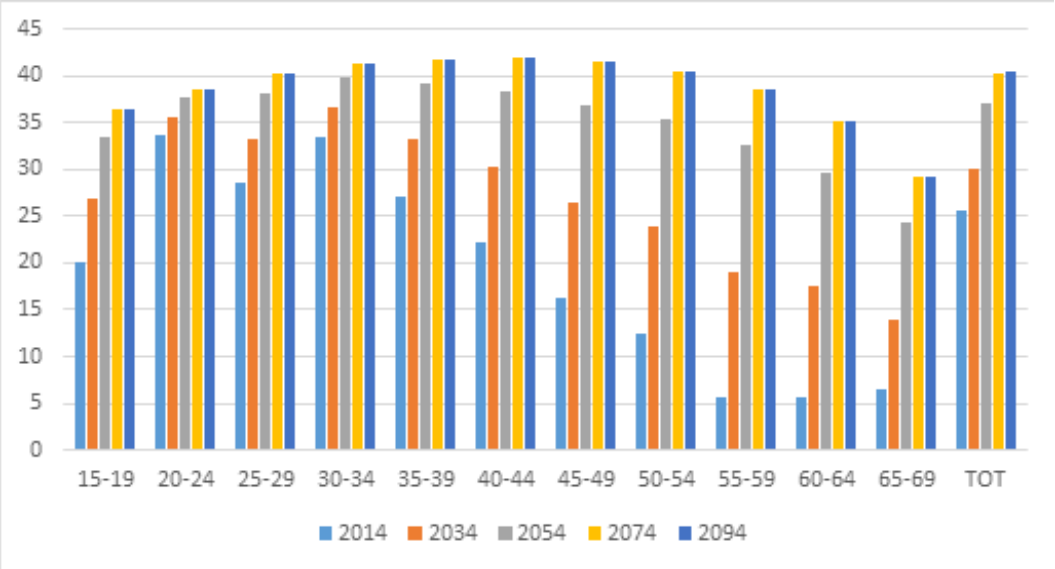


Table 5.3 Insured population growth assumptions, by sex and 25-year period (percentages)

	2015-2040	2040-2065	2065-2090	2090-2115	Average
	%	%	%	%	%
Males	2.5	1.6	-0.2	-0.2	0.9
Females	3.1	2.2	-0.2	-0.2	1.2
Total	2.7	1.8	-0.2	-0.2	1.0

This sensitivity test presents the impact of a lower insured population growth. In this test, it is assumed that there will be no future growth in the formal sector participation rate and that the coverage rate of the insured population will stop increasing in 2034. The following table displays the resulting insured population growth rates of this sensitivity analysis.

Table 5.4 Insured population growth assumptions, by sex and 25-year period (percentages), low growth scenario

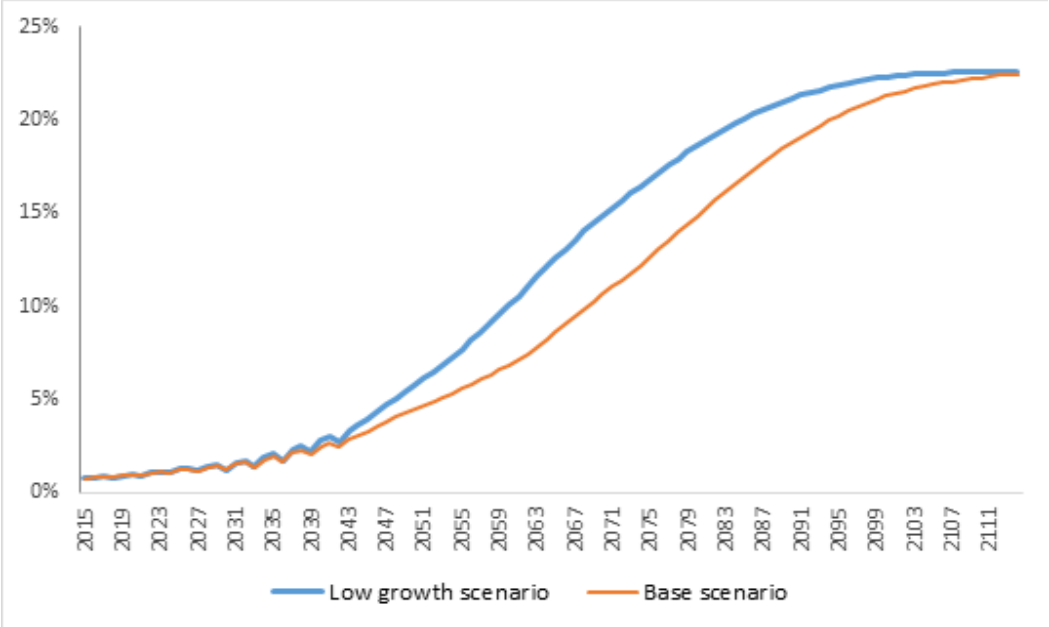
	2015-2040	2040-2065	2065-2090	2090-2115	Average
	%	%	%	%	%
Males	1.5	0.0	-0.2	-0.2	0.3
Females	1.7	0.3	-0.2	-0.2	0.4
Total	1.6	0.1	-0.2	-0.2	0.3

Table 5.5 and Figure 5.3 present the main results of the sensitivity analysis. Ultimately, in 2115, there is still a difference in the PAYG, but not as much as the difference that could emerge before.

Table 5.5 Sensitivity analysis: Population growth

Scenarios	GAP (%)	PAYG 2048 (%)	PAYG 2081 (%)	PAYG 2115 (%)	Year of reserve exhaustion
Base	10,2	4,0	15,3	22,5	2058
Scenario low growth	10,2	5,0	19,0	22,6	2053

Figure 5.3 Projected PAYG rates, 2015 to 2115 (percentages)



Conclusion

This actuarial study has been requested by the Government of Indonesia in order to plan and implement a new pension plan in Indonesia, and the projections were carried out as of 31 June 2015. The generic ILO pension model is fine-tuned to the context in order to review the long-term financial sustainability of the new national pension scheme.

The objective of this report is to help policy makers and stakeholders in designing a financially sustainable and adequate pension system.

An actuarial study requires many assumptions. They are established to reflect long-term trends rather than giving undue weight to recent experiences. It is not the objective of pension projections to forecast the exact development of the scheme's income and expenditure, but to verify its financial viability over the long term. It is also important to bear in mind that there are a lot of uncertainties related to the future outlook of the new pension scheme in Indonesia. Evolution of the general population, the labour participation rates of women in the future, the informal sector, the proportion of employees covered by the scheme, salaries and the return on the assets are examples of variables that can be considerably different from the ones expected at the implementation of the scheme. Carrying out periodical actuarial valuations will help considerably in checking the financial sustainability of the scheme and discussing future gradual reforms of the scheme.

Recommendation 1: Toward universal coverage

The new scheme covers only the formal sector and workers in enterprises of a certain size, it is essential to elaborate ways to extend the pension scheme to those not yet covered.

It is important to keep in mind the reasons why this new pension scheme is being implemented. The late 1990s financial crisis put many people in poverty and this led to discussions and initiatives to extend social protection coverage. It is important to extend coverage to the most vulnerable segments of the population who are not covered by the new pension scheme.

It is recommended that stakeholders should continue to discuss and find ways to extend coverage, including the option of a tax financed universal pension. The present study shows the magnitude of resources to establish a universal pension scheme.

Recommendation 2: Harmonisations and modifications to the new pension scheme, the provident fund and the Labour law 13/2003

While looking at the implementation of a new pension scheme, it is important to carry out a comprehensive overview of the entire system. The existing provident fund and the Labour Law 13/2003 continue to play important roles in providing income protection to the elderly, the disabled and the survivors.

Retirees receive benefits from different schemes, namely the new pension scheme, the provident fund and the Labour Law 13/2003. Analysis in the report raises the question of whether the current resource allocation to different social security and labour protection systems is the most optimal. Steady ageing in Indonesia will cause additional pressure on employers, who are responsible to directly pay the termination benefits under Labour Law 13/2003.

As the new pension system does not meet all the requirements of ILO Convention No.102, it is recommended that stakeholders should discuss potential improvements of the scheme. There is room to reallocate the money in a more optimal way, for example, concentrating all the resources to the new pension scheme so that the benefits from the pension scheme should satisfy the minimum benefits level stipulated in ILO Convention 102.

Recommendation 3: Gradual contributions rate increase

The medium and long-term cost of the scheme is expected to exceed the current contribution rate of 3 per cent of insurable earnings, so the contribution rate needs to be increased in the future in order to ensure the sustainability of the scheme. As it may be difficult to introduce a GAP contribution rate as high as 10.2 per cent of earnings at the implementation of the new scheme, a gradual increase of the contribution rate relying on a scaled premium method is recommended to ensure the long-term sustainability of the scheme.

Recommendation 4: Indexation of the contribution ceiling and the maximum and minimum pensions

Under the current legislation, the maximum insurable salary (ceiling) is indexed in line with GDP growth. As earnings may increase at a higher or slower pace than GDP in the future, it is recommended that the indexation of the maximum insurable earnings should be in line with the average wage increase.

The current legislation provides that the maximum and minimum pension payments are indexed in line with inflation. As earnings usually increase at a higher pace than inflation in the future, linking the indexation of the annual maximum and minimum pensions to the inflation rate may result in a decrease of the pension replacement ratio. Furthermore, the indexation of the maximum pension in line with inflation will create a potential disincentive for insured members to fully declare their individual earnings for contributions, leading to an erosion of the contribution basis.

Under this regulation, both the contribution payments and the pension payments are expected to be eroded, resulting in a significant reduction of the replacement ratio over time. In order to ensure a more appropriate and sustainable income protection at the time of old age, setting the

right incentives to properly contribute and to be awarded with modest but proper pensions, the maximum salary (ceiling) and the maximum and minimum pensions should be indexed in line with the average wage increase.

Recommendation 5: Modifications to the proposed system

Additional modifications to the benefits of the new system can be considered.

- During the first 15 years of the scheme, nobody will be able to qualify for a pension because the eligibility period is 15 years. It is suggested to analyse the feasibility to grant to individuals close to retirement additional years of service to lead to swift pension disbursements from the scheme. This would help the scheme to build trust among members and to provide more appropriate old age income protection at an early stage.
- The impact of the integration of civil servants, the army and the police to the new pension scheme should be analysed once details become available.

Recommendation 6 : A financing policy should be adopted

It is recommended that BPJS should adopt a financing policy in order to:

- Formalize the long-term funding objectives of the scheme: for example, targeting an appropriate level of reserves over the long term. This objective is a major driver of increasing the contribution rate;
- Better understand the risks and advantages of financing options; and
- Enhance scheme governance by increasing transparency.

Financing rules must address the interests of stakeholders:

- Scheme participants as contributors to the system and former participants as beneficiaries of the system;
- Employers as one of the parties bearing responsibility for financing the pension system; and
- The general public and the government.

The funding policy would specify:

1. Contribution rates;
2. Risks faced by the scheme and how these risks can be managed;
3. Risk tolerance;
4. Allocation of risks among participants and employers;
5. Financing objectives such as contribution stability or improving the reserve-to-expenditure ratio;
6. Frequency of actuarial valuation and the method of actuarial projection;
7. Financing method;

8. Goals related to intergenerational equity; and
9. All other funding issues.

It is recommended that BPJS should hold discussions with stakeholders on the possibility of implementing an explicit written financing policy, which should be periodically reviewed.

Recommendation 7: A long-term investment policy should be adopted

A financing policy cannot stand alone without a proper long-term investment policy. The BPJS Law does not allow cross-subsidization between each branch, namely employment injury, death, provident fund and pension branches. The absence of cross-subsidization means that, for each branch, a tailor made funding and investment strategy should be adopted. For the new pension scheme, a long-term investment strategy should be adopted. The BPJS accumulates a substantial amount of assets as there is a long time lag between the time of contribution payments and the time of benefits awarded in the future. A well-documented investment policy should be implemented and be based on risk management principles and international guidelines. It is important to note that there should be a proper balance between the objective of higher investment returns and the long-term stability of the assets.

The choice of the financing strategy will considerably affect the level of assets to be held in the fund, and the level of assets will considerably affect the future level of contribution rates. Regarding the pension scheme design, it is important to answer some crucial questions: for example, the maximum level of assets that can be efficiently invested, the amount of assets acceptable to society, and the maximum contribution rate that a society can afford.

Asset diversification is a way to reduce the overall risk of the portfolio, and can be carried out in both the domestic and foreign portions of the portfolio.

Recommendation 8: The actuarial valuation in the heart of

Future discussions about the pension system should be based on periodical actuarial valuations performed by the actuarial unit of BPJS Ketenagakerjaan. To undertake the actuarial valuation, the actuaries of BPJS Ketenagakerjaan have developed their own actuarial model. Using the ILO model, a home-made model or another model to undertake the actuarial valuation are all acceptable options so long as the models are developed on proper and standard actuarial methodologies. It should, however, be kept in mind that important decisions should be based on the result of actuarial valuations. It is also suggested that a formal peer reviewing process should be undertaken. Under a peer reviewing process, an external actuary is making a report on the actuarial methodology and the assumptions used to assess the appropriateness and technical soundness of the performed actuarial valuation.

Recommendation 9: Employment injury benefits

The The financing mechanism of the employment injury benefits should be self-financing and should not be included as part of the new pension scheme. For example, the disability and survivor pensions are paid from the new pension scheme, but those benefits for employment related accidents need to be financed out of the employment injury scheme. This would respect

the principle of the BPJS Law that there should not be cross-subsidization between each branch (employment injury, death, provident fund and pensions). It is recommended that a feasibility study to implement an experience-based contribution rate system should be conducted in the future.

It is also recommended to use the terminal funding method to finance the employment injury long-term benefits.

APPENDIX 1

Methodology, data and assumptions

This actuarial review makes use of the comprehensive methodology, developed at the Public Finance, Actuarial and Statistics Services Branch of the ILO, for reviewing the long-term actuarial and financial status of a national pension scheme. The review has been undertaken by modifying the generic ILO Pension model to fit the specific case of the BPJS Ketenagakerjaan. The ILO Pension model consists of a population, economy, labour force, wages, long-term benefits and a short-term benefits model.

The actuarial valuation starts with demographic and economic projections, while factoring in social security specifications and thus building the demographic and economic framework to estimate future cash flow and the scheme's reserves. The assumptions selected take into account both recent experience and future expectations, with an emphasis placed on long-term trends.

Assumptions related to the general population and the economy are described in the core text of this report. This appendix will present only data and assumptions related to BPJS Ketenagakerjaan (BPJS).

1 Projection of BPJS income and expenditure

This actuarial study addresses BPJS revenue and expenditure related to the pension branch (old age, invalidity and survivors) and death lump sum benefits. Employment injury results are presented in a separate section. For each year up to 2115, the number of contributors and pensioners, the value of contributions (in rupiah), benefits and administrative expenditure are estimated. Once the projections of the insured (covered) population, as described in the next section, are complete, contribution income is then determined from the projected total insurable earnings, the contribution rate, contribution density and the collection rate. Benefit amounts are obtained through contingency factors based primarily on plan experience and applied to the population entitled to benefits. Investment income is based on the assumed yield on the beginning-of-year reserve and net cash flow in the year. The BPJS's administrative expenses are modelled as a flat percentage of insurable earnings. Finally, the year-end reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

The administrative expenses assumption is 0.5 per cent of total insurable earnings each year.

2 BPJS population data and assumptions

The projection of the insured population requires a certain amount of information and a number of assumptions. Projections start with the number of contributors as of the date of the analysis. The growth of this population is then estimated using the assumptions described in the next section. Several other assumptions of decrement are required, namely retirement rates by age and sex, and the prevalence rate of disability and mortality rates. Finally, a distribution assumption is required for new entrants into the covered population.

2.1 Insured population as of the valuation date

Data on the insured population was obtained from BPJS. The information was validated to ensure that the data is comprehensive and consistent. Table A1.1 shows the number of members who contributed during the last financial year preceding the valuation date (2013), by age and sex.

Table A1.1 Distribution of active members (contributors) by age and sex for 2013

Age	Males	Females	Total
15 - 19	223 174	201 975	425 149
20 - 24	1 389 794	871 765	2 261 559
25 - 29	1 636 672	769 606	2 406 278
30 - 34	1 699 282	698 887	2 398 169
35 - 39	1 258 257	464 718	1 722 975
40 - 44	1 096 747	321 789	1 418 536
45 - 49	697 876	177 129	875 005
50 - 54	427 524	89 794	517 318
55 - 59	123 402	19 861	143 263
60 - 64	42 406	5 820	48 226
65 – 69	14 698	2 342	17 040
Total	8 609 832	3 623 686	12 233 518

Source: BPJS, only insured aged under 70 have been taken into account in this study

2.2 Projection of the insured population

In order to forecast BPJS's costs, the initial insured population has to be projected over the long term. Thus, the projection of the insured population constitutes the basis for projections of the scheme's costs. The result of the projections will be considerably impacted by the choice of assumptions that have an influence on the evolution of the insured population (fertility, labour participation and coverage rates). Generally, these projections require the use of assumptions pertaining specifically to the population, such as retirement rate by age and sex.

For this actuarial study, the insured population was projected by applying a coverage rate to the employed population in the formal sector. The total growth of the insured population is thus dependant on the evolution of the coverage rate and the evolution of the employed population in the formal sector. Mortality rates and disability rates by sex and age group are applied to the insured population to determine each year the number of people who become disabled or retired. The number of new entrants and newly retired are determined implicitly with the evolution of the coverage rate and the employed population. Checks have been performed to verify if the distribution of newly retired makes sense.

The following table shows by gender and age group the evolution of the coverage rate.

Figure A.1.1 Coverage rate, male, age group, year of projection (percentages)

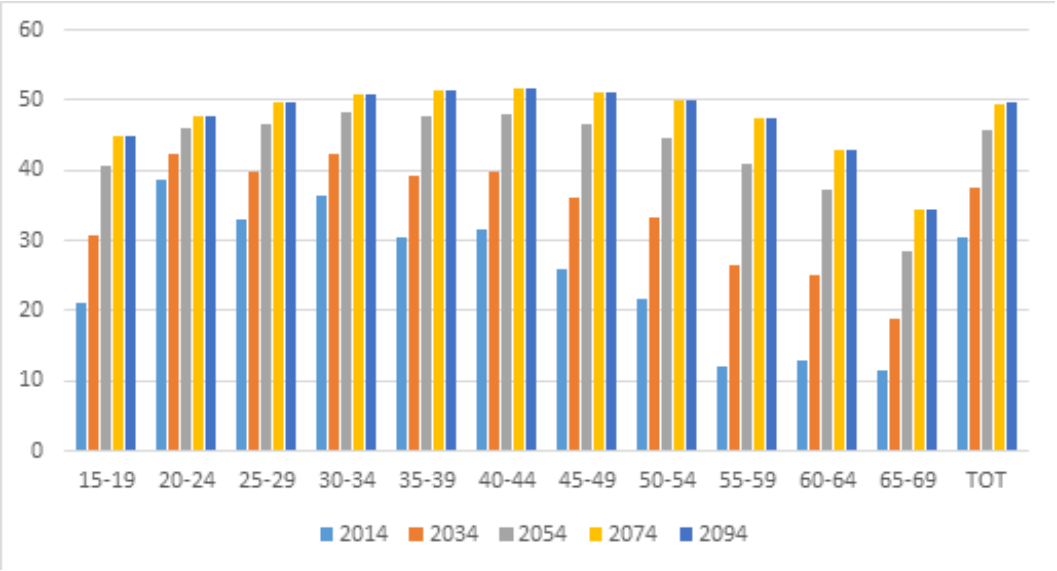


Figure A.1.2 Coverage rate, female, age group, year of projection (percentages)

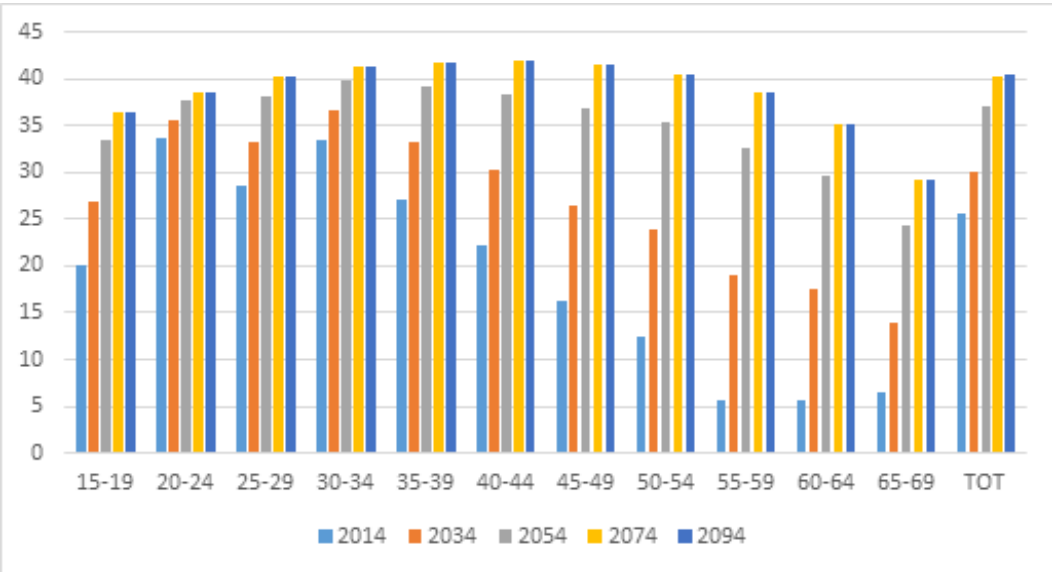


Table A.1.2 Insured population growth assumptions, by sex and 25-year period (percentages)

	2015-2040	2040-2065	2065-2090	2090-2115	Average
	%	%	%	%	%
Males	2.5	1.6	-0.2	-0.2	0.9
Females	3.1	2.2	-0.2	-0.2	1.2
Total	2.7	1.8	-0.2	-0.2	1.0

Mortality rates

According to the draft actuarial valuation produced by the BPJS actuary, mortality rates for the insured population are considerably lower than for the general population. This phenomenon has been observed in other countries. On average, those who have access to a pension plan are those who normally have a high income. The morality rates vary considerably by level of income. For this actuarial study, the mortality rates of the general population have been multiplied by a factor of 70 per cent to take this difference into account. This represents an increase in life expectancy at age 56 of about three years for males and females.

Distribution of new entrants

There is no explicit assumption related to the distribution of the new entrants. The distribution of the new entrants is taken into account implicitly in the evolution of the coverage rate.

Disability incidence rates

Table A1.3 shows the expected incidence rates of insured persons qualifying for invalidity benefit, which is assumed for all projection years. These rates are not based on the experience of the BPJS provident fund since it is likely to be different due to the difference of benefits. The level of disability incidence rates is based on the experiences of other countries (Malaysia, Thailand).

Table A.1.3 Disability rates, by age and sex (per 100 insured)

Age	Males	Females
15	0.000	0.000
20	0.003	0.002
25	0.013	0.008
30	0.026	0.025
35	0.054	0.047

People with disabilities generally have a higher mortality rate than active participants. Due to the low number of disabled and the high level of uncertainties, the same mortality rate as for the active and insured population has been assumed. Incidence rates in the future take into account the increase in the retirement age.

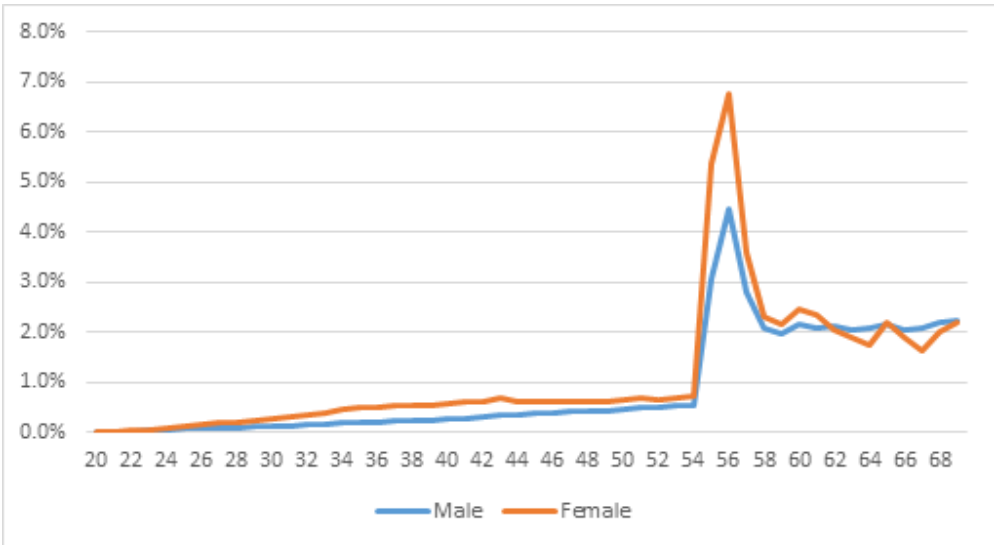
Withdrawal and retirement rates

Under the current provident fund, there are many members that withdraw their money when unemployed. If a member has contributed for at least five years and is unemployed for one month, they can withdraw the value of the account. The high frequency of withdrawals suggests that the money accumulated for retirement purposes can be very low for some members.

Under the proposed provident fund, it is still possible to withdraw money, but there are more restrictions:

- The withdrawal is subject to 15% of the account;
- Subject to a maximum of three times during the contributory period;
- The member should have contributed at least ten years and each withdrawal should not be within five years of the previous one.

Figure A.1.3 Average withdrawals and retirement rates, 2009 to 2013, by sex, by age



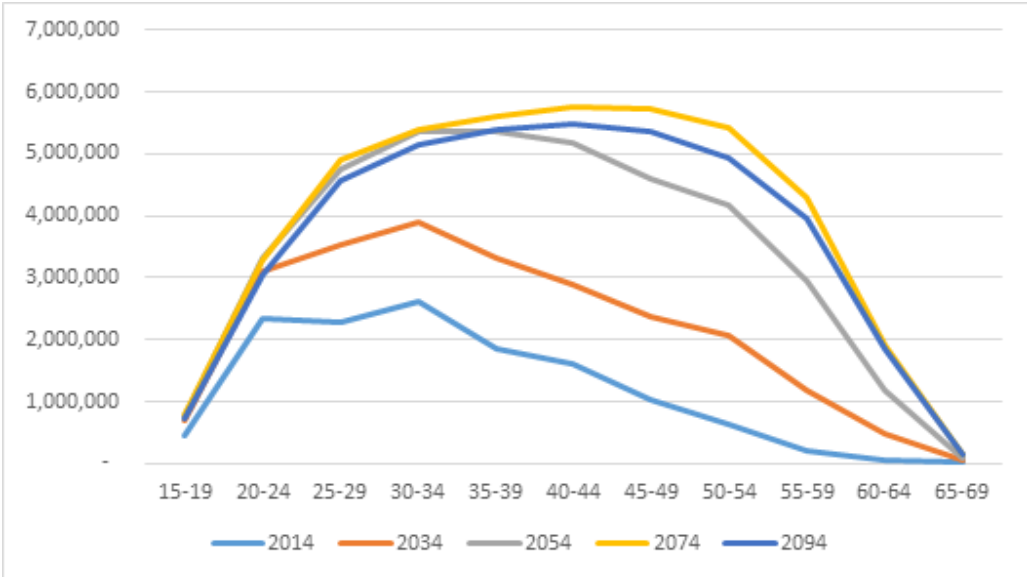
Source: BPJS

In the pension plan, withdrawals are not going to affect the level of the old age pension like the withdrawals affect the level of the account on retirement. Of course, withdrawals are going to affect movement in the insured population and the rhythm of accumulation of years of service. Instead of starting again to accumulate an account, those who have left the scheme and come back will continue to accumulate years of service. For this actuarial study, we did not use withdrawal rates. Tests have been performed to make sure that it is a reasonable assumption under these circumstances.

Structure of the insured population

Figure A1.4 shows the age structure of the initial insured population, together with those projected as prevailing in 2034, 2054, 2074 and 2094. At the beginning of the projection period, the number of insured who contribute is 13.1 million and the average age is 33 years, while in 2094 40.6 million people are insured with an average age of 39 years.

Figure A.1.4 Distribution of the insured population by age, 2014 to 2094



2.3 Salary scale and density of contribution

Table A.1.4 shows the salary scale used at the beginning of the projection period. Earnings are projected using the assumptions described earlier.

For the purpose of the projection, the actuarial model distributes average wages into three sections (low, medium, high) with the aim of measuring the effect of the minimum pension and the ceiling. It is estimated that the dispersion observed in the distribution of the earnings will remain constant throughout the projection period. As mentioned in Chapter 2 (section 2.2.3), the overall average salary increase assumption is 10.8 per cent for the first year of the projection and decreases slowly to reach an ultimate assumption of 4.5 per cent in 2049.

Table A.1.4 Distribution of monthly earnings1 by age and sex, 2013 (in Rupiah)

Age	Males	Females
15-19	1 879 046	1 879 046
20-24	2 091 147	2 091 147
25-29	2 379 868	2 379 868
30-34	2 777 843	2 777 843
35-39	3 238 016	3 238 016
40-44	3 729 949	3 729 949
45-49	4 105 660	4 105 660
50-54	4 441 758	4 441 758
55-59	4 538 155	4 538 155
60-64	4 597 773	4 597 773
65-69	4 606 919	4 606 919
Average	**3 489 649**	**3 489 649**

Source: BPJS

The density of contributions represents the proportion of the year during which participants pay contributions to the scheme. A high contribution density means that participants will accumulate pension benefits quickly and that the proportion of those entitled to a pension will increase, to the disadvantage of those entitled only to a grant benefit. In the private sector, it is normal that the density of contribution is less than that observed in the public sector, due to less stability in employment. The contribution density assumed in this actuarial valuation is shown in Table A1.5. No data on density of contributions was available. According to some tests and comparing against the financial statement, this assumption appears reasonable.

Table A1.5 Density of contributions, by age and sex (percentages)

Age	Males	Females
15-19	**85**	**85**
20-24	**85**	**85**
25-29	**85**	**85**
30-34	**85**	**85**
35-39	**85**	**85**
40-44	**85**	**85**
45-49	**85**	**85**
50-54	**85**	**85**
55-59	**85**	**85**
60-64	**85**	**85**
65-69	**85**	**85**

2.4 Past service

Since the scheme is new, there are no accumulated contribution years on the date of the actuarial study.

2.5 Pensioners at the valuation date

Since the scheme is new, there are no pensions in payment on the date of the actuarial study.

2.6 Family structure

Information on the family structure of the insured population is necessary for the projection of survivor benefits. Assumptions have to be established on the probability of being married at death, the average age of spouses, the average number of orphans and their average age. Examples of the assumptions appear in Table A1.6. The statistics related to the probability of being married and the average number of children have been provided by BPJS. Other statistics are based on the experiences of other countries.

Table A1.6 Family statistics

Age	Probability of being married		Average age of spouse		Average number of dependent children		Average age of children	
	Male %	Female %	Males	Female	Males	Female	Males	Female
15	1,5	3,4	15	15	0,1	0,1	0,0	0,0
20	20,4	39,5	15	25	0,1	0,7	0,0	1,7
25	50,0	72,0	20	30	0,7	1,2	1,7	3,3
30	76,2	86,8	25	35	1,2	1,7	3,3	5,0
35	88,9	90,5	30	40	1,7	2,0	5,0	6,9
40	93,1	89,6	35	45	2,0	2,0	6,9	8,9
45	94,5	86,6	40	50	2,0	2,0	8,9	11,3
50	94,5	80,8	45	55	2,0	2,0	11,3	13,8
55	93,8	72,6	50	60	2,0	1,5	13,8	16,3
60	91,7	61,0	55	65	1,5	1,2	16,3	18,8
65	88,5	48,7	60	70	1,2	0,9	18,8	21,3
70	83,5	35,8	65	75	0,9	0,7	21,3	23,0
75	77,7	25,6	70	80	0,7	0,6	23,0	23,0
80	71,7	18,1	75	85	0,6	0,4	23,0	23,0
85	65,4	13,1	80	90	0,4	0,3	23,0	23,0
90	60,3	10,9	85	95	0,3	0,3	23,0	23,0
95	56,5	11,4	90	99	0,3	0,2	23,0	23,0

2.7 Return on assets

Although past performance is not indicative of future results, the analysis of the fund's past performance remains useful in the process of determining the appropriate investment return assumption. The average annual real rate of return of the BPJS fund over the last eight years ending on 31 December 2013 is 4.8 per cent.

However, in order to establish the assumption of the expected rate of return on assets, one should not only take into account what happened in the past, but also short-term trends and long-term expectations. Assumptions concerning the expected rate of return on assets should also be driven by the degree of risk the scheme (or stakeholders) is willing to accept. As of December 2013, for the provident fund, close to 27 per cent of assets were invested in time deposits (short to medium term assets), a strategy that is not appropriate for the long-term perspective of the scheme. Prudence is also a key word when making this assumption, because the projection period is long, at 100 years. Twenty or ten years ago, nobody had anticipated today's low interest rate environment. This environment has a huge effect on the cost of pension schemes.

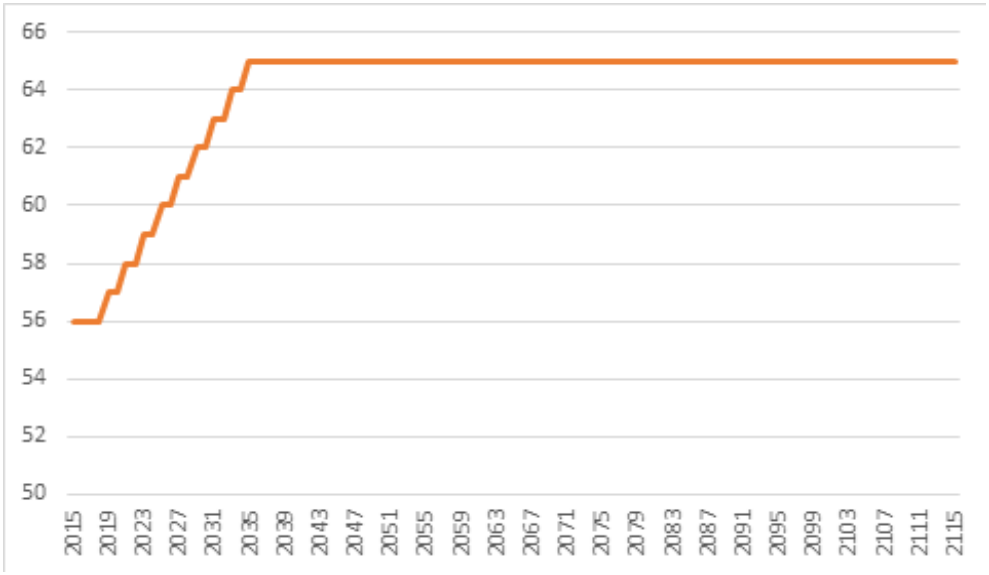
The exercise of making a long-term forecast of expected returns is a challenging task that requires many assumptions. The exercise should also be based on an investment policy, a document that didn't exist at the moment of the production of the report. The more appropriate assumption depends on the risk tolerance, the funding policy objectives and the scheme's

capacity to manage such a long-term portfolio. Analysis shows that if the fund manager wants to follow a long-term investment policy, a real return on assets of 3 per cent over a long-term period could be considered an acceptable actuarial assumption. For some specialists, in the current context, taking into account global risk and the low interest rate environment, this is an aggressive maximum. The real return on assets assumption used in this study will be at a constant level of 3 per cent throughout the projection period.

2.8 Increase in retirement age

The retirement age is proposed to increase gradually to reach the normal retirement age (NRA) in the future. At the implementation of the new pension plan, the NRA was 56. In 2019, the NRA will be increased to 57 and will continue to increase by one year every three years up to a maximum of 65 years in 2035. The following figure illustrates the projected increase in NRA.

Figure A.1.5 Projected increase in the normal retirement age



2.9 Adjustment of pensions in payment and other parameters

Under the base scenario, pensions in payment are assumed to be indexed in the future at a rate equal to 100 per cent of the inflation rate.

Minimum and maximum pensions have been adjusted annually in line with the average increase in salary.

2.10 Initial reserve

The initial reserve is null for the pension branch.

APPENDIX 2

Concepts on the funding of social insurance

1 Pay-as-you-go system

Under this financial system, the contribution rate during a given period, for example, one year (annual assessment) or a few years, is determined in such a way that income from contributions during a period will just cover the expenditure of the scheme during the same period, with a small margin to allow the constitution of a contingency reserve. This is the system usually applied to finance short-term benefits such as sickness and maternity cash benefits. Annual benefit expenditure is expected to remain at a relatively constant level once the scheme has attained a certain maturity, unless the benefit provisions themselves have been changed. The contingency reserve enables coverage of unexpected expenditure due to temporary fluctuations of the risk factors involved. The reserve should, therefore, be maintained in a sufficiently liquid form so that it can be readily resorted to when necessary. If a pure assessment system were applied to a new pension scheme, it would involve frequent revisions of the contribution rate. The annual expenditure under a new pension scheme would begin at a comparatively low level and increase continuously over a long period of time. This is because there will be an increasing number of surviving pensioners. Another reason for escalating annual expenditure is that each new group of pensioners will be drawing higher rates of pensions due to longer insurance periods compared to the previous generations of pensioners. Pure assessment is not appropriate for a new pension system. For a mature scheme, however, this financial system could be adopted.

2 General average premium system

A general average premium (GAP) system provides for a theoretically constant rate of contribution ensuring financial equilibrium ad infinitum. At any time, the present values of all probable future contribution income plus accumulated reserves should be equal to the present value of all probable future outlays, both in respect of the initial population and of future entrants. The contribution rate determined under this system would be relatively high and would lead to a formation of high reserves. Although theoretically constant, the contribution rate is likely, in practice, to be revised at periodic actuarial reviews. If this system were applied to a new pension scheme from the start, the rate of contribution would be relatively high, and this could cause an undue burden on the economy and on the contributing parties.

3 Scaled premium system

It is possible to devise many intermediate systems of finance between the basically unfunded (PAYG) pure assessment system and the fully funded GAP system. The following factors frequently lead to the adoption of an intermediate system of finance:

1. The contribution rate must not be excessive (with respect to the capacities of the members and the economy in general);

2. The initial, and any subsequent contribution rates established under the system of finance applied to the scheme, should remain relatively stable for reasonable periods of time. Increases in the contribution rate should be gradual, particularly when they are not accompanied by an improvement in benefits.

An example of an intermediate level of funding is the scaled premium system of finance. Under this system, a contribution rate is established so that during a specified period, which is known as the period of equilibrium, the contribution income and the interest income on the reserves of the scheme will, in each year, be adequate to meet the expenditure on benefits and administration in that year. In order to avoid a decrease in the reserves after the end of a period of equilibrium, the contribution rate must be revised prior to this and a new higher contribution rate applied during a new period of equilibrium. Thus, the financial equilibrium would be assured for limited periods, such as 20, 15 or ten years, within each of which the contribution rate is supposed to remain stable. Subsequently, it would be increased by stages – 20, 15 or ten years, respectively. There would be a moderate accumulation of funds, the amount of which depends on the length of the period of equilibrium. A short period of equilibrium would result in a low contribution rate, which would have to be increased rather frequently, and would bring about a low degree of accumulation of funds, thus approaching the system of annual assessment. However, a long period of equilibrium would result in a relatively high initial contribution rate and a larger accumulation of funds, and consequently approaches the GAP system. The scaled premium system is flexible, as it permits adaptation to changes in the conditions determining the financing of the scheme. It should be emphasized, however, that the system requires periodic increases of the contribution rate, which are not accompanied by benefit improvements. Although the contribution rate during the initial period of equilibrium will be lower than that under the GAP system, eventually a stage will be reached when it will exceed the contribution rate required under the latter financial system.

4 A fully-funded system

A fully funded system is a system where liabilities are fully funded. Instead of relying on younger generations of workers to pay the benefits, each generation is required to set aside enough money to pay their own benefits. At each moment during the life of the pension plan, accumulated contributions and investment income shall be enough to pay all the promises. If not, deficits should be made good during a stated period. This kind of financing system is more prevalent in the private pension world because it protects workers if the pension plan ends, whereas a public pension scheme is supposed to be in place for ever. A fully funded scheme is also the approach that most respects the principle of intergenerational equity.

APPENDIX 3

The ILO actuarial valuation model: General methodology

This actuarial review makes use of a comprehensive methodology developed by the actuarial services of the ILO for reviewing the long-term actuarial and financial status of national pension schemes. The review was undertaken by modifying the generic version of the ILO modelling tools to fit BPJS's situation. These modelling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model and a short-term benefits model.

1 Modelling the demographic and economic developments

The use of the ILO actuarial projection model requires the development of demographic and economic assumptions related to the general population, economic growth, the labour market and the increase and distribution of wages. Other economic assumptions are related to the future rate of return on investments, the indexation of benefits and the adjustment of parameters, such as the maximum insurable earnings and the future level of flat-rate benefits.

The selection of assumptions for projections took into account the recent experience of BPJS to the extent that this information was available. These assumptions were selected to reflect long-term trends rather than giving undue weight to recent experience. The detailed description of the demographic and economic assumptions is presented in Appendix 2.

2 General population

The general population is projected starting with the most current data on the general population, and applying appropriate mortality, fertility and migration assumptions.

3 Economic growth and inflation

Labour productivity increases and inflation rates are exogenous inputs to the economic model. Real rates of economic growth are derived using the ILO economic projection model.

4 Active population and employed population

The projection of the labour force, i.e. the number of people available for work, is obtained by applying assumed labour force participation rates to the projected number of people in the general population. An unemployment rate is assumed for the future, and aggregate employment is calculated as the difference between the labour force and unemployment. Growth in the insured population is linked to the growth in the employed population. In this model, the insured population is projected starting with the most current data on insured participants, and then applying appropriate mortality, disability and retirement rates.

5 Salaries

Based on an allocation of total GDP to capital income and to labour income, a starting average wage is normally calculated by dividing the wage share of GDP by the total number of employed. In the medium term, real wage development is checked against labour productivity growth. In specific labour market situations, wages might grow faster or slower than productivity. However, due to the long-term perspective of the present study, the real wage increase is assumed to gradually converge with real labour productivity. It is expected that wages will adjust to efficiency levels over time. In this model, in order to take into account the long-term perspective of the actuarial valuation, the long-term real wage increase is based upon a long-term assumption, which is in line with assumptions observed in other actuarial valuations and a long-term view of the economy.

Wage distribution assumptions are also needed to simulate the possible impact of the social protection system on the distribution of income, for example, through minimum and maximum pension provisions. Data on wages by age and sex and on the dispersion of wages are used in the projection. Average earnings, which are used in the computation of benefits, are also projected.

6 Modelling the financial development of the social insurance scheme

The present actuarial study addresses all income and expenditure items of the long-term (pension) benefits. Projections for pensions are made separately for each sex.

7 Purpose of pension projections

The purpose of the pension model is twofold. First, it is used to assess the financial viability of the branch. This refers to the measure of the long-term balance between the income and expenditure of the scheme. In case of an imbalance, a revision of the contribution rate or the benefit structure is recommended. Second, the model may be used to examine the financial impact of different reform options, thus assisting policy-makers in the design of benefit and financing provisions. More specifically, the model is used to develop long-term projections of expenditure and insurable earnings under the scheme, for the purpose of:

1. Assessing the options for building up a contingency or technical reserve;
2. Proposing schedules of contribution rates consistent with the funding objective;
3. Testing how the system reacts to changing economic and demographic conditions: and
4. Analysing the financial impact of possible modifications to the scheme.

8 Pension data and assumptions

Pension projections require the demographic and macro-economic framework already described and, in addition, a set of assumptions specific to the social insurance scheme.

The database, as of the valuation date, includes the insured population by active and inactive status, the distribution of insurable wages among contributors, and the distribution of past credited service and pensions in payment. Data is disaggregated by age and sex.

Scheme specific assumptions, such as disability incidence rates and the distribution of retirement by age, are determined with reference to scheme provisions and the scheme's historical experience. The data and assumptions specific to BPJS are presented in detail in Appendix 2.

9 Pension projection approach

Pension projections are made following a year-by-year cohort methodology. The existing population is ageing and gradually being replaced by successive cohorts of participants on an annual basis, according to the demographic and coverage assumptions. The projection of insurable earnings and benefit expenditure are then made according to the economic assumptions and the scheme's provisions.

Pensions are long-term benefits. Hence, the financial obligations that a society accepts when adopting financing provisions and benefit provisions for them are also of a long-term nature: participation in a pension scheme extending over a whole adult life, either as contributor or beneficiary, i.e. up to 70 years for someone entering the scheme at the age of 16 years, retiring at the age of 65 years and dying some 20 or so years later. During their working years, contributors gradually build entitlement to pensions that will be paid even after their death, to their survivors.

It is not the objective of pension projections to forecast the exact progression of a scheme's income and expenditure, but to verify its financial viability. This entails evaluating the scheme with regard to the relative balance between future income and expenditure. This type of evaluation is essential, especially in the case of BPJS, which has not yet reached its mature stage.

APPENDIX 4

Return to work program in Québec

In Canada, work injury schemes are regulated under provincial laws. There is one Working Injury Compensation Board (WICB) for each of the ten provinces. Each province has its own return to work program. Many features are similar. This briefing note will discuss the return to work program in the province of Québec.

In Québec, besides the right to be compensated, there are two fundamental rights for workers who suffer a work injury or illness: the right to rehabilitation and the right to return to work. Both rights are addressed in the Act.

The goal of rehabilitation services is to facilitate the reinstatement of the worker to the workplace, by eliminating or reducing their incapacity (physical and/or mental) and helping to overcome the consequences of their employment injury in their personal and professional life.

Once a worker is eligible, an individualized rehabilitation plan is put in place by the WICB[25] (employer and employee representatives are invited to participate). This is a tailored intervention, as each case is unique. This plan may include a lot of measures related to physical rehabilitation (occupational therapy), social (adaptation of the home) and professional (adaptation of the workstation). It is an on-going process that may vary according to specific circumstances or new needs that may occur at any point in time. The rehabilitation plan may cease if the worker fails to accomplish or follow some of the rules.

One of the keys to the success of a return to work program is to maintain the link of employment between the worker and his employer. The longer an employee is outside the workplace, the less likely they are going to return to work. Early intervention and collaboration of all parties, worker representatives, the employer, the doctors and the worker injury scheme, are essential to reach the goal of returning to work. It is then that the right to rehabilitation makes sense, since they have the same goal: the return to work.

The advantages of a good return to work program are:

- Make communication and contact between employer and employees easier;
- Help employees to continue working;
- Reduce or eliminate wage loss for employees;
- Minimize lost productivity;
- Reduce the costs of retraining new employees;
- In many cases, reduce the risk of re-injury;
- May reduce work injury premiums.

According to the right to return to work, the employer should reemploy a worker who becomes injured in the same or an equivalent job, with salary and all benefits associated with them. However, if the employment injury prevents the worker from doing the same or an equivalent job or, they have the right to occupy the first suitable employment with the employer. Rules on seniority in collective agreements should, however, be respected. The exercise of this right is subject to the terms that exist in the current collective agreements.

25 In Québec, the WICB is the Commission de la Santé et de la Sécurité au Travail (CSST)

There are deadlines to exercise the right to return to work[26]:

- Two years if the establishment has more than 20 workers[27];
- One year in the other cases.

The ultimate goal of the measures contained in the individualized rehabilitation plan is to promote the return to work of the worker. To this end, the approach used by the WICB complies with an order of priority. It seeks to reinstate the worker:

- First, in their employment or, if it no longer exists, in an equivalent post with the same employer;
- Then, in suitable work with the same employer; and
- Finally, in suitable work elsewhere in the labour market.

If the worker is reinstated in suitable employment but less well paid, the WICB pays a reduced replacement indemnity income. This compensation is calculated and revised as provided by law. The measures of the WICB are focused on the participation and commitment of all parties in finding temporary solutions or permanent return to work. In this regard, temporary assignment is a possible provisional solution.

The goal of temporary assignment is to encourage the prompt return to work of the worker having suffered an employment injury, even if they have not yet fully recovered. It allows the employer to assign the injured worker to another job until the worker can take up their prior post or suitable alternative employment.

The temporary assignment measure applies with the prior approval of the attending physician in the following criteria:

- The worker is reasonably able to execute the proposed work;
- This work does not endanger the worker's health, safety or physical well-being;
- This work promotes rehabilitation.

During this temporary assignment, the employee is entitled to the same pay and the same benefits they had before the accident or the occupational disease. If the worker does not agree with the recommendation of the doctor, and believes they are unable to accept the assignment, they may challenge the recommendation. In the absence of a health committee or a security or safety representative, they can turn to the WICB. The challenge may be submitted by the worker to the Directorate of Revision. During the dispute, the worker is not required to do the work assigned to them by their employer, as long as the doctor's report is not confirmed by a final decision.

26 In some provinces there are conditions, such as the employee must have been at work for at least one year.

27 At the beginning of the period of absence.