

# Aruba

Report to the Government

## **Alternative policy options for the long-term financial consolidation of the Social Insurance Bank**

International Financial and Actuarial Service  
Social Protection Sector  
International Labour Organization, Geneva  
May 2005

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## Abbreviations and acronyms

|      |  |
|------|--|
| AFL  | Aruban Florin  |
| AOV  | General Old Age Pension Scheme administered by the SVb   |
| AWW  | General Widows and Orphans Insurance Scheme administered by the SVb  |
| CBA  | Central Bank of Aruba  |
| CBS  | Central Bureau of Statistics of Aruba  |
| CPI  | Consumer price index   |
| GAP  | General average premium  |
| GDP  | Gross domestic product   |
| ILO  | International Labour Office  |
| IMF  | International Monetary Fund  |
| IPO  | Initial public offering  |
| NAW  | National average wage  |
| PAYG | Pay-as-you-go cost rate (total annual benefit and administration expenditure divided by total annual insurable earnings) |
| SNA  | (United Nations) system of national accounts   |
| SVb  | Social Security Bank of Aruba (Sociale Verzekerings Bank, Aruba)   |

## Exchange rate

1 United States Dollar = 1.77 Aruban Florin



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## Foreword

This study focuses on projecting the financial situation of the General Old Age Pension Scheme (AOV) and the General Widows and Orphans Insurance (AWW) scheme, both administered by the Soziale Verzekeringsbank (SVb) of Aruba (social insurance bank of Aruba).

The study is also the follow-up to a previous study undertaken by the ILO in 2003 (International Labour Office: Aruba. Report to the Government. Actuarial review of the General Old-age Pension Scheme and the General Widows and Orphans Insurance Scheme as of 30 April 2003. Geneva, March 2004.) and attempts to widen the view of the potentials and limitations of different reform proposals.

In its base scenario, the study generally repeats the results of the previous study. Improvements in the application of the pension model, in particular with respect to the process of new pensions creation, has slightly altered the results of the study, i.e. the new results confirm the trends of the earlier actuarial valuation but less dramatically. Further, this study focuses on the issue of introducing a fully funded second tier with individual accounts. It is complemented by proposals aiming at improving the foreseeable difficult financial situation of the SVb.

The study addresses some of the financial implications of the different reform proposals, which should allow the Government of Aruba take decisions as to the general direction of pension reform. For reform steps of a parametric nature, this study may be considered sufficient as a basis for the necessary steps. In case of a more structural reform, especially if a second tier, fully funded, with individual accounts, were envisaged, then further feasibility assessments with respect to the institutional organization (and other issues) would be required before actual implementation. The same holds true if the government opted for a defined-benefit second tier.

The study includes a total of 11 sections, an executive summary and four annexes. The main body of the document contains 34 tables and 42 figures. Annexes 1 to 2 contain the most important calculations used for the study, Annex 3 contains information on minimum wages in Europe and Annex 4 provides information on ILO Convention 102, prepared by Ms. Ursula Kulke, ILO.



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## Acknowledgements

At the request of the Soziale Verzekeringsbank (SVb) of Aruba, the ILO was contracted in 2004 to perform a study on alternative options for the long-term financial consolidation of the SVb, i.e. of its general old age pension scheme (AOV) and the general widows and orphans insurance (AWW).

The Director-General of the ILO appointed Messrs. Wolfgang Scholz, senior economist in the Financial, Actuarial and Statistical Services Branch of the Social Protection Sector of the ILO, and Charles Crevier, actuary, to undertake this study.

Mr. Crevier visited Aruba from 28 September to 7 October 2004, during which time the final terms of reference were discussed, data was collected and alternative policy options for the long-term financial consolidation of the institution were explored.

Mr. Scholz visited Aruba in October 2004 in order to deepen the understanding of the problems underlying the financial future of the SVb and to specify details of the reform options to be modeled. For these purposes, he met with the Minister of Public Health and the Environment as well as the Minister of Finance, the President of the Central Bank of Aruba, the Director of the Central Bureau of Statistics, the social partners and, last but not least, the senior management of the SVb.

The ILO wishes to thank the Central Bureau of Statistics for providing the ILO team with a full set of individual data of the contributors to the SVb. This substantially increases the reliability of the results contained in this report compared to previous reports.

The Director-General of the ILO wishes to express his appreciation to the Director of the Soziale Verzekeringsbank of Aruba, Mr. Raphael Blume. Gratitude is also extended to Mr. Herbert Diaz, who provided the team with data and other valuable information, as well as to the staff of the SVb, the CBA, the CBS, the Ministry of Public Health and the Environment and the Ministry of Finance for their collaboration and assistance provided during the preparation of this study.

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## Executive summary

Aruba's main institution providing old-age income provision, the Sociale Verzekerings Bank (SVb) is facing financial problems, not in the immediate future, but in the medium to longer term<sup>1</sup>.

In accordance with a list of problems/options provided by the management of the SVb (Section 2), this report explores ways to contribute to a rational discussion of what could be done to solve these financial problems and to inform the general public. In order to understand the problems of the SVb's long-term branches (AOV/AWW) within a broader socio-financial context, Section 3 contains a short empirical analysis of the SVb's finances in a social budget framework.

Section 4 explains the demographic, economic and labour market framework upon which all subsequent calculations of the SVb's finances, including reform options, are based. The main assumptions are that net migration to Aruba is assumed to decline to modest levels and the total population grows from around 95,000 in 2003 to around 122,000 by the end of the projection period, 2063. Over the same period, it is assumed that real GDP grows at an annual average of 1.3 percent, while prices continue growing at very moderate levels. Unemployment is assumed to remain at low levels (on average slightly above 5 percent) and workers participate in economic growth through average annual real wage growth of one percent (the labour income share in GDP is assumed constant over time).

The SVb's future financial development was analyzed on the basis of this framework, calculating a status-quo base scenario for reference and various reform options.

## Results

The base scenario (Section 5) confirms the trends of the 2004 actuarial report (see footnote 1) which showed the SVb's reserves being exhausted by 2025, the SVb accumulating enormous debt between 2025 and 2063, and relative pension levels deteriorating significantly. In 2003, the SVb's standard flat single pension amounted to 35 percent of the average insured wage, and by 2063 the same rate deteriorates to only 19 percent. These results are dependent on the following core assumptions: the ceiling is indexed annually with the national average wage (NAW), individual pensions equal 70 percent of the minimum wage and the minimum wage is indexed regularly with the CPI; and retirement age is kept constant at age 60. Indexation of the ceiling is not the current practice in Aruba, however this assumption is used here, as a policy of non-indexation of the ceiling is known to be unsustainable (based on theoretical considerations and similar ILO studies in other countries).

The reform scenario, as proposed by the management of the SVb, is explained in Section 6.8. It consists of the following combination of measures, all of which are assumed to start in 2005):

- normal retirement age is raised to 62 years;

<sup>1</sup>See International Labour Office: Aruba. Report to the Government. Actuarial review of the General Old-age Pension scheme and the General Widows and Orphans Insurance Scheme as of 30 April 2003. Geneva, March 2004.

- the annual contribution assessment ceiling is raised to 60,000 AFL and then regularly indexed with average wage development;
- pensions are fully individualized;
- pensions are increased by 6 percent in 2005 and then regularly indexed to the minimum wage/CPI (as in the base case).

Given this scenario, the effects on the AOV are immediate. The PAYG rate declines to seven percent in 2005 and remains at levels below the present legal contribution rate until 2024. The general average premium (GAP) is 10.3 percent, which is 1.2 percentage points below the legal contribution rate and 4.3 percentage points lower than the GAP of the base scenario (Figure 6.23).

This combination of measures is sufficient to maintain the fund financially stable over time (Figure 6.25), and a major reserve would accumulate. From the results, key years in the future evolution of the scheme have been identified:

- contribution revenue alone is sufficient to meet total expenditure until 2025, and the reserve increases;
- from 2026, part of the investment earnings must be used, in addition to contributions, to meet expenditure, and the reserve continues to increase;
- over the entire period of projection, the sum of contributions and investment earnings is sufficient to meet expenditure;
- the reserve is almost 3 billion AFL in 2023, 10 billion AFL in 2043 and around 35 billion AFL in 2063 or 34, 53 and 93 percent of GDP, respectively.

The combination of measures under this scenario even allows for a reduction of the legal contribution rate by two percentage points without running the scheme into deficit (Figure 6.26).

This reform scenario (Section 6.8) appears to bring an effective solution, as the fund remains financially stable over time, and thus ensures the continued availability of the social purposes of the SVb, while simultaneously limiting the scope for differences in benefit rates based on deliberate behavioral decisions of the insured persons.

However, this reform would come with an unacceptably high price with respect to the future relative level of pension benefits. In 2063, with 15 percent, the replacement rate<sup>2</sup> of a single pension is almost meaningless for almost all retirees (Table 6.11). The suggestion to index pensions with the CPI (by way of fixing the single pension at 70 percent of the minimum wage), raising (and wage-indexing) the ceiling and fully individualizing the premium substantially widens the gap between contributions paid throughout active years and benefits received during retirement for many individuals (Table 3.9 and Section 5).

Control calculations not included in this report show that the reform scenario (Section 6.8) with wage-indexation of benefits (NAW instead of CPI-indexation) would maintain the pension replacement rate but would lead to a financial collapse of the SVb in the near future.

<sup>2</sup> Single pension in percent of the national average wage.



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Section 6 contains calculations in which the impact of each single measure under the reform was calculated separately. It also contains information on further parametric reform possibilities discussed. These calculations confirm, *inter alia*, that increasing actual retirement age (without increasing pension entitlements) is the most effective measure to reduce the financial problems of the SVb.

In its financial logic (contributions collected on the basis of wages, flat benefits for everyone independent of contributions paid) the SVb is, over the long run, in danger of violating the principle of equivalency between contributions paid and benefits received. Thus, the report deals with the proposal that the government may want to introduce a component on top of the existing scheme in order to provide additional old-age pension income based on individual (additional) contributions.

This report discusses only a limited number of questions to be addressed in case a fully funded mandated second tier with individual accounts was actually to be introduced (Section 7). At its core is the issue as to the amount of income replacement to be produced in such a tier under different contribution rates<sup>3</sup>.

According to the nature of second tier pensions, no general assessment can be made with respect to income replacement expected as the annuity varies with the number of years for which contributions were paid. Based on the non-volatile macro-economic assumptions of this report, assuming a man aged 25 in 2005 and retiring at 62 years of age, contributing without interruptions to the second tier, which earns 5.1 percent per annum, with annual administration costs absorbing one fifth of the rate of return, the results suggest the following:

A contribution rate of between six and eight percent is required in order to achieve a replacement rate (in the year of retirement, i.e. 2043) sufficiently high to compensate for the replacement losses under a pure CPI-indexed flat AOV-benefit. For all men younger than 25 in 2005 and therefore having contributed longer, the replacement would be higher. For the majority of older persons who have contributed fewer years, i.e. during a long transition period before scheme maturity<sup>4</sup>, the replacement would be lower. These results are based on gender specific assumptions on life expectancy. In other words, at identical contribution rates the replacement rates for women are lower and therefore women would be the clear losers of this reform approach. This deficiency could only be countered by using unisex life-tables, lifting the annuities for women, and reducing those for men (Table 7.5). These results do not take into account any variations in replacement levels due to volatile financial markets, which have been described elsewhere<sup>5</sup>.

Again, control calculations not included in this report show that the same effect could be achieved for everyone, i.e. without the risk of volatile financial markets, without gender-differentiation and without replacement rates declining during transition, with the measures of the reform scenario (Section 6.8), and by increasing the legal contribution rate to 16.0 percent and wage-indexation of pensions under the AOV.

<sup>3</sup>For reasons of simplicity only, for these calculations male- and female-specific assumptions on life expectancy were assumed. Under real life conditions unisex life-tables would have to be applied.

<sup>4</sup>Maturity: All contributors have paid, at retirement, a “full working life”.

<sup>5</sup>Most recently, for example: Christian Rieckhoff: Chancen und Risiken einer Altersvorsorge mit Aktienfonds. In *Soziale Sicherheit. Zeitschrift für Arbeit und Soziales*. AiB Frankfurt. 11/2004; pages 393 to 397.

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Under a six percent contribution rate scenario, the second tier would accumulate net reserves in the order of 36, 60 and 66 percent of GDP (3.3 billion AFL, 11 billion AFL and 25 billion AFL) in 2023, 2043 and 2063, respectively, which would be in addition to the reserves accumulated under the reformed AOV (see above).

In assuming that both first (AOV) and second tier would be kept under the one roof of the SVb, which is recommended in a “small-country-case” (clearing house approach), combined accumulated reserves would amount to 77, 117 and 158 percent of GDP (7, 22 and 60 billion AFL) in 2023, 2043 and 2063, respectively<sup>6</sup>. Of course, these significant amounts might raise concern as to how and where to invest these funds productively. Also, more fundamental questions arise as to whether social security should hold “ownership” of such enormous portions of the underlying capital stock of Aruba’s economy (Section 7.2).

## Conclusions

Whichever reform option is considered, there is no solution to the growing old-age financing problem that would satisfy all stakeholders of the scheme equally. Benefit eligibility conditions will have to be tightened (in particular, by increasing the retirement age) and more money will be needed to finance Aruba’s upcoming demographic transition. At the same time, measures have to be taken in order to maintain present relative benefit levels (replacement rates) without upsetting society’s consensus on the scheme’s highly redistributive design, which has contributed substantially to poverty avoidance in Aruba.

The reform option (Section 6.8) is a step in the right direction, however, it cannot be recommended as the sole measure as it leads to old-age poverty in the medium and longer term (due to CPI-indexation). An amount would have to be added to the reform, which at least maintains present relative pension benefit levels (replacement rates).

One possibility, along the lines as discussed in Aruba, is to add a second tier to the present, reformed, scheme. In order to make this meaningful (in terms of replacement rates of individual annuities to be expected) a contribution rate of at least six percent would be required. At such a rate, together with the reserves accumulated under the reformed first tier (AOV), social security could easily become the monopolistic “owner” of the majority of Aruba’s tangible capital stock over the longer term. Also, major problems of investing the accumulated funds effectively and, later, of keeping amounts liquid for payment of benefits, will inevitably occur. An alternative “small solution”, i.e. a second tier with a contribution rate of two percent, will not come close to solving the problem of a too low income replacement rate of CPI-indexed flat AOV pensions.

For the same reason, the option to reduce the present legal AOV rate by two percent (to 9.5 percent) and using the two percent for the set-up of a second tier was also dismissed. With 9.5 percent the AOV would, under the reform scenario (Section 6.8), still maintain positive reserves over the full projection period but at the price of a long-term marginalization of the pension replacement rate, to which the two percent second tier would add next to nothing.

Another possibility would be to use the same additional six percent of wages and salaries in order to finance the AOV under present principles (after reform according to Section 6.8), modified however by wage-indexation of pensions (instead of CPI-indexation). For individuals, the balance between lifetime contributions paid and benefits received would not change significantly in comparison to the present situation (Table 3.9) but old-age income expectations for the individual contributor would be much more stable in

<sup>6</sup> Assumed AOV contribution rate 11.5 percent.

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comparison to the income insecurities inherent to a fully funded second tier approach. Under this possibility, gender equality could be maintained and replacement rates would not deteriorate.

Under such a scenario the SVb would maintain a permanently positive reserve over the full projection period accumulating 60, 55 and 45 percent of GDP (5.5 billion AFL, 10.2 billion AFL and 16.9 billion AFL) in 2023, 2043 and 2063, respectively.

For the time being, wage indexation is not possible in practice as a stable statistical environment for the national accounts and, thus, a reliable, consistent and regular estimation of a national average wage (required for wage-indexation of pensions) is not possible. In this respect, administrative improvements are necessary under any reform option adopted.

A six percent increase of the contribution rate (either under a second tier or under a reformed AOV) would, of course, be a drastic measure. Therefore, an incremental introduction would be advisable, and most acceptable to contributors (whether employers and/or workers) in an economy with growing nominal wages. The fact that the AOV would accumulate substantial reserves under this scenario might allow for a careful fine-tuning (reduction) of the legal contribution rate over time. In due time, one could also consider a further increase of the legal retirement age.

Control calculations show that under the reformed AOV (Section 6.8; wage-indexed) a long-term legal contribution rate of 16.0 percent (AOV) would be sufficient to maintain a substantial reserve over the long run.

Questions of efficiency of contribution collection have also been addressed in this report (Section 8). It was not possible, however, to estimate a reliable non-compliance rate of contribution collection. As the tax office, which is in charge of collecting contributions and transferring them to the SVb, is in a process of modernization, it remains to be seen how contribution collection rates will be affected once this process is completed. Thus far, no clear conclusions can be drawn as to whether the government should opt for outsourcing contribution collection to the SVb (or the health insurance or a common institute of both) or whether it should maintain the present organizational arrangement.

Auditing and actuarial valuations of the SVb, and especially the AOV/AWW, will also be necessary in the future. In order to substantiate its own standing within the national discussion, the SVb should take measures to improve its own capacities. It is hoped that this report contributes to such steps (Section 10).

## Recommendations

1. Firstly, it is recommended that the proposed reform measures as discussed in Section 6.8 be carried out. This entails raising the contribution assessment ceiling to 60,000 AFL by 1 January 2006 at the latest, ideally increasing the legal retirement age to 62 and fully individualizing contribution payments and pensions simultaneously. However, the recommended increase in the legal retirement age does not necessarily need to occur in 2006 as technically proposed in the ILO model, but it should not be postponed beyond 2008. Full individualization is included despite initial set-up costs as the medium and long-term financial effects will be positive and the SVb has sufficiently high reserves in order to finance this reform component. Again, with respect to the timing of the introduction of individualization, there is some leeway. It may be considered that at least the individualization of contribution payments should occur in 2006. It is not necessary that individualization of pensions occur on that date, as a postponement of two to three years for the individualization of pensions will help to ease the effects of “dual” individualization on certain pensioners.

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2. Secondly, but of the same importance as (1) above, a regular annual mechanism of ceiling indexation according to the development of the national average wage has to be made effective. If such a mechanism is implemented, a further ad-hoc increase of the ceiling to 75,000 AFL is not recommended as this might upset the currently acceptable balance between contributions paid and benefits received.
  3. According to the foreseeable timetable, the first indexation of the ceiling (assumed 60,000 AFL in 2006) could take place on 1 January 2007. For this purpose, time-series estimates of Aruba's national average wage (NAW; national accounts methodology) should be available up to at least 2005. It is therefore important that the CBS (national accounting section) prepare this data and, simultaneously, establish a reliable routine for wage estimation in the future. In autumn 2006 a first preliminary estimate of the national average wage in 2006 should be available. Based on this information, details of the adjustment formula (lag structure, etc.) could be determined. The ceiling for the following year should be determined in autumn at the latest. The CBS could analyze the required statistics and prepare the estimates during the work period from spring 2005 to autumn 2006 when, at the latest, the ceiling for 2007 should be made public.
  4. Assuming that the national average wage is made available, pensions should be indexed accordingly, i.e. based on the development of the NAW. As pensions were increased on 1 January 2005, the next indexation should take place on 1 January 2006. As, according to (3), the required national average wage estimates will not be available in autumn 2005, pension indexation could be based, temporarily, on CPI development (for example [CPI Oct 2004 to Sep 2005] / [CPI Oct 2003 to Sep 2004]<sup>7</sup>). The next indexation (1 January 2007) should be based on the same information (not necessarily exactly the same indexation formula, which still would have to be established) as used for ceiling indexation, i.e. the NAW. Subsequent indexations should also not be based on average insurable earnings as these might be influenced by ceiling adjustments. Only if, after sufficient experience, NAW and insurable average wage prove to develop in parallel, one might use the administrative information available on the insurable wage for pension indexation.
  5. On 1 January 2006 the AOV contribution rate should be increased by one percentage point, followed by a one-percentage point increase each year until the target rate of 16.0 percent is reached. On 1 January 2006 this could be done by shifting one point from the AWW to the AOV – which leaves sufficient room for prudent financing of the AWW expenditure. Calculations suggest that the AOV would require 4.5 percentage points in addition to the present rate of 11.5 percent, however, depending on actual economic, labour market and financial market developments, a slightly lower additional amount might be sufficient.
  6. Recommendations (1) to (5), together, result in a substantial increase of the SVb's reserves several times above present levels (in percent of GDP). As investment in domestic markets of all accumulated funds might prove difficult or even impossible, the government and/or the SVb should explore, together with the CBA, options (in terms of quantity and quality) of investing parts of the accumulating amounts abroad (US, EU, Asia). An explicit investment policy should also be formulated according to standard rules of efficient financial markets. While the reserves would accumulate under the SVb and, also, the government and/or the SVb would assume final responsibility, investment decisions, as well as general investment policy, should be outsourced to an investment board. Members of the board should be financial market specialists (possibly from Aruba's financial

<sup>7</sup>Or the same period as used for the indexation of the minimum wage (August (t-1) : August (t)). See, for example: Sociaal Economische Raad: Aanpassing minimumlonen 2004. Advies. Mimeo. De Sociaal Economische Raad December 2003.

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industry), the CBA, the SVb, employers and trade unions. Particular care must be exercised in formulating the statutes of the board (purpose, membership, voting procedures, etc.).

7. Thus far, no clear conclusions can be drawn as to whether the government should opt for outsourcing contribution collection to the SVb (or to the health insurance or to a common institute of both) or whether it should maintain the present organizational arrangement. It is recommended to wait for the results of the tax collection reform measures before considering further steps. In any case, closer institutional collaboration between the SVb and the Tax Office is absolutely necessary in future for a more effective governance of the social security of Aruba, especially in terms of information sharing.

As an annotation to these recommendations, the following needs mentioning. It has been considered in Aruba to change the revenue base of the AOV from contributions to taxation and to complement the tax-financed flat-benefit system with a contribution-financed second tier (this option is not covered by this report). However, one of the implications of the findings of this report is that such a second tier could not be recommended to take the form of a defined-contribution (individual accounts) tier. Instead, a fully funded defined-benefit tier might be recommendable in such a case. Administration of the accumulating funds should be organized as under (6). However, the details of the implementation of such a reform (phasing in, transitory regulations, etc.) would have to be evaluated in a separate study, as the evolution of the transitional effects might be problematic.



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## 1. Purpose of the study

This study explores alternative policy options for the Old Age Pension and the Widows and Orphans Insurance Schemes administered by the SVb. It builds upon the financial and actuarial review of the schemes previously undertaken on 30 April 2003<sup>8</sup>, updating the data collected and established at that time.

The 2003 actuarial review already contained results of the long-term impact of a number of possible parametric and policy reforms of the AOV/AWW schemes. Meanwhile, based on those results, the national discussion on pension reform continued triggering the need for more detailed information on some of the policy options addressed in the 2003 review, as well as requiring quantitative information on newly introduced reform options not covered by the 2003 review.

An advantage of this study as compared to the 2003 review is that the calculations can now be based on a large database, which was not available to the team that undertook the 2003 review. This new database includes individual records with information such as age, sex, gross wage and net wage.

It can therefore be assumed that the results of this study are to some extent more reliable than those of the 2003 review. Any deviation from the results of the 2003 study has to be attributed to the updates undertaken since then, and to the better quality of data now available. With respect to reform options that were not addressed in the 2003 review, the results contained in this study can be considered highly reliable due to the good quality of the above database.

It is therefore hoped that this study contributes to further rationalizing the national discussion on pension reform in Aruba. There is no doubt that the country's pension system needs reform in order to cope with the challenges of demographic changes. Such reforms, as they will affect all, should be undertaken with national consensus. Only social (pension) reforms undertaken in consensus offer future stability in one of the core areas of the socio-economic fabric of Aruba and can, thus, contribute to the social and economic well being of Aruba's population.

<sup>8</sup>International Labour Office, The International Financial and Actuarial Service Social Protection Sector: Aruba – Actuarial review of the General Old-age Pension Scheme and the General Widows and Orphans Insurance Scheme as of 30 April 2003. Report to the Government, March 2004.





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## 2. Tools, outputs and organization of the study

The study covers the following issues:

- a) an up-dated forecast of the demographic and financial development of Aruba's general pension scheme for a period of 60 years, based on a long-term macro-economic and demographic framework developed in the context of this project;
- b) an up-to-date review of financial experience to date, together with an updated analysis of the present financial status of the schemes;
- c) recommendations for improved efficiency in the contribution collection process based on a review of the present system and methods, especially addressing the question as to whether contribution collection should be undertaken by the tax office or the Social Insurance Bank;
- d) recommendations for a long-term financial strategy incorporating various reform options. Reforms considered include:
  - i. increasing the legal retirement age to 62,
  - ii. a more appropriate allocation of the AOV/AWW contribution rate
  - iii. increasing the wage ceiling, i.e. to 60,000 AFL in a first step,
  - iv. pegging the pension to a fixed 70 percent of the minimum wage; transition to that state should be administered (modeled) such that the annual pension adjustments in 2006 and thereafter take place at a rate one third of that of the minimum wage until the replacement rate of 70 percent is reached – taking into account that pensions will be adjusted by six percent as of 1 January 2005,
  - v. individualisation of the old-age pension combined with no further single premium payment for couples above the wage ceiling,
  - vi. redefining the insurable wage from net wage to gross wage, and providing guidelines based on standard international practice,
  - vii. a combination of all reform options mentioned;
- e) advice on the proposal that only legal residents may build-up pension rights under the SVb;
- f) advice on the proposal that an actuarial review should take place every five years, only more frequent if necessary;
- g) advice on the proposal that there should be annual formal auditing and reporting of the collected AOV/AWW premiums through an accountant;
- h) advice on the proposal that employers must be held responsible when workers do not pay contributions, i.e. enforce the National Ordinance, General Old Age Insurance (Landsverordening Algemene Ouderdomsverzekering - AB 1990 GT33), Article 8, Sub-section 3, which is the discount clause of three percent for each year that a worker does not pay her/his contribution;
- i) under the above reforms (see (d)) and other measures, while maintaining a contribution rate of 13.5 percent in order to allow for the introduction of a second tier (see (k)): advice on the feasibility of preserving the PAYG system on a long-

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term basis; advice on the recommended amount of the transitory reserve of the fund; advice as to the best form of management for the fund;

- j) an assessment of the impact of using two percent of the existing contribution rate (under the SVb) to finance a mandated fully funded second tier pension scheme;
- k) advice on the proposal that married persons with a difference of 20 years of age or more and with no more than five years of marriage, will get a single pension instead of a pension for couples;
- l) advice on the SVb's possible role in a second tier scheme;
- m) an analysis of possible economic impacts of the transitory reserve (see (e)), with special consideration of the absorption capacity of Aruba's financial market; of the possibilities to invest in the national and/or foreign economies; of possible impacts on foreign reserves and the US\$ dollar peg; of required rates of return, etc.; provide general recommendations on investment policy;
- n) other general recommendations based on the findings of this report.

Most of the above issues are of a quantitative nature and have been addressed, accordingly, by using the ILO model family, adjusted to the case of Aruba and the SVb's long-term branch specifically. The other issues are more of a qualitative nature and have been addressed using appropriate methods.

In order to cope in a systematic manner with issues (a) to (n) above and to obtain technical information for this report, nine scenarios were calculated with the help of the ILO model family. Out of these, the following six scenarios directly address certain of the issues:

- 1) *Base:* Base case scenario, addressing (a) and (d), (d-iv) specifically;
- 2) *62:* Same as Base but normal retirement age increased to 62, addressing (d-i);
- 3) *5000:* Same as Base but contribution assessment ceiling increased to 60,000 AFL per annum, addressing (d-iii) specifically;
- 4) *Ind:* Same as Base but individual calculation of all old-age pensions, combined with no further single premium payment for couples above the wage ceiling, addressing (d-v) specifically;
- 5) *Reform:* A combination of the above four scenarios, addressing (d-vii), mainly, and (d-ii);
- 6) *Fund:* Same as Reform but using a two percent (four percent, six percent, eight percent) contribution rate for an additional fully funded tier, also addressing (k).

The following three scenarios were calculated in order to gain further background information, which was considered necessary for an adequate discussion of the results:

- 7) *65:* Same as Base but normal retirement age increased to 65;
- 8) *6250:* Same as Base but contribution assessment ceiling increased to 75,000 AFL per annum;

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- 9) *Wage:* Same as Base but indexation of benefits related to the national average wage (instead of minimum wage).

All scenario results serve as technical background for the outputs of the report.

After explaining the purpose of this study (Section 1) the report continues with a description of its outputs and organization (Section 2).

In Section 3, the financial experience and present financial situation of the schemes under the SVb (issue (b)) are reviewed. The review is included in a discussion of Aruba's full social budget aiming at widening the view of the social finances of Aruba and, thus, helping to avoid narrow pension policy decisions.

Section 4 contains a description of the demographic and economic framework underlying all scenarios.

Section 5 describes the results of the base scenario in detail, followed by Section 6, which describes the findings on the set of reforms described under issue (d).

Section 7, very much dependent on the results of the preceding Section 6, focuses on the proposal of introducing a fully funded tier, along the requirements as laid down under issues (j), (k) and (l). The section contains a separate section on issue (m).

Section 8 contains a discussion of the alternatives to improve the efficiency of contribution collection and of the proposal to re-enforce Article 8, Sub-section 3.

Section 9 focuses on the proposal to limit the build-up of pension entitlements to residents and on the proposal to replace (under certain conditions) pensions for married couples by single pensions. Recommendations on a more appropriate allocation of the AOV/AWW contribution rate are also presented.

Section 10 sets out some general principles for auditing and of actuarially valuing the finances of the SVb.

Section 11, summarizes all findings and conclusions and provides a comprehensive picture of all findings in a systematic and coherent way.



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### **3. Review of the SVb finances in the context of Aruba's social budget and its macro-economic environment**

#### **3.1 Review of the SVb finances in the social budget context**

Aruba has a relatively high per-capita income, when compared internationally. A substantial amount of its annual GDP is redistributed through the social protection system, which is adequate for its level of per-capita income. Table 3.1 provides an overview of the main revenue and expenditure items of the country's social budget.

Approximately 21 to 22 percent of GDP is spent on total social protection. If spending on education were included, this figure would rise by another four to five points<sup>9</sup>. The main expenditure item in Aruba is health, which absorbs more than 12 percent of GDP, followed by social protection in a more narrow sense (mainly SVb<sup>10</sup>) with around 7.5 percent, followed by company pension fund payments with 0.8 percent and housing with 0.3 percent. Almost 95 percent of total social protection spending in 2002 was on health and the SVb, and therefore these areas will determine the future level and dynamics of total social spending in Aruba.

The funds required for approximately two-thirds of total social spending are made available by revenue earmarked for this purpose (14 percent of GDP). The deficit of seven percent of GDP has to be provided either from accumulated "social protection" reserves or out of general government revenue (public transfers). Around 70 percent of the social budget's deficit is explained by the deficit under health.

It is estimated that around 50 percent of total social protection expenditure is financed from contributions<sup>11</sup>, and the remainder is from property income and general government revenue. The contribution financed share may have increased, as the contribution assessment ceiling under the health insurance was practically doubled from 49,300 AFL per annum in 2003 to 90,000 AFL per annum in 2004.

European experience shows that major countries increased the contribution financed component of their social budgets with increasing labour income shares in GDP. In other words, one can expect that the contribution financed share of social budgets is positively correlated with the labour income share in GDP. The higher the labour income share, the more it can contribute to social security. Given the present situation in Aruba, some contribution rate increases are justifiable, if required.

<sup>9</sup>There are two main traditions of calculating a country's social budget. The European tradition excludes education (assuming it is rather an investment than a social spending) whereas the US-tradition includes it.

<sup>10</sup>See, for example: IMF Country report Nr. 03/43. The Kingdom of the Netherlands – Aruba: Statistical Appendix (February 2003).

<sup>11</sup>See: Central Bureau of Statistics – Aruba: Government sector of Aruba 1997 – 2002. May 2004. P. 11 (Table 2.6).

Table 3.1 The social budget\*\*)

| Items   | 1997                                     | 1998   | 1999   | 2000   | 2001   | 2002   |
|---|--|--------|--------|--------|--------|--------|
| <b>Social expenditure by function</b>         | <i>AFL million</i>                       |        |        |        |        |        |
| Housing and community amenities               | 17.9                                     | 16.0   | 12.2   | 12.2   | 13.7   | 10.7   |
| Health  | 196.6                                    | 173.9  | 211.8  | 239.7  | 422.7  | 434.7  |
| Social protection                             | 253.6                                    | 281.7  | 316.5  | 324.0  | 251.5  | 258.2  |
| Total   | 468.1                                    | 471.6  | 540.5  | 575.9  | 687.9  | 703.6  |
| Company pension funds                         |  |        |        | 28.1   | 40.9   | 27.3   |
| Gross total social expenditure                | 468.1                                    | 471.6  | 540.5  | 604.0  | 728.8  | 730.9  |
| Social protection and health                  | 450.2                                    | 455.6  | 528.3  | 563.7  | 674.2  | 692.9  |
| <b>Social revenue by function</b>             | <i>AFL million</i>                       |        |        |        |        |        |
| Housing and community amenities               | 2.9                                      | 7.0    | 6.5    | 6.6    | 6.9    | 6.6    |
| Health  | 28.1                                     | 32.0   | 45.0   | 53.1   | 265.0  | 266.5  |
| Social protection                             | 227.9                                    | 234.3  | 257.6  | 273.1  | 223.5  | 213.0  |
| Total   | 256.0                                    | 266.3  | 302.6  | 326.2  | 488.5  | 479.5  |
| Company pension funds                         |  |        |        | 13.9   | 4.6    | 8.6    |
| Gross total social revenue                    | 256.0                                    | 266.3  | 302.6  | 340.1  | 493.1  | 488.1  |
| Social protection and health                  | 256.0                                    | 266.3  | 302.6  | 326.2  | 488.5  | 479.5  |
| <b>Balance (Revenue minus expenditure) *)</b> | <i>AFL million</i>                       |        |        |        |        |        |
| Housing and community amenities               | -15.0                                    | -9.0   | -5.7   | -5.6   | -6.8   | -4.1   |
| Health  | -168.5                                   | -141.9 | -166.8 | -186.6 | -157.7 | -168.2 |
| Social protection                             | -25.7                                    | -47.4  | -58.9  | -50.9  | -28.0  | -45.2  |
| Total   | -212.1                                   | -205.3 | -237.9 | -249.7 | -199.4 | -224.1 |
| Company pension funds                         |  |        |        | -14.2  | -36.3  | -18.7  |
| Gross total                                   | -212.1                                   | -205.3 | -237.9 | -263.9 | -235.7 | -242.8 |
| Social protection and health                  | -194.2                                   | -189.3 | -225.7 | -237.5 | -185.7 | -213.4 |
| <b>Social expenditure by function</b>         | <i>Per cent of GDP in current prices</i> |        |        |        |        |        |
| Housing and community amenities               | 0.7                                      | 0.5    | 0.4    | 0.4    | 0.4    | 0.3    |
| Health  | 7.2                                      | 5.8    | 6.9    | 7.2    | 12.4   | 12.7   |
| Social protection                             | 9.2                                      | 9.5    | 10.3   | 9.7    | 7.4    | 7.5    |
| Total   | 17.1                                     | 15.8   | 17.5   | 17.3   | 20.2   | 20.6   |
| Company pension funds                         |  |        |        | 0.8    | 1.2    | 0.8    |
| Gross total social expenditure                | 17.1                                     | 15.8   | 17.5   | 18.2   | 21.4   | 21.4   |
| Social protection and health                  | 16.4                                     | 15.3   | 17.1   | 16.9   | 19.8   | 20.3   |
| <b>Social revenue by function</b>             | <i>Per cent of GDP in current prices</i> |        |        |        |        |        |
| Housing and community amenities               | 0.1                                      | 0.2    | 0.2    | 0.2    | 0.2    | 0.2    |
| Health  | 1.0                                      | 1.1    | 1.5    | 1.6    | 7.8    | 7.8    |
| Social protection                             | 8.3                                      | 7.9    | 8.4    | 8.2    | 6.6    | 6.2    |
| Total   | 9.3                                      | 8.9    | 9.8    | 9.8    | 14.4   | 14.0   |
| Company pension funds                         | 0.0                                      | 0.0    | 0.0    | 0.4    | 0.1    | 0.3    |
| Gross total social revenue                    | 9.3                                      | 8.9    | 9.8    | 10.2   | 14.5   | 14.3   |
| Social protection and health                  | 9.3                                      | 8.9    | 9.8    | 9.8    | 14.4   | 14.0   |
| <b>Balance (Revenue minus expenditure) *)</b> | <i>Per cent of GDP in current prices</i> |        |        |        |        |        |
| Housing and community amenities               | -0.5                                     | -0.3   | -0.2   | -0.2   | -0.2   | -0.1   |
| Health  | -6.1                                     | -4.8   | -5.4   | -5.6   | -4.6   | -4.9   |
| Social protection                             | -0.9                                     | -1.6   | -1.9   | -1.5   | -0.8   | -1.3   |
| Total   | -7.7                                     | -6.9   | -7.7   | -7.5   | -5.9   | -6.6   |
| Company pension funds                         | 0.0                                      | 0.0    | 0.0    | -0.4   | -1.1   | -0.5   |
| Gross total                                   | -7.7                                     | -6.9   | -7.7   | -7.9   | -6.9   | -7.1   |
| Social protection and health                  | -7.1                                     | -6.4   | -7.3   | -7.1   | -5.5   | -6.2   |

\*) A negative balance (deficit) is covered out of reserves or public transfers.

\*\*Revenue includes property income, social contributions, other current transfers and other revenue. Expenditure includes compensation of employees, social benefits in cash and in kind, other current transfers, capital transfers, consumption of fixed capital and other expenditure.

Source: Central Bureau of Statistics – Aruba: Government sector of Aruba 1997 – 2002, tables 2.1 & 2.4; Central Bank of Aruba

Given Aruba's per-capita-GDP of around 22,400US\$<sup>12</sup>, the level of its social budget can be considered as adequate. In international comparison, the country's social budget is neither inadequately high nor too low. In 2000, within a list of selected European countries, Aruba ranked second, after Ireland and before Spain. In the mean time, it may have surpassed the level of the year 2000 of Luxembourg, and possibly that of Portugal (Table 3.2).

**Table 3.2** The social budget in international comparison

| Country         | 1997            | 1998        | 1999        | 2000        |
|-----------------|-----------------|-------------|-------------|-------------|
|                 | Per cent of GDP |             |             |             |
| Ireland         | 16.7            | 15.5        | 14.8        | 14.1        |
| <i>Aruba</i>    | <i>17.1</i>     | <i>15.8</i> | <i>17.5</i> | <i>18.2</i> |
| Spain           | 21.1            | 20.6        | 20.2        | 20.1        |
| Luxembourg      | 22.9            | 21.7        | 21.8        | 21.0        |
| Portugal        | 21.6            | 22.1        | 22.6        | 22.7        |
| Italy           | 25.5            | 25.0        | 25.3        | 25.2        |
| Greece          | 23.3            | 24.2        | 25.5        | 26.4        |
| Belgium         | 28.1            | 27.6        | 27.4        | 26.7        |
| UK              | 27.7            | 26.9        | 26.5        | 26.8        |
| The Netherlands | 29.4            | 28.4        | 28.0        | 27.4        |
| Denmark         | 30.4            | 30.2        | 29.8        | 28.8        |
| Germany         | 29.5            | 29.3        | 29.6        | 29.5        |
| France          | 30.8            | 30.5        | 30.2        | 29.7        |
| Europe (12)     | 27.8            | 27.4        | 27.4        | 27.1        |

Source: EUROSTAT; Ministry of Health and Social Security, Germany; ILO.

While the present overall fiscal volume of Aruba's social budget is of no concern, the extraordinarily high spending on health<sup>13</sup> is. Future developments in health spending will inevitably have an impact on the government's ability to manage contribution rates of the SVb and, thus, on benefit levels available under the SVb's long-term branch.

Table 3.3 shows Aruba's spending on health expenditure in international comparison. For all countries, except Aruba, the table contains total health expenditure irrespective of whether it is financed out of public or private resources. This means the GDP-shares of all countries, except Aruba, are lower when adjusted for private health expenditure. In other words, Aruba's health expenditure share in GDP would most probably rank first in cases where only publicly financed health care would be considered.

The specific factors explaining this high expenditure ratio would, of course, need careful detailed consideration, which is not the subject of this report. But, independent of the possible findings of such research, there is reason to assume considerable scope for economizing within Aruba's health system – not only for reasons of efficiency but also to improve the country's ability to finance its old-age system.

<sup>12</sup>2004; ILO estimate.

<sup>13</sup>In this report the focus is on the long-term branch of the SVb, not on Aruba's health system, however, a full review of the SVb is not possible without, at least, also briefly reviewing health. The reason is that the more Aruba's total social budget expenditure (in percent of GDP) will reach its (politically set) upper limits, the more *old-age* and *health* will have to "compete" for growingly scarce resources. Recommendations with respect to reforms under the SVb cannot be viewed without possible developments in health, and vice versa.

**Table 3.3 International comparison of expenditure on health**

| Country         | 1998            | 2001        | 2002        |
|-----------------|-----------------|-------------|-------------|
|                 | Per cent of GDP |             |             |
| Spain           | 7.0             | 7.5         | 7.6         |
| Japan           | 7.5             | 7.6         | 7.8         |
| UK              | 6.8             | 7.6         | 7.7         |
| Austria         | 8.0             | 8.0         | 7.7         |
| New Zealand     | 8.1             | 8.2         | 8.5         |
| Norway          | 8.6             | 8.3         | 8.7         |
| Italy           | 7.7             | 8.4         | 8.5         |
| Belgium         | 8.6             | 8.7         | 9.1         |
| Sweden          | 7.9             | 8.7         | 9.2         |
| The Netherlands | 8.7             | 8.9         | 9.1         |
| Australia       | 8.6             | 8.9         | 9.1         |
| France          | 9.3             | 9.5         | 9.7         |
| Canada          | 9.3             | 9.7         | 9.6         |
| Germany         | 10.3            | 10.7        | 10.9        |
| Switzerland     | 10.4            | 10.9        | 11.2        |
| <i>Aruba</i>    | .               | <i>12.4</i> | <i>12.7</i> |
| USA             | 12.9            | 13.9        | 14.6        |

Source: Bundesamt für Statistik, Schweiz (Swiss Federal Statistical Office)

In order to make the problem more tangible, consider the following scenario. Given an estimated labour income share of GDP of less than 60 percent<sup>14</sup>, if total health expenditure in Aruba were to be financed solely out of wage-related contributions (without any ceiling), then the contribution rate would have to be in the order of 20 percent – which is around twice the present contribution rate under the SVb's long-term benefit branch (Table 3.4).

**Table 3.4 Social security contribution rates 2004**

| Scheme                           | Employer               | Employee | Total |
|----------------------------------|------------------------|----------|-------|
|                                  | Per cent of gross wage |          |       |
|                                  | 2004                   |          |       |
| AOV                              | 8.25                   | 3.25     | 11.50 |
| AWW                              | 1.25                   | 0.75     | 2.00  |
| Sickness                         | 4.00                   | 0.00     | 4.00  |
| Accident                         | 0.70                   |          | 0.70  |
| Severance                        | 0.09                   |          | 0.09  |
| Health                           | 6.50                   | 1.00     | 7.50  |
| Sum                              | 20.79                  | 5.00     | 25.79 |
| Contribution assessment ceilings |                        |          |       |
|                                  | AFL                    |          |       |
| SVb                              | 49300                  |          |       |
| Health                           | 90000                  |          |       |

Source: SVb

<sup>14</sup>Cf. the macro-economic frame, Section 4 of this report.



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Within the total social budget of Aruba, the institution SVb<sup>15</sup> plays a prominent but not a dominant financial role (Table 3.5). In 2002, its contribution revenue amounted to 37 percent<sup>16</sup> of total revenue of the social budget, and total spending (including administration costs) was just over 20 percent of the total social budget. In terms of GDP, the SVb redistributes 5.5 percent in terms of contribution revenue collected from private households and 4.4 percent of GDP in terms of benefits paid to private households.

From 2001 to 2003, the SVb has run at an overall financial surplus. By the end of 2002, the institution's assets amounted to 232 million AFL, which was equivalent to one and a half times total benefits paid. By the end of 2003, total reserves were estimated to amount to 260 million AFL<sup>17</sup>, out of which 145 million AFL was allocated to the SVb's long-term benefit branch (Table 3.6).

At the end of 2002, out of the total assets, 192 million AFL or 83 percent were liquid, i.e. either invested in bonds and time deposits or other current assets.

While focusing on the future financial development of the long-term branch of the SVb, the main thrust of this report is to look at the future development of the reserves and reform policies to preserve a minimum amount of the reserves over time.

<sup>15</sup>Tables 3.1 to 3.3 show the social budget of Aruba under a functional classification of revenue and expenditure. Here, the SVb is considered under an institutional view.

<sup>16</sup>This figure relates to social budget revenue excluding public transfers; if one includes public transfers the ratio declines to 27 percent of (total) revenue.

<sup>17</sup>Preliminary ILO estimate.

**Table 3.5 The SVb in the social budget context**

| Item  | 1996                             | 1997  | 1998   | 1999   | 2000   | 2001   | 2002   | 2003   |
|---|----------------------------------|-------|--------|--------|--------|--------|--------|--------|
| <i>Total operational budget of the SVb</i>        |                                  |       |        |        |        |        |        |        |
|   | <i>AFL million</i>               |       |        |        |        |        |        |        |
| Total contributions                               | 162.7                            | 177.4 | 179.6  | 198.2  | 190.1  | 172.2  | 180.7  | 198.9  |
| Total benefits                                    | 152.4                            | 165.1 | 180.7  | 178.0  | 188.1  | 152.0  | 152.0  | 157.2  |
| Administrative and interest costs                 | 12.7                             | 13.3  | 13.6   | 12.9   | 7.6    | 8.9    | 11.5   | 12.0   |
| Administrative costs                              | 9.5                              | 9.9   | 10.4   | 9.4    | 8.8    | ...    | 9.3    | 9.5    |
| Interest costs                                    | 3.2                              | 3.4   | 3.2    | 3.5    | -1.2   | ...    | 2.2    | 2.5    |
| Overall Balance                                   | -2.3                             | -0.9  | -14.7  | 7.3    | -5.6   | 11.3   | 17.3   | 29.6   |
| <i>Old age and widowers and orphans insurance</i> |                                  |       |        |        |        |        |        |        |
|   | <i>AFL million</i>               |       |        |        |        |        |        |        |
| Contributions                                     | 110.7                            | 122.1 | 113.6  | 134.6  | 139.7  | 149.5  | 150.2  | 158.9  |
| Benefits  | 104.1                            | 110.1 | 118.8  | 120.7  | 125.5  | 135.7  | 136.7  | 138.4  |
| Administrative and interest costs                 | 3.3                              | 3.4   | 3.2    | 3.0    | -1.7   | 2.3    | 1.6    | 2.6    |
| Administrative costs                              | 1.5                              | 1.6   | 1.9    | 2.1    | 2.2    | ...    | 2.4    | 2.7    |
| Interest costs                                    | 1.8                              | 1.8   | 1.3    | 0.9    | -3.9   | ...    | -0.8   | -0.1   |
| Balance   | 3.3                              | 8.6   | -8.5   | 10.9   | 15.8   | 11.5   | 11.9   | 17.9   |
| <i>Sickness and accident insurance</i>            |                                  |       |        |        |        |        |        |        |
|   | <i>AFL million</i>               |       |        |        |        |        |        |        |
| Contributions                                     | 50.8                             | 54.0  | 65.8   | 62.2   | 49.7   | 20.2   | 29.9   | 39.1   |
| Benefits  | 47.8                             | 54.7  | 61.4   | 56.4   | 61.2   | 15.5   | 14.7   | 18.5   |
| Administrative and interest costs                 | 9.8                              | 10.3  | 10.9   | 10.6   | 9.6    | 10.3   | 10.4   | 9.9    |
| Administrative costs                              | 7.9                              | 8.2   | 8.5    | 7.5    | 6.3    | 6.4    | 6.5    | 6.4    |
| Interest costs                                    | 1.9                              | 2.1   | 2.4    | 3.1    | 3.3    | 3.9    | 3.9    | 3.5    |
| Balance   | -6.8                             | -11.0 | -6.5   | -4.8   | -21.1  | -5.6   | 4.8    | 10.7   |
| <i>Severance insurance</i>                        |                                  |       |        |        |        |        |        |        |
|   | <i>AFL million</i>               |       |        |        |        |        |        |        |
| Contributions                                     | 1.3                              | 1.4   | 0.2    | 1.4    | 0.7    | 1.6    | 0.6    | 0.9    |
| Interest revenues                                 | 0.5                              | 0.5   | 0.6    | 0.5    | 0.7    | 0.9    | 0.9    | 0.9    |
| Benefits  | 0.4                              | 0.3   | 0.4    | 0.9    | 1.4    | 0.8    | 0.6    | 0.3    |
| Administrative costs                              | 0.1                              | 0.1   | 0.1    | 0.1    | 0.3    | 0.3    | 0.4    | 0.4    |
| Balance   | 1.3                              | 1.5   | 0.3    | 0.9    | -0.3   | 1.4    | 0.6    | 1.0    |
| <i>Total operational budget of the SVb</i>        |                                  |       |        |        |        |        |        |        |
|   | <i>Per cent of GDP</i>           |       |        |        |        |        |        |        |
| Total contributions                               | 6.6                              | 6.5   | 6.0    | 6.4    | 5.7    | 5.1    | 5.3    | 5.5    |
| Total benefits                                    | 6.2                              | 6.0   | 6.1    | 5.8    | 5.7    | 4.5    | 4.4    | 4.4    |
| Administrative and interest costs                 | 0.5                              | 0.5   | 0.5    | 0.4    | 0.2    | 0.3    | 0.3    | 0.3    |
| Administrative costs                              | 0.4                              | 0.4   | 0.4    | 0.3    | 0.3    | ...    | 0.3    | 0.3    |
| Interest costs                                    | 0.1                              | 0.1   | 0.1    | 0.1    | 0.0    | ...    | 0.1    | 0.1    |
| Overall Balance                                   | -0.1                             | 0.0   | -0.5   | 0.2    | -0.2   | 0.3    | 0.5    | 0.8    |
| <i>Total operational budget of the SVb</i>        |                                  |       |        |        |        |        |        |        |
|   | <i>Per cent of social budget</i> |       |        |        |        |        |        |        |
| Total contributions <sup>1)</sup>                 |                                  | 69.3  | 67.4   | 65.5   | 55.9   | 34.9   | 37.0   |        |
| Total benefits <sup>2)</sup>                      |                                  | 35.3  | 38.3   | 32.9   | 31.1   | 20.9   | 20.8   |        |
| Administrative and interest costs <sup>2)</sup>   |                                  | 2.8   | 2.9    | 2.4    | 1.3    | 1.2    | 1.6    |        |
| Overall Balance <sup>3)</sup>                     |                                  | 5.2   | 3.2    | 2.0    | 8.0    | 2.4    | -2.0   |        |
| <i>Memorandum items</i>                           |                                  |       |        |        |        |        |        |        |
| <i>All branches of the SVb</i>                    |                                  |       |        |        |        |        |        |        |
|   | <i>Beneficiaries by category</i> |       |        |        |        |        |        |        |
| Old age and widowers and orphans insurance        | 9057                             | 9496  | 10154  | 10520  | 10855  | 11387  | 11465  | 11949  |
| Old age   | 8000                             | 8351  | 8922   | 9237   | 9506   | 9942   | 10225  | 10640  |
| Widowers and orphans                              | 1057                             | 1145  | 1232   | 1283   | 1349   | 1445   | 1240   | 1309   |
| Sickness and accident insurance                   | ...                              | 12808 | 12789  | 12306  | 12148  | 10918  | 10166  | 11383  |
| Sickness  | ...                              | 11489 | 11437  | 11003  | 10767  | 9834   | 9413   | 10797  |
| Accident  | ...                              | 1319  | 1352   | 1303   | 1381   | 1084   | 753    | 586    |
| Severance insurance                               | 113                              | 57    | 56     | 415    | 482    | 228    | 174    | 59     |
| <i>All branches of the SVb</i>                    |                                  |       |        |        |        |        |        |        |
|   | <i>Insured by category</i>       |       |        |        |        |        |        |        |
| Old age and widowers and orphans insurance        | 134526                           | ...   | 145053 | 169207 | 145472 | 142149 | 145032 | 156889 |
| Old age   | 57766                            | ...   | 62556  | 74006  | 61112  | 60114  | 61938  | 73475  |
| Widowers and orphans                              | 76760                            | ...   | 82497  | 95201  | 84360  | 82035  | 83094  | 83414  |
| Sickness and accident insurance                   | 58004                            | 62054 | 61404  | 63582  | 64037  | 63366  | 62278  | 63733  |
| Sickness  | 27742                            | 29652 | 29306  | 30169  | 30265  | 29827  | 29233  | 29310  |
| Accident  | 30262                            | 32402 | 32098  | 33413  | 33772  | 33539  | 33045  | 34423  |
| Severance insurance <sup>*)</sup>                 | 30262                            | 32402 | 32098  | 33413  | 33772  | 33539  | 33045  | 34423  |

\*) Concerns the same category of insured as those insured for accidents.

1) In per cent of total social budget revenue excluding public transfers.

2) In per cent of total social budget spending.

3) In per cent of total social budget balance.

Source: SVb, ILO.

Table 3.6 Aggregate balance sheet of the SVb

| Item                    | 2000               | 2001  | 2002  | 2003 <sup>1)2)</sup> |
|-------------------------|--------------------|-------|-------|----------------------|
|                         | <i>AFL million</i> |       |       |                      |
| Assets                  | 196.7              | 206.6 | 231.9 | 260.0p               |
| Investments             | 76.3               | 87.6  | 107.1 | ...                  |
| Bonds                   | 36.3               | 22.3  | 32.7  | ...                  |
| Time deposits           | 40                 | 65.3  | 74.4  | ...                  |
| Fixed assets            | 36.7               | 38.1  | 39.6  | ...                  |
| Current assets          | 83.7               | 80.9  | 85.2  | ...                  |
| Capital and liabilities | 196.7              | 206.6 | 231.9 | 260.0p               |
| Current liabilities     | 45.3               | 38.2  | 13.5  | ...                  |
| Capital and reserves    | 151.4              | 168.4 | 218.4 | ...                  |

1) Preliminary ILO estimate.

2) Reserve of the SVb long-term branch: 144.8 million AFL. Source: SVb.

Source: CBA (2000 to 2002)

### 3.2 Aruba's macroeconomic and income-distributive environment for social protection financing

In general, over the past decade, the economic conditions for financing Aruba's social budget were quite favorable. Real GDP grew by about one quarter or two to 2.5 percent per annum. Over the same time, the number of employed persons increased on average by about two percent per annum<sup>18</sup>, the number of enterprises increased by about 230 or ten percent (between 1998 and 2004). An average number of 15 employees per enterprise are registered under the SVb, indicating flexibility of Aruba's business sector. Although these estimates are based on various sources of information<sup>19</sup>, they provide indication that overall labour productivity growth is low (below one percent per annum), reflecting the fact that Aruba's economy depends mainly on the services industries (tourism, financial services).

The past high influx of migrant labour contributed substantially to economic growth and, thus, the financial environment of social protection. While net migration was negative between 1972 and 1987, the balance of immigration and emigration reversed and remained positive in later years. Since 1988, on average about 1,500 persons (net) per year migrated to Aruba, thus contributing substantially to overall population growth (total population 60,000 in 1989, 95,000 in 2003). Migration contributed to the fact that social expenditure could be kept well under control as it helped to keep Aruba's population young and healthy on average. With growing population density, the country might in future gradually reach absorption limits, either environmentally, socio-economically or politically induced. At that point in time, the financial effects of an ageing population will become evident, having been camouflaged by the positive migration balance of the past.

<sup>18</sup>Including employment declines in 2001/2002.

<sup>19</sup>Although the work of the Central Bureau of Statistics has recently been significantly improved, the statistical reporting system of Aruba still needs substantial further improvements, especially with respect to a consistent framework of national accounting (including essential areas such as a consistent labour market balance and institutionally structured government accounts). See also: International Monetary Fund: The Kingdom of the Netherlands – Aruba: 2002 Article IV Consultation; Staff report; Staff supplement; and Public information Notice on the Executive Board Discussion. IMF Country Report 03/42 (February 2003).

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Aruba's primary income distribution<sup>20</sup> compares well with countries of similar GDP-per-capita levels and labour market structures<sup>21</sup>. Since 1995 per-capita-wages have grown by about four percent annually, while inflation in recent years has remained at around three percent. The labour income share in GDP varies between 55 and 57.5 percent. This is equivalent to between 60 and 63 percent of national income, which is about five percentage points lower than that of Europe, US and Japan. In other words, so far, the labour income share of GDP can be considered sufficient to finance the contributory parts of Aruba's social protection.

Based on the following observations however, problems for social protection financing, seem to arise from wage distribution in combination with the highly redistributive public pension formula:

1. The contribution assessment ceiling has been kept constant for a number of years at a level of 4,108 AFL per month (Table 3.7). At its present (2004) level, the collection of full contributions (i.e. calculated on the basis of full gross wages) occurs from only around 80 percent of all wage earners (Table 3.8; Figure 3.1). All workers earning wages above the ceiling pay contributions only up to the ceiling, therefore their effective contribution rate is lower than the legal rate. Table 3.7 shows that the ceiling relative to the national average wage has declined substantially over the past 10 years, from around 150 percent of the national average wage to around just 110 percent of the national average wage. If not indexed, the ceiling will be at the same level as the national average wage by 2006 at the latest. By the end of 2003, the resulting accumulated loss of contribution income to the AOV (due to non-adjustment of the ceiling in line with general wages (1999-2003)) is estimated at 24 million AFL (compared to a reserve of 145 million AFL by the end of the same year). In 2003 alone the loss amounted to about 0.7 percent of the actual insurable wage base. For a person earning a salary in 2003 at a level of 20 (40) percent<sup>22</sup> above the actual ceiling, the implicit contribution rate is 2.25 (3.9) percent lower than for someone earning a salary at the ceiling. For those earning a salary 40 percent above the ceiling in 2003, the implicit contribution rate is at the level of the legal rate of 1997 (9.5 percent).

<sup>20</sup>See economic frame in Section 4.

<sup>21</sup>See labour market balance in Section 4.

<sup>22</sup>Twenty percent above the actual ceiling corresponds to a value achieved in 2003 in case the ceiling had been indexed with wages.

### Box 1 Long-term growth considerations

Aruba has a relatively young population of around 95,000 (2003). Its average age is 33.3 years, and dependency ratios are quite favorable and, for the time being, do not pose significant problems to financing social security.

The present unproblematic demographic situation is mainly due to the high influx of immigrants to Aruba over the past 15 years. Over this period, the total population increased by around 35,000, from 60,000 in 1989 to almost 95,000 in 2003.

One of the main reasons for Aruba's attractiveness to foreigners is the country's quite impressive past economic performance. Growth opportunities were also bolstered by immigration. Without a doubt, the stable and reliable legal and social institutions of the country contributed significantly to making this population increase of almost 50 per cent over a period of less than two decades a success.

Recently, the government has taken more control over the influx of foreigners to the country. Indeed, the need to integrate the past high influx is still high on the societal, infra-structural and economic agenda of the country. At present (2003) population-density is about 534 persons per km<sup>2</sup> and, thus, one of the highest in the world, even when limiting the comparison to small islands. Under the carefully made demographic assumptions of this report, assuming a long-term net immigration of just over 200 persons per year (which is well below past experience) population density is estimated to increase to 680 persons per km<sup>2</sup>.

Under this modest immigration assumption, Aruba's population will undergo the natural process of ageing, the same process that can be observed in almost all countries around the world. It is therefore not at all surprising that in Aruba the same discussion occurring worldwide has started with respect to the problems of financing the growing financial burden with respect to growing old-age/active ratios.

It has been argued that the solution to the future financing problems of ageing societies is economic growth. Indeed, it is easier for individuals to pay high taxes/contributions for redistribution to the non-active parts of the population in a situation of high incomes rather than low incomes.

Economic policies should therefore be growth-oriented, which, in the opinion of most contemporary decision makers, requires low tax/contribution rates rather than high rates.

At the same time, it has been argued by many researchers that ageing of societies, at least when such societies have already reached a state of demographic maturity are prone to reduced growth rates, whereas demographically immature societies may profit from transitionally high growth rates of their labour force and, thus, high economic growth rates.

Others have argued that empirical evidence for the "transition" argument is missing. According to them, future growth of ageing societies depends much more on technological progress, spending on research, institutional arrangements, openness to the world economy etc., i.e. factors that lie outside the demographic sphere.

The answer to the question as to which of the approaches is correct is important for modeling a reasonable long-term economic and labour market scenario for Aruba. When it comes to pension finances, the aspect of prudence of assumptions comes to the fore. Of course, in theory one can propose sufficiently high economic growth rates that would solve all future pension financing problems, however, pension policy has to prepare the system of financing pensions for the possibility of less favorable developments while, at the same time, not basing such decisions on assumptions that are inappropriately pessimistic.

For the purposes of this report, the ILO favours the argument that an ageing population has a dampening impact on economic growth rates, while accepting the fact that Aruba's population is still relatively young and, thus, the country will be able to take advantage of the long-lasting positive, however transitional, effects of the ageing process on its labour force and on labour productivity.

**Table 3.7 Key wage indicators of the social protection system**

| Item  | Dimension | 1995  | 1996  | 1997  | 1998  | 1999  | 2000  | 2001  | 2002  | 2003  | 2004  |
|---|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ceiling SVb   | AFL/month | 3'750 | 3'868 | 3'998 | 4'108 | 4'108 | 4'108 | 4'108 | 4'108 | 4'108 | 4'108 |
| Ceiling health insurance                            |           |       |       |       |       |       |       |       |       |       | 7'500 |
| Ceilings as a multiple of the national average wage |           |       |       |       |       |       |       |       |       |       |       |
| Ceiling SVb   | X         | 1.4   | 1.5   | 1.4   | 1.3   | 1.3   | 1.3   | 1.2   | 1.1   | 1.1   | 1.1   |
| Ceiling health insurance                            |           |       |       |       |       |       |       |       |       |       | 2.0   |
| National average wage, gross                        | AFL/month | 2'674 | 2'667 | 2'826 | 3'051 | 3'227 | 3'280 | 3'510 | 3'603 | 3'623 | 3'805 |
| National average wage, net                          |           |       |       |       | 2'532 | 2'687 | 2'720 | 2'903 | 2'971 | 2'963 | 3'100 |
| <i>Net relative to gross</i>                        | Per cent  |       |       |       | 83.0  | 83.3  | 82.9  | 82.7  | 82.5  | 81.8  | 81.5  |
| Minimum wage  | AFL/month | 995   | 1'025 | 1'060 | 1'089 | 1'112 | 1'200 | 1'200 | 1'200 | 1'200 | 1'236 |
| <i>MinW relative to net average wage</i>            | Per cent  |       |       |       | 43.0  | 41.4  | 44.1  | 41.3  | 40.4  | 40.5  | 39.9  |

All figures concerning national average wage (gross, net) ILO estimates.

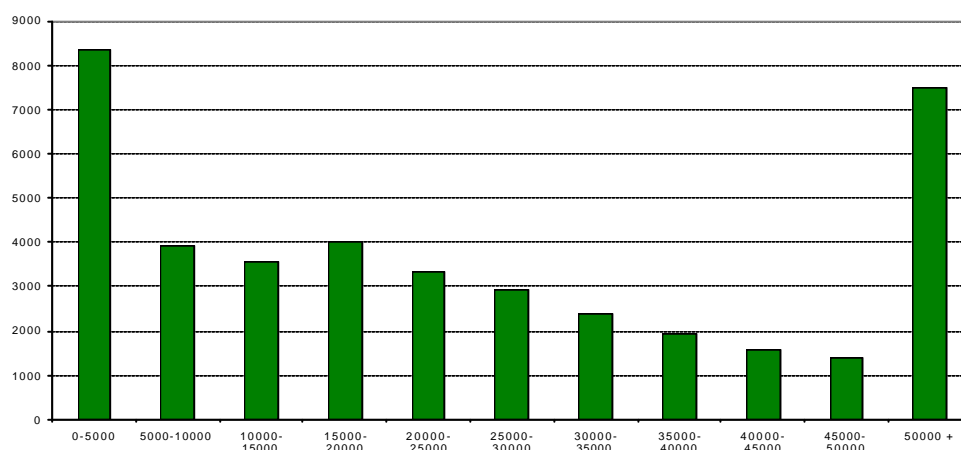
Source: SVb; ILO.

**Table 3.8 Distribution of monthly wages / salaries (2003)**

| Gorss wage earned in 2003, AFL p.a.                                |                |                 |                 |                 |                 |                 |                 |                 |                 |        |                 |
|--|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------|-----------------|
| 0<br>-5000   | 5000<br>-10000 | 10000<br>-15000 | 15000<br>-20000 | 20000<br>-25000 | 25000<br>-30000 | 30000<br>-35000 | 35000<br>-40000 | 40000<br>-45000 | 45000<br>-50000 | 50000+ | Average<br>wage |
| Per cent of all workers who earned wages within the above brackets |                |                 |                 |                 |                 |                 |                 |                 |                 |        |                 |
| 20.4   | 9.6            | 8.7             | 9.9             | 8.2             | 7.1             | 5.9             | 4.8             | 3.9             | 3.4             | 18.3   | 100%            |
| Ceiling SVb: 49300   |                |                 |                 |                 |                 |                 |                 |                 |                 |        |                 |

Source: ILO, based on data provided by the tax office of Aruba.

**Figure 3.1 Distribution of monthly wages/salaries (2003)**



Source: ILO, based on data provided by the tax office of Aruba.

2. Maintaining the contribution assessment ceiling constant over long periods of time, as in Aruba, in an environment of substantially growing nominal wages not only results in revenue losses for social protection but also functions similar to policy of hidden tax reductions. Meanwhile there are a substantial number of high-income earners in Aruba who have become accustomed to the low ceiling. If the government continues to put off adjusting the ceiling, especially now that the economy, including wages, seems to be recovering, then the number of workers profiting from the continued implicit tax reductions will probably increase rapidly. In terms of political economy, it will become more difficult to increase the ceiling the longer the government waits.

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3. The fact that the present benefit formula of the SVb's long-term scheme is highly redistributive<sup>23</sup> (Table 3.9) may account for high income earners' resistance to increases in the contribution assessment ceiling. In order to illustrate the highly redistributive nature of the SVb's long-term scheme, virtual individuals were created and projected pension calculations were made based on the assumption that the individuals worked continuously from age 20 to 60. The projected pension calculations were undertaken based on earnings of:

1. the minimum wage;
2. 75 percent of the national average wage;
3. the national average wage;
4. the ceiling; and
5. twice the ceiling (assuming the ceiling were doubled).

It was then assumed that the individuals pay the present legal contribution rate on these earnings (also in case 5). All individuals were assumed to retire at age 60 and to have a remaining life expectancy of 16 years in the case of a man and 26 years in case of a woman.

Present values of contributions paid and of pensions received were calculated (Table 3.9). The results show that the system is highly redistributive. While the present value of pension benefits for men and women earning the minimum wage is clearly higher than their contribution payments, the same comparison becomes negative for men earning 57 percent or more of the national average wage and women earning 80 percent or more of the national average wage). A man always earning the indexed ceiling<sup>24</sup> receives a pension that represents only slightly over one third of his contributions paid and in case of a woman the pension received is slightly over half of the contributions paid. While an adjustment of the ceiling (see footnote 21) is overdue, any such measure will most likely meet resistance from the large group of high income earners (those earning above the present ceiling) for whom the expected pension would be only 20 to 25 percent of contributions paid (men/women in case the ceiling were doubled)<sup>25</sup>.

The results of the calculations presented in Table 3.9 are, of course, sensitive to the underlying macroeconomic assumptions made, specifically to the assumed discount rate and to the CPI indexation of pensions. However, variations of these assumptions will not change the trend of the results.

From a broader social policy point of view, redistributive elements of pension systems are generally welcomed. The intensity of income redistribution is, of course, a question of social contract and in principle open to public debate. In the case of Aruba, the intensity of redistribution has most obviously helped to avoid poverty among the aged and, also, helps to avoid poverty in the open public.

<sup>23</sup>It should be mentioned that perhaps the Minister of Finance might have an institutional interest in the non-adjustment of the ceiling, as pension contributions are deductible from individual income before taxation.

<sup>24</sup>Indexed regularly with national average wages. This has to be distinguished clearly from *adjustment* of the SVb ceiling to the same level as the health insurance ceiling, and subsequent regular indexation with national average wages.

<sup>25</sup>As contributions are tax deductible, the estimated redistributive effects on the individual are in reality lower. This observation does not, however, change the general picture.

**Table 3.9     Redistributive effects of the pension formula under the AOV**

| Wage level                     | Present value of contributions paid (AFL)<br>(1) | Present value of pension received (AFL)<br>(2) | Difference in present value<br>(2 – 1) | Single pension as a percentage of wage level |
|--------------------------------|--|--|--|--|
| <b>Standard male worker*</b>   |  |  |  |  |
| Minimum wage                   | 38,808   | 49,865   | 11,057                                 | 70   |
| 75% of average wage            | 66,551   | 49,865   | -16,687                                | 32   |
| Average wage                   | 88,735   | 49,865   | -38,870                                | 24   |
| Ceiling                        | 146,370  | 49,865   | -96,505                                | 15   |
| Ceiling doubled                | 292,740  | 49,865   | -242,875                               | 7  |
| <b>Standard female worker*</b> |  |  |  |  |
| Minimum wage                   | 38,808   | 71,746   | 32,938                                 | 70   |
| 75% of average wage            | 66,551   | 71,746   | 5,195                                  | 32   |
| Average wage                   | 88,735   | 71,746   | -16,989                                | 24   |
| Ceiling                        | 146,370  | 71,746   | -74,624                                | 15   |
| Ceiling doubled                | 292,740  | 71,746   | -220,994                               | 7  |

\*These calculations were based on 2003 figures and were undertaken using the ILO pension model under the results of Sections 4 and 5. It has been assumed that a standard worker works without interruption from age 20 and retires at age 60. A male is expected to live 16 years beyond retirement, and a female is expected to live 26 years beyond retirement, hence the greater present value of pensions received by females.

Source: ILO



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## 4. The demographic and economic frame

The demographic and economic frame underlying the calculations under all scenarios is an update of the status quo scenario of the 2003 review<sup>26</sup>; in fact, the base scenario of this study and the status quo scenario of the 2003 review differ only marginally. The frame is the same for all scenarios with changes only in a few cases, which are described where relevant.

This Section contains a description of the projections of the main demographic, economic and labour market variables underlying the study. The developments assumed have been compiled in a table at the end of this paragraph.

### Demography

In 2003, Aruba's population was 94,500 persons, out of which 52 percent were female and 48 percent male. Due to the past waves of immigration around one third of the population was not born in Aruba.

The present total fertility rate is about 1.86, i.e. a cohort of 1000 women of fertile age is assumed to have a total number of 1,860 babies during the cohort's reproductive period of 35 years. This assumption implies that Aruba's population remains slightly below replacement level, which is (over) compensated however by the assumption of net migration (see below).

Life expectancy at birth has been increasing during the past and has been estimated at 72.4 years for men and 77.8 years for women (2003).

For the population projection the fertility rate was assumed constant, whereas the mortality rate is expected to decline further to increase life expectancy to 78.3 years for men and 83.5 years for women by 2050.

Assumptions on fertility and mortality rates are in line with the demographic mainstream assumptions underlying, for example, the regular population projections undertaken by the UN population division.

A crucial assumption for Aruba's future population development is the assumption of (net) immigration. For the projection period it was assumed that between 2003 and 2011 300 persons per year would migrate to Aruba. This number is assumed to scale down linearly between 2011 and 2021 to a constant annual influx of 200 persons until 2063. These assumptions differ significantly from past experience but are nevertheless considered plausible in the context of this study for the following reasons. Firstly, for the past few years the government has pursued a more restrictive policy with respect to granting residence permits<sup>27</sup>. Secondly, Aruba's population density is already high, even in international comparison, at 534 persons per km<sup>2</sup>. Even under the conservative assumptions of future population development (fertility, mortality, migration) the population density increases to 680 persons per km<sup>2</sup> by the end of the projection period

<sup>26</sup>See: International Labour Office: Aruba. Report to the Government. Actuarial review of the General Old-age Pension Scheme and the General Widows and Orphans Insurance Scheme as of 30 April 2003. Geneva, March 2004, pp. 5 to 7.

<sup>27</sup>See: Central Bureau of Statistics – Aruba: Double or Quits. A study on recent migration to Aruba 1993 – 2003. Oranjestad 2004, p. 20.

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(2063), which poses a challenge to the development of Aruba's environmental, infrastructural, economic and socio-political structures. Thirdly, the moderate immigration assumption was chosen for reasons of prudence. A possible alternative assumption of continued high (net) immigration would easily lead to the wrong conclusions as to the future financial development of the SVb. It is always possible to construct, on paper, a sufficiently high influx of additional workers from abroad to the Aruban labour market that would, over the projection period, solve all possible financial problems of the SVb. Such an approach is not considered helpful for obvious reasons.

As a result of these assumptions, Aruba's population grows from 95,000 in 2003 to 123,000 in 2063, i.e. by 28,000 persons. At the same time the structure of the population changes as follows: in 2003 about 12 percent of the population are 60 years of age and over, this share increases to around 27 percent until 2030, remaining relatively constant thereafter. At the same time the share of persons aged 14 and younger in the whole population decreases slightly from 24 percent today to 19 percent in 2063. The share of those aged 15 to 59, decreases from 65 percent now to 53 percent in 2063. According to standard practice, these figures imply that there are 5.4 active persons per aged person in 2003. There are only two active persons per aged person from 2030 onwards.<sup>28</sup>

## Labour supply

In the ILO model family, labour supply is a direct result of applying labour market participation rates to the relevant population.

In 2003, the total labour market participation rate is estimated at 67.5 percent of the population aged 15 to 69 (men: 75.7 percent; women: 60.2 percent). The estimated allocation of labour market participation rates over individual ages is indicated in Figure 4.1.

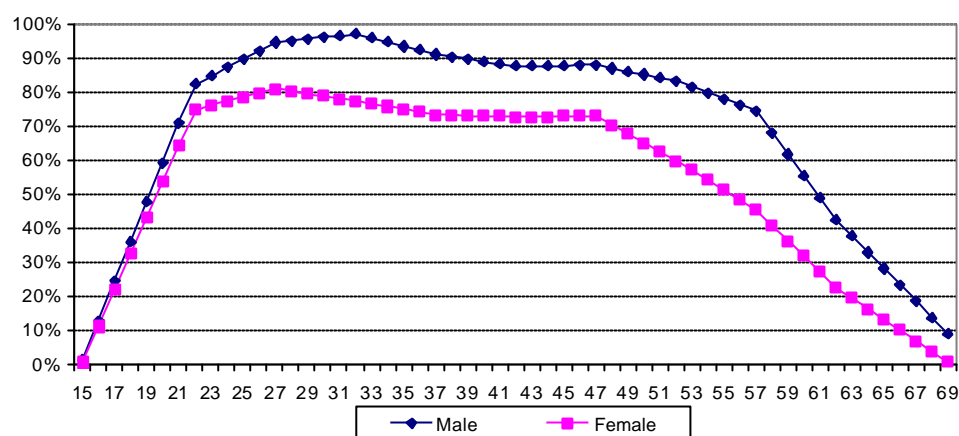
For the projection, male age-specific rates were kept constant. Female prime age rates were assumed to converge linearly to 95 percent of male rates over a period of 25 years (by 2027). Thus, by 2063, the total rate is 68 percent (male: 71 percent; female: 65 percent).<sup>29</sup>

The age specific participation rates were adjusted in the scenarios 62/65 and *Reform*, which simulate the effects of increases of the normal legal retirement age on SVb pension expenditure.

<sup>28</sup>These calculations refer to standard demographic ratios; the results shown must not be confused with the scheme-specific demographic ratios under the SVb, which are the relevant figures for analyzing the finances of the SVb. However, in the case of Aruba, the above broad demographic indicators are a relatively good approximation of the development of the respective scheme specific indicators.

<sup>29</sup>Despite constant single age participation rates, total male participation rates change due to changes in the population structure, and the same effect occurs for total female rates.

Figure 4.1 Labour market participation rates 2003



Source: Aruba Central Bureau of Statistics, ILO.

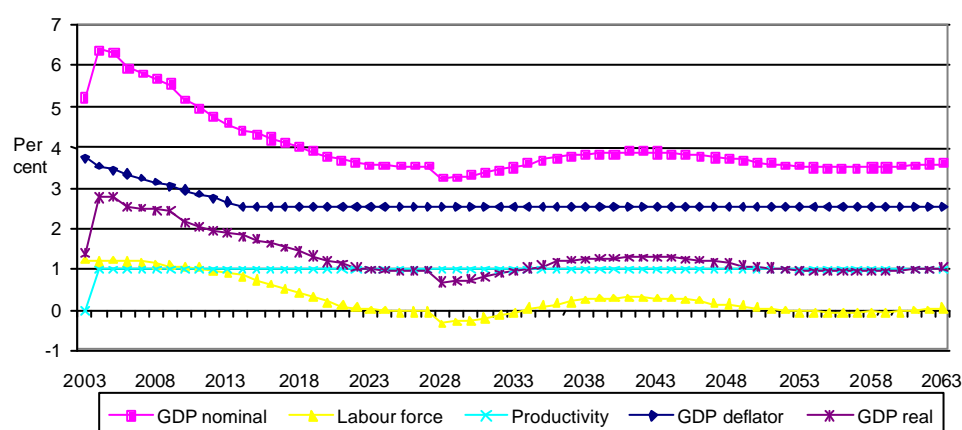
## Economy

In the economic module of the ILO model family it is assumed that long-term growth depends on the growth of the labour force and its productivity.

The development of the labour force is given as a result of population development and labour market participation rates (see above) shown at Figure 4.1. Productivity for the past seven years showed high variance and, more or less, stagnated on average between 1997 and 2003. However, assuming stagnation of labour, productivity was not considered reasonable over the long run. Instead, a steady labour productivity growth of one percent per annum was assumed.

Given these inputs, future real GDP grows at an annual average rate of 1.3 percent per annum. Actual annual growth rates vary according to Figure 4.2.

Figure 4.2 Annual growth rates of GDP, labour force and productivity



Source: ILO.

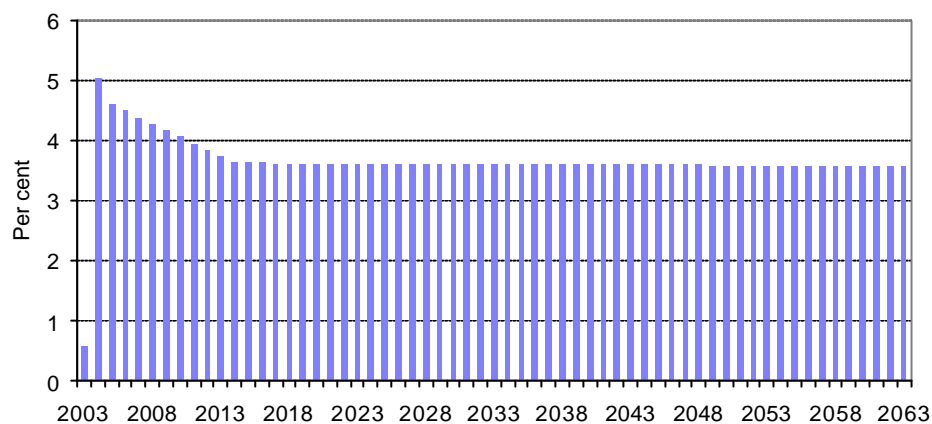
For price development it was assumed that, over the long run, the GDP deflator and the CPI develop in parallel; and their respective growth rates were assumed to be 2.6 percent

per annum over the long run between 2003 and 2063. This assumption was used for indexing the legal minimum wage, which, in turn, is the basis for indexing SVb pensions.

Accordingly, nominal GDP (GDP in current prices) increases in the long run at an annual average rate of four percent (see Figure 4.2). Nominal GDP sets the outer frame for the development of all nominal variables governing revenue and expenditure of the SVb. Among these, the national average wage (NAW) is prominent as it serves as a reference for other variables. Based on the assumption of a constant labour income share of GDP (about 57 percent), the NAW grows annually at an average rate of 3.7 percent (Figure 4.3).

The NAW is used as a basis for calculating the contribution assessment ceiling of the SVb and, thus, for the development of the scheme specific wages under the SVb. NAW, ceiling, contribution rate and the number of contributors (see below), together, determine the development of the contribution revenue of the SVb.

**Figure 4.3 Annual growth rates of the national average wage (NAW)**



Source: ILO.

With respect to interest, a real rate of two percent was assumed, and the nominal rate is calculated by adding the inflation rate. Within the model the interest rate is used for calculating the interest income of the fund, discount rates and the annuities to be expected in case a fully funded tier were to be introduced (see below).

Consistent with the other assumptions, it is expected that over the long run unemployment converges to a minimum of five percent of the labour force. Thus, total employment (labour demand), after the unemployment rate converged, is a linear function of the labour force (labour supply).

Thus far, Aruban statistics do not provide a breakdown of total employment into self-employed and dependent employed. For reasons of consistency the ILO has provided estimates for this report (Table 4.1).

Table 4.1 Demographic and economic frame – core variables 2003 to 2063

| Item  | Dimension | 2003         | 2013          | 2023          | 2033          | 2043          | 2053          | 2063          |
|---|-----------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Population, total</b>                      | Persons   | <b>94529</b> | <b>104353</b> | <b>112449</b> | <b>117486</b> | <b>119608</b> | <b>120562</b> | <b>122329</b> |
| Males   | Persons   | 45355        | 50042         | 53796         | 55953         | 56864         | 57531         | 58663         |
| Females                                       | Persons   | 49174        | 54312         | 58652         | 61533         | 62744         | 63031         | 63666         |
| <b>Population aged 15 to 69, total</b>        | Persons   | <b>68944</b> | <b>77508</b>  | <b>80462</b>  | <b>78653</b>  | <b>78577</b>  | <b>80914</b>  | <b>80716</b>  |
| Males   | Persons   | 32794        | 37131         | 38657         | 38016         | 38243         | 39521         | 39537         |
| Females                                       | Persons   | 36150        | 40377         | 41805         | 40637         | 40334         | 41393         | 41179         |
| <b>Labour force, total</b>                    | Persons   | <b>46557</b> | <b>51928</b>  | <b>53944</b>  | <b>53243</b>  | <b>54426</b>  | <b>55086</b>  | <b>54928</b>  |
| male  | Persons   | 24812        | 27125         | 27591         | 27023         | 27768         | 28198         | 28129         |
| female  | Persons   | 21744        | 24803         | 26353         | 26221         | 26657         | 26888         | 26798         |
| <b>Labour force participation rate, total</b> | %         | <b>67.5%</b> | <b>67.0%</b>  | <b>67.0%</b>  | <b>67.7%</b>  | <b>69.3%</b>  | <b>68.1%</b>  | <b>68.1%</b>  |
| male  | %         | 75.7%        | 73.1%         | 71.4%         | 71.1%         | 72.6%         | 71.4%         | 71.1%         |
| female  | %         | 60.2%        | 61.4%         | 63.0%         | 64.5%         | 66.1%         | 65.0%         | 65.1%         |
| <b>Employed, total</b>                        | Persons   | <b>43163</b> | <b>49335</b>  | <b>51242</b>  | <b>50574</b>  | <b>51699</b>  | <b>52328</b>  | <b>52177</b>  |
| male  | Persons   | 23301        | 25961         | 26407         | 25863         | 26577         | 26988         | 26922         |
| female  | Persons   | 19862        | 23374         | 24835         | 24711         | 25122         | 25339         | 25255         |
| <b>Self-employed</b>                          | Persons   | <b>5015</b>  | <b>5868</b>   | <b>6095</b>   | <b>6015</b>   | <b>6149</b>   | <b>6224</b>   | <b>6206</b>   |
| <b>Employees</b>                              | Persons   | <b>38148</b> | <b>43468</b>  | <b>45147</b>  | <b>44558</b>  | <b>45550</b>  | <b>46104</b>  | <b>45971</b>  |
| <b>Unemployed, total</b>                      | Persons   | <b>3394</b>  | <b>2592</b>   | <b>2702</b>   | <b>2670</b>   | <b>2727</b>   | <b>2758</b>   | <b>2750</b>   |
| Male  | Persons   | 1511         | 1164          | 1184          | 1159          | 1191          | 1210          | 1207          |
| Female  | Persons   | 1883         | 1428          | 1518          | 1510          | 1535          | 1549          | 1543          |
| <b>Contributors to the SVb</b>                | Persons   | <b>36357</b> | <b>41213</b>  | <b>42806</b>  | <b>42248</b>  | <b>43188</b>  | <b>43713</b>  | <b>43587</b>  |
| GDP, real, growth <sup>1)</sup>               | %         | 1.4          | 2.4           | 1.4           | 0.9           | 1.2           | 1.1           | 1.0           |
| GDP deflator / CPI, growth <sup>1)</sup>      | %         | 3.8          | 3.1           | 2.5           | 2.5           | 2.5           | 2.5           | 2.5           |
| GDP, nominal, growth <sup>1)</sup>            | %         | 5.2          | 5.5           | 4.0           | 3.4           | 3.8           | 3.7           | 3.5           |
| Labour income share in GDP                    | %         | 56.8         | 56.8          | 56.8          | 56.8          | 56.8          | 56.8          | 56.8          |
| Labour income                                 | BlnAFL    | 2'044        | 3'500         | 5'162         | 7'235         | 10'503        | 15'096        | 21'377        |
| Sum of wages and salaries                     | BlnAFL    | 1'658        | 2'864         | 4'242         | 5'959         | 8'666         | 12'472        | 17'676        |
| National average wage (NAW), gross            | AFL/mths. | 3'623        | 5'492         | 7'829         | 11'144        | 15'855        | 22'544        | 32'041        |
| Minimum wage                                  | AFL/mths. | 1'200        | 1'619         | 2'081         | 2'676         | 3'440         | 4'422         | 5'685         |
| Insured sum of wages                          | BlnAFL    | 1'342        | 2'216         | 3'175         | 4'476         | 6'630         | 9'396         | 13'335        |
| Ceiling (SVb)                                 | AFL/mths. | 4'108        | 5'668         | 8'080         | 11'502        | 16'364        | 23'266        | 33'068        |
| Ceiling (health insurance)                    | AFL/mths. | 4'108        | 10'823        | 15'430        | 21'965        | 31'249        | 44'432        | 63'150        |

1) Except 2003, all rates 10-year-geometrical mean.  
Source: ILO.



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## 5. Base scenario results

This section presents and analyses projections of the AOV and AWW schemes up to 2063 under status-quo legal financing<sup>30</sup> and benefits provisions based on the demographic and macroeconomic frame presented in the previous section. Since the surpluses and deficits of both schemes accrue to a single fund, the finances of both have been projected together despite the accounting principle that they should be maintained separately.

The projected revenue and expenditure of the AOV and AWW have been updated from the valuation<sup>31</sup> in 2003 as new data were available. For this report, a full database of active contributors was accessible thus allowing for more a precise estimation of the impact of certain parametric reform measures. Records were available for all individual jobs for the year 2002 and included the following information: age, sex, gross wage, net wage<sup>32</sup> and duration of work during the year.

The main objective of this projection is to identify the underlying trend of the future financial development of the scheme. It serves as analysis as to where the SVb is heading under status quo conditions (no reforms) and as a reference for the reform scenarios. It should be understood that the accuracy of the results relies on the assumptions set. However, most of the indicators calculated on basis of absolute results (e.g. contribution rates, shares in GDP, year of first negative balance, etc.) are relatively resilient to changes in the underlying demographic and economic assumptions.

The following six sub-sections describe the projected revenue and expenditure of the AOV and AWW, specifically contribution income, AOV expenditure, AWW expenditure, administration costs, total expenditure and the reserve.

### 5.1 Contribution income

Most of the following results were made possible because the relevant data were available for the first time. Prior to this valuation, for the first ILO valuation, projections had been made according to rough estimates based on GDP growth. This method could only produce crude results with respect to problems such as measuring the financial impact of increasing the contribution ceiling or increasing the normal age of retirement.

For this report, a cohort-matrix of the insurable base by sex and single age was built by the multiplication of the jobs matrix with the matrix of wages (salary scale matrix). From this platform, the behavior of the future insurable base was modeled in greater detail than before as a distinction could be made between the demographic effect and the economic effect included in the annual insurable base growth.

Figure 5.1 presents the insurable base growth during the projection period. On average, the insurable base grows at a rate of 3.9 percent per year. Growth is stronger in the first ten

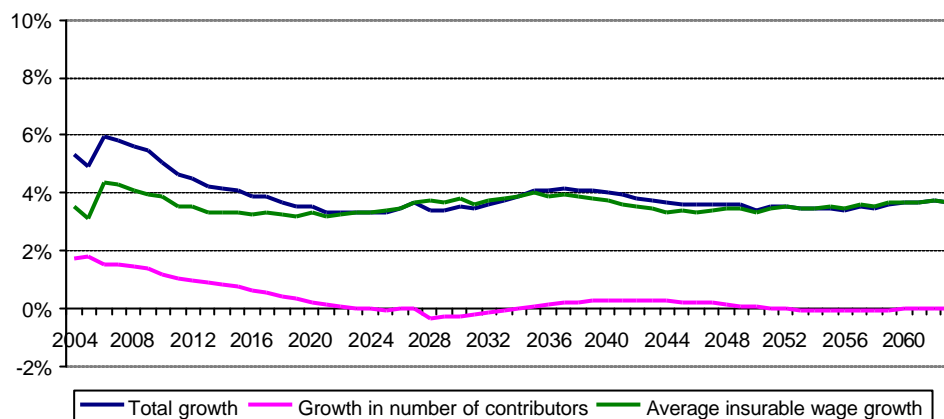
<sup>30</sup>In modeling terms, status quo implies regular indexation of the contribution assessment ceiling to average wages.

<sup>31</sup>See: International Labour Office: Aruba. Report to the Government. Actuarial review of the General Old-age Pension Scheme and the General Widows and Orphans Insurance Scheme as of 30 April 2003. Geneva, March 2004.

<sup>32</sup>Gross wage minus wage tax minus employee social security contributions.

years as the number of contributors is expected to increase rapidly at the beginning of the projection period and remain stagnant thereafter. Three lines are presented in order to disaggregate total growth. As the number of contributors stagnates in the long run, growth of the insurable base is almost entirely due to the average wage growth.

**Figure 5.1 Annual growth rates of the insurable base - Base scenario**

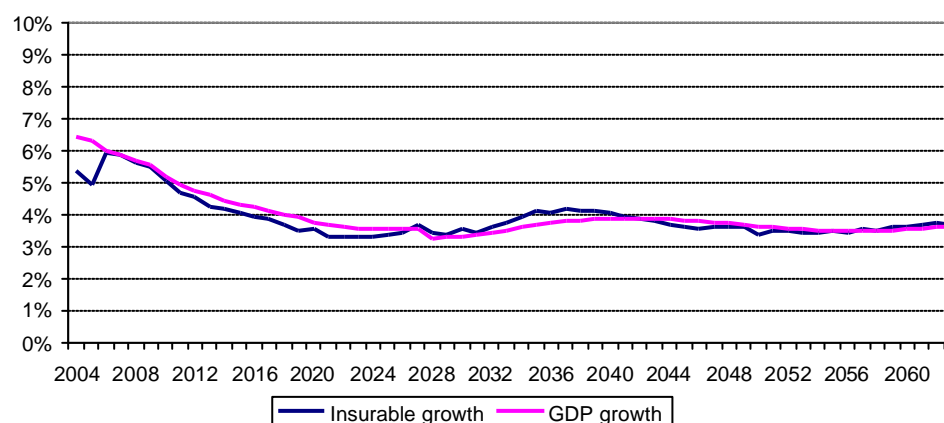


The insurable base growth is expected to be 5.5 percent in 2005 and then decrease to 3.6 percent over a 10-year period. Long-term growth is assumed to be constant at 3.6 percent from 2015.

The demographic growth represents the financial effect of the number of new contributors on the insurable base. From the macro-economic frame presented in Section 4, it is observed that the number of new contributors will be relatively low. In fact, the average growth will only be 0.3 percent per year for the following 60 years and then stagnate, as the bulk of new contributors will join the system until around 2020.

Figure 5.2 shows the link between the insurable base and GDP growth. Future growth of the insurable base is strongly correlated to GDP growth because wage growth is a core result of GDP growth. It is therefore not surprising to observe similar curves in terms of annual growth.

**Figure 5.2 Annual growth rates: insurable base vs. GDP - Base scenario**

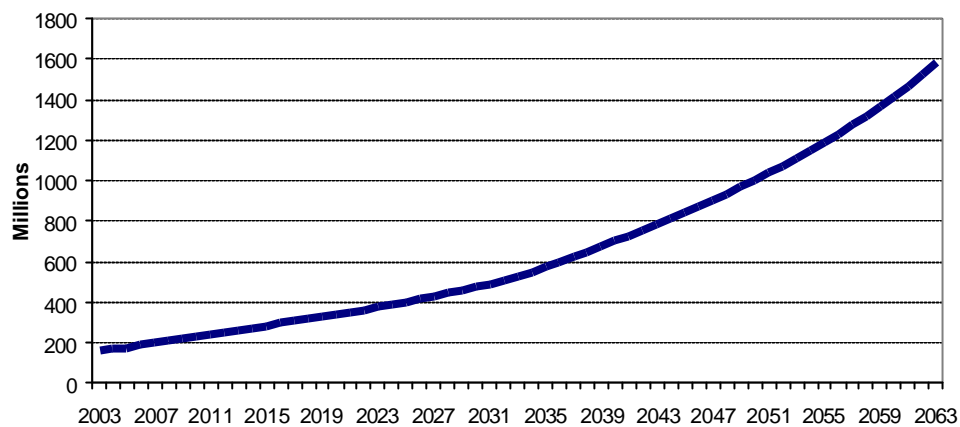


The insurable base is defined as the sum of annual wages on which contributions should be paid. The revenue of the pension scheme was obtained by applying the AOV contribution rate of 11.5 percent and the AWW contribution rate of two percent to the insurable base.



Figure 5.3 shows the contribution income in millions of AFL of both schemes combined. In 2003, the contribution income is around 159 million and grows to over 1.6 billion in 2063.

**Figure 5.3 Contribution income in million AFL - Base scenario**



The insurable base presented in this valuation could be considered slightly more optimistic than the insurable base presented in the year 2003 valuation, as the wage growth assumption retained is slightly higher.

## 5.2 AOV expenditure

The AOV scheme receives the largest share of contribution income, 11.5 percent of insurable wages or approximately 85 percent of the SVb's contribution income. Benefits payable from this scheme are single pensions, pensions paid to married couples ("married pensions") and pensions paid in case of divorce ("split pensions"). Since pensions are payable for life, AOV expenditure increases as more pensioners, who live longer, and receive larger pensions, are added.

Table 5.1 presents some cost indicators of the future financial development of the AOV in comparison to the present legal contribution rate.

**Table 5.1 AOV - GAP and PAYG rates - Base scenario**

| Legal rate<br>2003 | GAP<br>2003-2063 | PAYG  |       |       |
|--------------------|------------------|-------|-------|-------|
|                    |                  | 2003  | 2033  | 2063  |
| 11.5%              | 14.6%            | 11.1% | 18.1% | 13.4% |

The general average premium (GAP) of the scheme is 14.6 percent. This represents the constant contribution rate that, if applied over the period 2003-2063, would be sufficient to meet the expenditure of the scheme over that period<sup>33</sup>. It may be considered the constant long-term cost for labour of the AOV. The GAP will be used later in the report to compare various scenarios of the scheme's modifications and sensitivity tests.

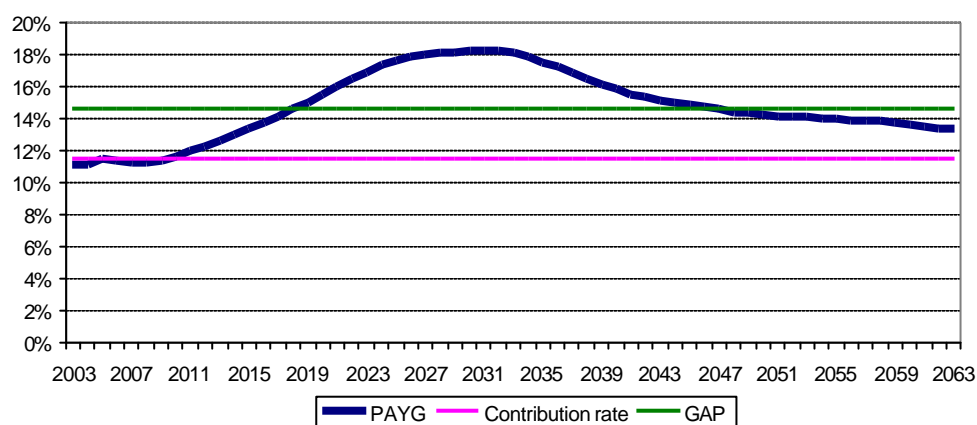
<sup>33</sup>The general average premium is calculated here as the present value of scheme's expenditure of the period 2003-2063 divided by the present value of total insurable earnings for the same period. The initial reserve as at 31 December 2002 is not considered.

One percentage point of the GAP of 14.6 percent is attributable to the assumed increase in life expectancy. In other words, without the assumed life expectancy development, the number of pensioners would be around 1,000, 4,000 and 6,000 lower in 2023, 2043 and 2063, respectively, in which case the GAP would be 13.7 percent.

The pay-as-you-go (PAYG) cost rate represents the contribution rate that would be required to meet the expenditure of the scheme, year after year, in the absence of reserves. In 2003, the PAYG rate is 11.1 percent, thus close to the actual contribution rate devoted to AOV pensions (11.5 percent). However, the PAYG rate is expected to increase in the future and reach 18.1 percent in 2033. The rate will finally decrease and remain relatively constant at 13.4 percent in 2063.

Figure 5.4 compares the present legal contribution rate to the projected PAYG rate for the next six decades. It illustrates that there will be a need to increase the contribution rate in the future as there is a deviation of 3.1 percent between the GAP and the current contribution rate. In other words, if the present contribution rate were increased by around three percentage points now, the AOV could, under the stable demographic and economic conditions as explained in Section 4, continue its operations until 2063 without reform and without running into a negative reserve.

**Figure 5.4 AOV PAYG rate and contribution rate - Base scenario**



The AOV expenditure expressed as percentage of GDP is presented in Figure 5.5. On average, considering the full projection period, AOV expenditures represent 4.6 percent of total GDP, which is low in international comparison, however compared to the current 3.6 percent share in GDP it is an increase of 25 percent. In terms of annual development, the trend of the GDP share is similar to the expenditure level expressed in terms of the insurable base (PAYG). In fact, the insurable base is highly influenced by GDP as total labour income represents around 57 percent of GDP in the long run (see Section 4).

Figure 5.5 AOV expenditure as a percentage of GDP - Base scenario

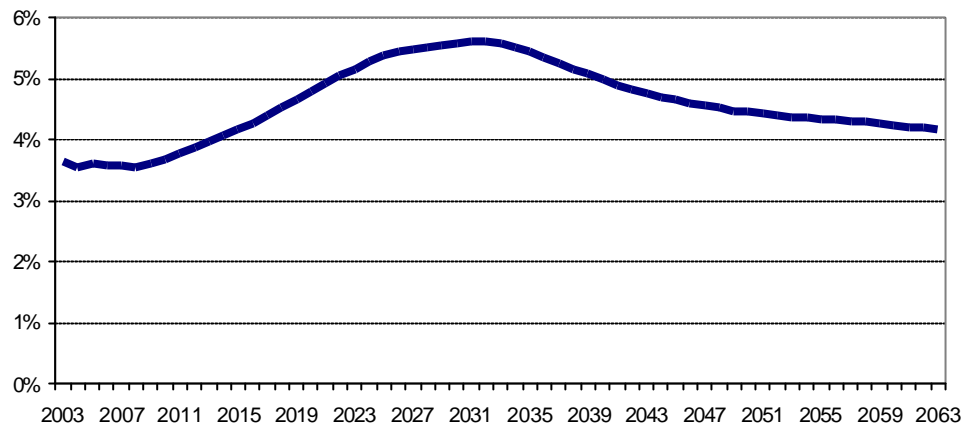
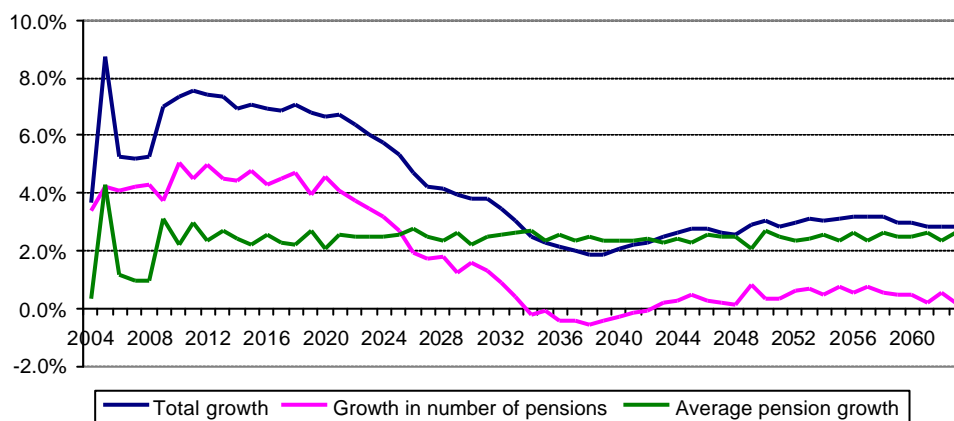


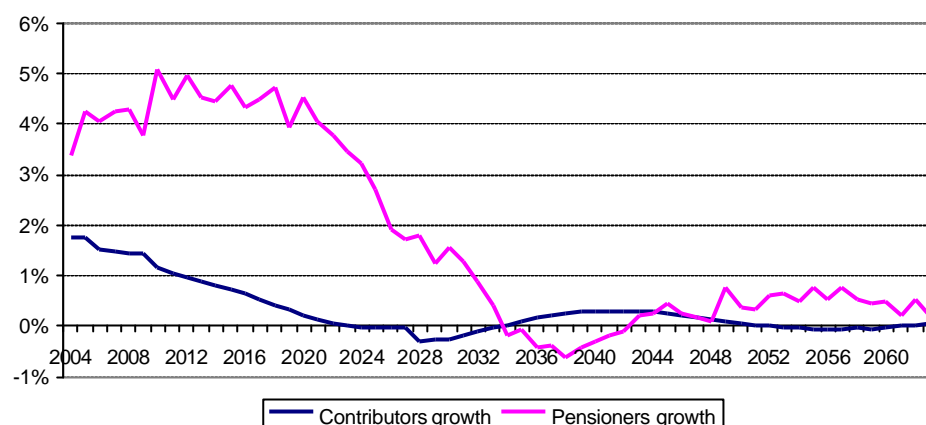
Figure 5.6 presents the expenditure growth over the projection years by components. Two factors influence the growth of the AOV expenditures: the number of pensioners, and the average pension. The number of pensioners stabilizes around 2030 and thus the CPI related pension indexation mechanism would be the primary contributor to the increase of AOV expenditures in the second half of the projection period.

Figure 5.6 AOV annual expenditure growth - Base scenario



For comparison, the following two graphs show the major factors contributing to differences in income and expenditure. Figure 5.7 shows the demographic growth difference between the number of contributors and the number of pensioners. The number of contributors is relatively constant and will grow on average by a modest 0.3 percent per year. Due to relatively high growth in the next 30 years (first half of the projection period), the average number of pensioners will grow by 1.8 percent over the full period. The demographic growth gap is thus over three percentage points during the first half of the projection period, close to zero during the second half, and around 1.5 points over the full period.

Figure 5.7 AOV annual demographic growth - Base scenario



The demographic effect adds a substantial financial load to the scheme for the next 30 years. Because of the demographic structure of the population, the scheme gets more expensive as every 100 contributors will have to pay for an increasing number of pensioners.

Figure 5.8 shows the financial growth difference between the average contribution and the average pension. Average contribution growth is relatively constant; it grows at a rate of 3.6 percent per year on average. The average pension grows according to the CPI as the single pension is calculated constant at 70 percent of the minimum wage and grows by 2.4 percent per year<sup>34</sup>. The transition process to establish the single pension at 70 percent of minimum wage explains the low average pension growth observed from 2006 to 2009. In fact, after an indexation of six percent as of 1 January 2005, pensions are indexed yearly at only one-third of the inflation index until the 70 percent coupling is reached.

Figure 5.8 AOV annual financial growth - Base scenario

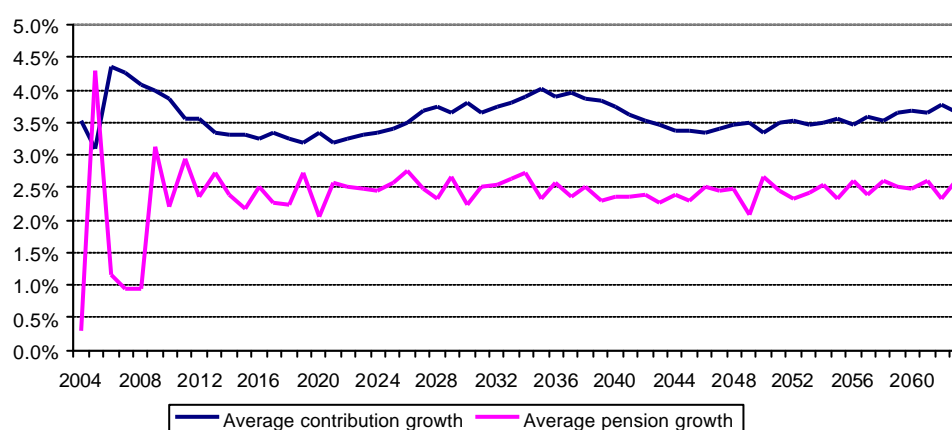


Table 5.2 presents standard comparisons between projected wages, pensions and contribution ceilings. As one can see, both the replacement ratios reduce dramatically. In 2003, the replacement rate of the pension over average insured wage is 35.1 percent and

<sup>34</sup>It should be recalled that the differential in growth rates of average contributions and average pensions basically reflects the real wage growth assumption (real labour productivity growth assumption) made in the macro-economic frame. In other words, the above differential varies with real wage growth.

decreases to 18.8 percent in 2063. This figure could be explained primarily by the pension indexation based on inflation (70 percent of the minimum wage).

**Table 5.2 Replacement ratio - Base scenario**

| <b>Year</b> | Gross average national wage<br>(1) | Average insured wage<br>(2) | Minimum wage<br>(3) | Contribution ceiling<br>(4) | Single pension<br>(5) | AOV average pension<br>(6) | AWW average pension<br>(7) | (5) / (1) Replacement ratio<br>(8) | (5) / (2) Replacement ratio<br>(9) | AOV Pay as you go rate<br>(10) |
|-------------|------------------------------------|-----------------------------|---------------------|-----------------------------|-----------------------|----------------------------|----------------------------|------------------------------------|------------------------------------|--------------------------------|
| <b>2003</b> | 3,623                              | 2,567                       | 1,200               | 4,108                       | 900                   | 846                        | 504                        | 24.8%                              | 35.1%                              | 11.1%                          |
| <b>2004</b> | 3,805                              | 2,666                       | 1,236               | 4,108                       | 900                   | 849                        | 506                        | 23.7%                              | 33.8%                              | 10.9%                          |
| <b>2005</b> | 3,980                              | 2,748                       | 1,279               | 4,108                       | 954                   | 875                        | 542                        | 24.0%                              | 34.7%                              | 11.3%                          |
| <b>2006</b> | 4,159                              | 2,868                       | 1,321               | 4,293                       | 965                   | 885                        | 561                        | 23.2%                              | 33.6%                              | 11.3%                          |
| <b>2007</b> | 4,341                              | 2,991                       | 1,364               | 4,481                       | 975                   | 895                        | 566                        | 22.5%                              | 32.6%                              | 11.2%                          |
| <b>2008</b> | 4,526                              | 3,113                       | 1,407               | 4,672                       | 985                   | 903                        | 576                        | 21.8%                              | 31.7%                              | 11.2%                          |
| <b>2013</b> | 5,492                              | 3,725                       | 1,619               | 5,669                       | 1,133                 | 1,036                      | 689                        | 20.6%                              | 30.4%                              | 12.6%                          |
| <b>2023</b> | 7,829                              | 5,139                       | 2,081               | 8,082                       | 1,457                 | 1,322                      | 942                        | 18.6%                              | 28.4%                              | 16.9%                          |
| <b>2033</b> | 11,144                             | 7,336                       | 2,676               | 11,505                      | 1,873                 | 1,699                      | 1,128                      | 16.8%                              | 25.5%                              | 18.1%                          |
| <b>2043</b> | 15,855                             | 10,632                      | 3,440               | 16,368                      | 2,408                 | 2,158                      | 1,474                      | 15.2%                              | 22.6%                              | 15.1%                          |
| <b>2053</b> | 22,544                             | 14,891                      | 4,422               | 23,272                      | 3,096                 | 2,734                      | 1,908                      | 13.7%                              | 20.8%                              | 14.1%                          |
| <b>2063</b> | 32,041                             | 21,202                      | 5,685               | 33,076                      | 3,980                 | 3,490                      | 2,413                      | 12.4%                              | 18.8%                              | 13.4%                          |

It is important to mention that under this scenario the real value of individual pensions remains constant at its 2003 level for all future generations of pensioners until 2063. Thus, relative to the growing purchasing power of contributors, the purchasing power of a pension will be substantially reduced. In 2063, the single pension will be only 19 percent of average insured wage compared to 35 percent in 2003. In other words, at given contribution rates the inherent redistributive characteristic of the AOV will be significantly intensified.

It should be noted that the CPI-elasticity of the minimum wage observed for the period 1995 to 2003 was on average only 0.8, implying that the minimum wage was adjusted at rates equaling only four fifths of CPI inflation. This policy is not considered sustainable in the long run as it, sooner or later, destroys the purpose of the minimum wage of being a trusted socio-economic floor for workers. Accordingly, the CPI-elasticity of minimum wages was assumed to be equal to one over the full projection period. More generally speaking, the past elasticity of significantly below one casts light on the more fundamental problems of linking pensions to minimum wages (see Box 2).

## Box 2 Pension indexation standards – Consumer price index and minimum wage<sup>35</sup>

### Consumer price index

In most countries around the world, pensions are indexed according to the Consumer Price Index (CPI) or a combination of CPI and wages or wages only. For example, Canadian public pension payments are adjusted to reflect any increases in the cost of living as measured by the Consumer Price Index. Such indexation rules are usually applied during normal or stable economic periods. It is only during highly unstable and volatile economic periods that such rules have to be temporarily abolished<sup>36</sup>.

The CPI tracks cost changes in common private household expenses. A standardized "basket" of goods, regularly updated in order to reflect new consumption patterns, consists of food, shelter, clothing, transportation, health care and other household expenditures.

In Canada, pensions benefits are adjusted four times a year using a 3-month "moving average method." The moving average method is used to reduce the effect of sharp changes in the CPI. The rate increase is the percentage change of one 3-month period over the previous 3-month period.

For example, these equations show how the CPI was used to calculate the pensions benefits for January 2005:

$$\left( \frac{\text{Avg CPI (Aug, Sep, Oct)}}{\text{Avg CPI (May, Jun, Jul)}} \right) - 1 = \text{Rate Increase}$$

As long as individual initial pensions are based on individual career earnings, CPI based indexation is generally an adequate method to ensure that pensioners retain their purchasing power during their retirement period. This is because of the internationally accepted and applied methodological and statistical concepts and procedures normally used to calculate consumer price indices. The CPI is not only used for (pension) indexation but also for many other purposes (monetary policy in general; wage negotiations between employers and employees; indexation rules in private contracts; etc.). As the CPI attracts interest from many societal groups and institutions, it is usually very well protected against undue manipulation. In the context of growing real wages, however, if individual pensions are flat (the same for all pensioners, new pensions and pensions in payment alike), as is the case in Aruba, then CPI indexation, in the long run, leads to old-age poverty.

### National average wage

Another standard approach that has been applied by many countries is to index pensions with (national average) wages. This approach has two main purposes: firstly, to maintain the individual pensioners' income position relative to the other pensioners over time; and, secondly, to have all pensioners participate in general economic developments. Technically, the indexation formula is most often similar to the above Canadian formula, or an appropriate variation of it. As the correct compilation of a national average wage (SNA concept) is more laborious than in case of the CPI, statistical offices usually publish national average wages less frequently (i.e. semi-annually or annually). Thus, under a wage related indexation regime, pension adjustments can usually be expected at best semi-annually, but usually only annually.

Some countries use indexation formulae, which index pensions on a weighted average rate of CPI- and wage-growth, for example Poland. The logic of the indexation formula is quite similar to the one above, in that the goal is to balance out the two above "extremes", i.e. to find a middle path through mere maintenance of individual pensioners' purchasing power and their full participation in wage increases.

All indexation systems, whether CPI or wage related, are based on the assumption that the trend for nominal average wages always grows faster than prices.

<sup>35</sup>See Annex 3 for more information on minimum wages in Europe.

<sup>36</sup>See: Scholz, Wolfgang and Anne Drouin: Regular adjustment of financial parameters of social protection systems in volatile inflationary environments. In: International Social Security Review, Vol. 51, 1/1998; pp. 47 to 71.

### Minimum Wage

On the international scene, minimum wage legislation first appeared in New Zealand in 1894 and in the Australian state of Victoria in 1896 after significant "anti-sweating" campaigns. It was subsequently introduced in Great Britain in 1909, and in a number of continental European countries a few years thereafter. In North America, the state of Massachusetts was the first jurisdiction to institute a minimum wage, in 1912. However, the Massachusetts legislation, which only applied to women and minors working in certain industries, contained numerous exceptions and lacked an effective enforcement mechanism, relying solely on public opinion to pressure employers into compliance. Several other American states followed suit, although the history of the minimum wage legislation in the United States was marked, at least in its early stages, by a number of judicial and political setbacks for its proponents.

Throughout the history of the minimum wage there have also been various other differentials. Youth differentials were once very common, and occupational differentials have been, and still are, rather common, for example, domestic and farm workers have generally been excluded from minimum wage provisions or, if not, have only been entitled to a lower minimum rate. Occupations such as restaurant workers, hairdressers, salespersons, and construction workers have also historically been treated separately. In addition, the legislation of almost all jurisdictions allowed the employment of workers with disabilities at rates below the legislated minimum.

Minimum wage is usually highly influenced by political aspects. In Canada, for example, the minimum wage boards are authorized by law to recommend minimum wage rates, after the necessary inquiries, investigation and research, or to establish such rates subject to the approval of the Lieutenant Governor in Council. The rates are reviewed and increased from time to time by minimum wage orders or regulations. In other words, the final decision always rests with the government.

Most national acts do not provide specific guidelines as to how the minimum wage is to be determined but they usually require social and economic variables and developments to be considered, such as:

- (a) any cost of living increase since any previous order or regulation, with respect to the cost to an employee of purchasing the necessities of life, including but not limited to housing, food, clothing, transportation and health care and supplies; and
- (b) economic conditions, including concepts of a reasonable difference between the minimum wage and normal market wages or reasonable returns on private investment.

Minimum wage developments usually reflect a broad combination of economic and political influences. By their construction, they cannot be expected to measure the development of (minimum) living costs in the same objective way as the CPI does. Annex 3 to this report contains an overview of minimum wage regulations in Europe.

## 5.3 AWW expenditure

The AWW scheme receives a small share of contribution income, two percent of insurable wages or approximately 15 percent of the contribution income. Benefits provided by this scheme are payable to orphans, widows and invalids. Table 5.3 presents indicators of the future financial development of the AOV scheme.

Table 5.3 AWW - GAP and PAYG rates - Base scenario

| Legal rate<br>2003 | GAP<br>2003-2063 | PAYG |      |      |
|--------------------|------------------|------|------|------|
|                    |                  | 2003 | 2033 | 2063 |
| 2.0%               | 0.6%             | 0.9% | 0.5% | 0.4% |

The GAP of the scheme is 0.6 percent, which is substantially lower than the current contribution rate. With regard to PAYG, the rate is 0.9 percent in 2003, 0.5 percent in 2033 and 0.4 percent in 2063.

As a matter of fact, in the long run, under the present contribution rate, the AWW scheme collects at least three times as much contribution income as it actually needs. Given that,

by contrast, the AOV is in need of resources, one might consider a contribution rate shift in the order of one percentage point from the AWW to the AOV, thus improving the financial situation of the AOV while not increasing the overall burden of wage earners. Such a move, however, would not affect the combined AOV/AWW reserve (see below, Section 5.6).

Figure 5.9 compares the present contribution rate and the GAP to the projected PAYG rate for the next six decades. There is a difference of 1.4 percent between the GAP and the current contribution rate. Thus, the AWW could be considered as financially stable over time according to the set of assumptions retained.

**Figure 5.9 AWW - PAYG rate and contribution rate - Base scenario**

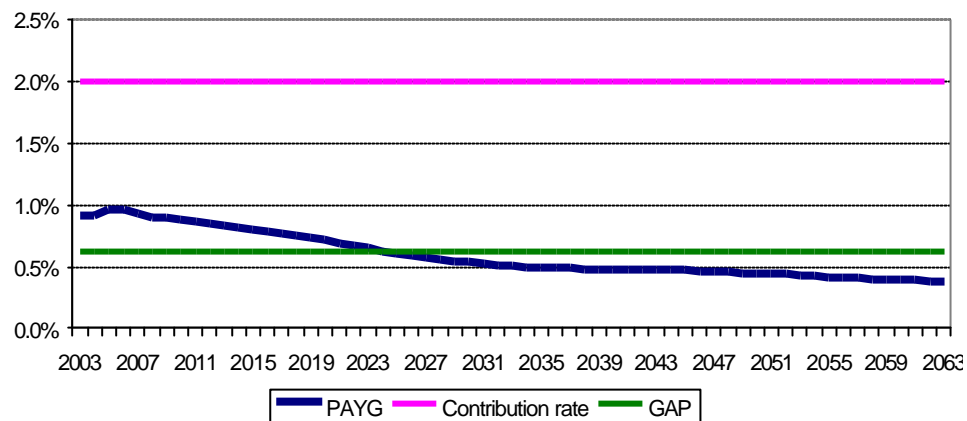
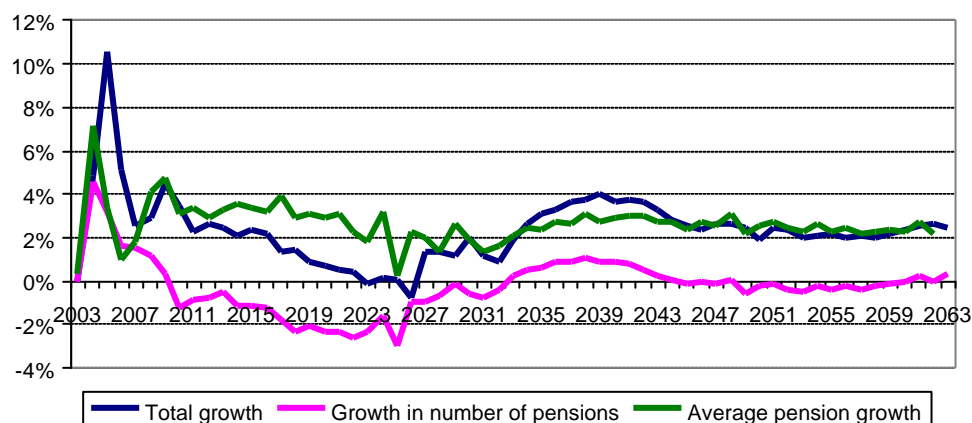


Figure 5.10 shows that the growth in the number of pensioners is predominantly negative. On average, the number of pensioners decreases by 0.3 percent annually for the next 60 years. However, the price-indexation impact will maintain the total growth at 2.4 percent annually.

**Figure 5.10 AWW annual expenditure growth - Base scenario**



## 5.4 Administration expenditure

Administration expenses of the SVb are relatively low when compared to most Caribbean islands. They represented about 1.5 percent of contribution income in 2003. The contribution assessment ceiling influences this ratio, which, after non-adjustment for a number of years, is too low. On the other hand, if contribution collection were administered by the SVb, up to a maximum of 0.5 percent might have to be added. When

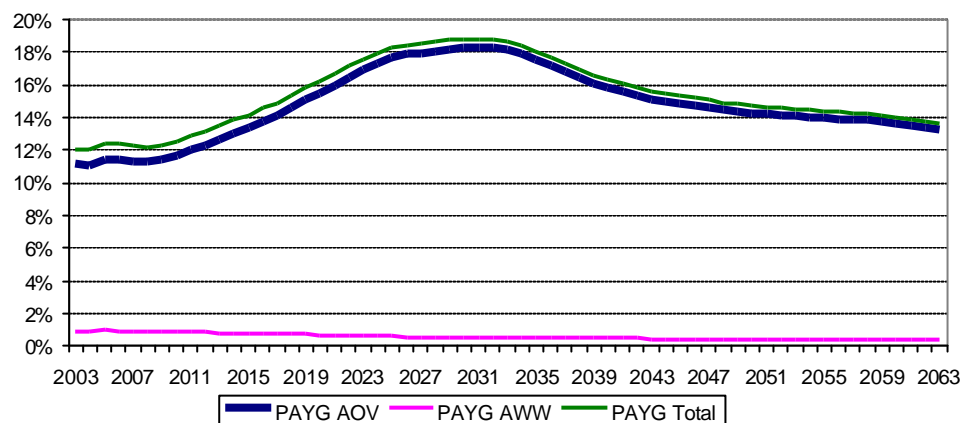


expressed as a percentage of total benefits paid, administration expenses represent 6.1 percent of the pension expenditure for the AOV scheme and 1.4 percent for the AWW scheme. Administration expenditures are expected to remain at this reasonable level over the projected period. Thus, administration expenses are expected to increase according to pension expenditure for both schemes (AOV and AWW)<sup>37</sup>.

## 5.5 Total expenditure

Figure 5.11 presents the expenditure of the AOV, the AWW and the total expenditure expressed in terms of the insurable base. Throughout the projected period, the AWW expenditures remain proportionally very low compared to AOV expenditures.

Figure 5.11 AOV and AWW expenditure as a percentage of insurable base (PAYG) - Base scenario



In total, the PAYG increases until 2033 and then decreases. The increase can be explained by the strong demographic effect of pensioners. Many people will retire and thus increase the ratio of the number of pensioners to the number of contributors. This phenomenon will put pressure on the scheme, as proportionally less contributors will have to pay for a given number of pensioners. As a result, the PAYG increases initially.

The development between 2033 and 2063 is explained by the financial parametric effect of indexation and the number of new pensioners. As the pension indexation is linked to 70 percent of the minimum wage, which is assumed equivalent to being indexed to inflation, average pension growth is permanently lower than average wage growth. The constant disparity between inflation and wage growth (Table 6.2) increases the financial viability of the scheme. The costs, however, have to be borne by pensioners, as the purchasing power of pensioners is kept constant at present (2003) levels. In other words, such a policy does not allow for pensioners' continued participation in growing workers' consumption.

The following two tables present the projected results of the scheme in greater detail. Table 5.4 presents the demographic development in the number of contributors, the number of AOV beneficiaries and the number of AWW beneficiaries. The significant increase in the ratio of pensioners in comparison to contributors strains the ever-increasing financial load on the contributors. From 2003 to 2063, the number of pensioners increases by 20,202,

<sup>37</sup> Administration costs were linked to pension expenditure for reasons of prudence. In reality, assuming the SVb continues applying modern information technology, administration costs will not correlate significantly with the number of pensions administered. Thus, in reality, it can be expected that administration costs will grow at a lower pace, in line with average wages, allowing for no increase in the number of SVb staff.

while the number of contributors increases by only 9,014. This demographic development can be explained by the ageing of the population.

**Table 5.4 Number of contributors and pensioners - Base scenario**

| Year | Contributors |         |        | Beneficiaries AOV |         |        | Beneficiaries AWW |         |       | Beneficiaries Total | Ratio pensioners to contributors |
|------|--------------|---------|--------|-------------------|---------|--------|-------------------|---------|-------|---------------------|----------------------------------|
|      | Males        | Females | Total  | Males             | Females | Total  | Males             | Females | Total |                     |                                  |
| 2003 | 23,185       | 19,977  | 43,163 | 5,471             | 5,255   | 10,725 | 641               | 1,033   | 1,675 | 12,400              | 24.8%                            |
| 2004 | 23,486       | 20,432  | 43,918 | 5,615             | 5,473   | 11,087 | 681               | 1,071   | 1,752 | 12,839              | 25.2%                            |
| 2005 | 23,803       | 20,894  | 44,696 | 5,823             | 5,735   | 11,558 | 718               | 1,090   | 1,808 | 13,366              | 25.9%                            |
| 2006 | 24,111       | 21,263  | 45,373 | 6,008             | 6,018   | 12,026 | 738               | 1,099   | 1,837 | 13,863              | 26.5%                            |
| 2007 | 24,429       | 21,623  | 46,052 | 6,255             | 6,282   | 12,537 | 758               | 1,108   | 1,866 | 14,403              | 27.2%                            |
| 2008 | 24,727       | 21,993  | 46,720 | 6,457             | 6,616   | 13,073 | 769               | 1,119   | 1,888 | 14,961              | 28.0%                            |
| 2013 | 25,886       | 23,449  | 49,335 | 7,895             | 8,445   | 16,340 | 774               | 1,057   | 1,832 | 18,172              | 33.1%                            |
| 2023 | 26,470       | 24,772  | 51,242 | 11,566            | 13,215  | 24,781 | 669               | 837     | 1,506 | 26,287              | 48.4%                            |
| 2033 | 25,997       | 24,576  | 50,574 | 13,466            | 15,772  | 29,238 | 650               | 727     | 1,378 | 30,616              | 57.8%                            |
| 2043 | 26,668       | 25,030  | 51,699 | 13,039            | 15,481  | 28,520 | 692               | 790     | 1,482 | 30,002              | 55.2%                            |
| 2053 | 27,083       | 25,244  | 52,328 | 13,673            | 15,987  | 29,661 | 682               | 773     | 1,454 | 31,115              | 56.7%                            |
| 2063 | 26,996       | 25,181  | 52,177 | 14,666            | 16,499  | 31,164 | 678               | 760     | 1,438 | 32,602              | 59.7%                            |

Table 5.5 presents the financial results of the scheme according to the type of benefits. For the AOV benefits, the expenses increase annually by 4.3 percent for single pensions, 4.0 percent for married pensions and 4.2 percent for split pensions. With respect to AWW pensions, expenses increase annually by 2.2 percent for orphan pensions, 2.1 percent for widow pensions and 2.4 percent for invalid pensions. In total, the AOV expenses increase substantially more than the AWW expenses, in fact by 4.2 percent compared to 2.3 percent.

**Table 5.5 AOV/AWW benefits - Base scenario**

| Year | AOV         |             |             |               | AWW        |            |            |            | GRAND TOTAL   |
|------|-------------|-------------|-------------|---------------|------------|------------|------------|------------|---------------|
|      | Single      | Married     | Split       | Total         | Orphans    | Widows     | Invalids   | Total      |               |
| 2003 | 62,712,271  | 55,114,688  | 10,910,966  | 128,737,925   | 3,625,132  | 3,207,833  | 3,305,044  | 10,138,009 | 138,875,934   |
| 2004 | 64,878,977  | 57,118,875  | 11,500,844  | 133,498,696   | 3,876,301  | 3,258,316  | 3,500,176  | 10,634,793 | 144,133,489   |
| 2005 | 69,605,468  | 62,722,113  | 12,819,309  | 145,146,890   | 4,364,615  | 3,413,173  | 3,979,879  | 11,757,668 | 156,904,557   |
| 2006 | 73,298,133  | 65,814,275  | 13,643,372  | 152,755,780   | 4,610,653  | 3,457,255  | 4,290,524  | 12,358,431 | 165,114,212   |
| 2007 | 77,128,917  | 69,113,516  | 14,490,979  | 160,733,413   | 4,756,124  | 3,506,919  | 4,405,195  | 12,668,238 | 173,401,651   |
| 2008 | 81,286,911  | 72,523,605  | 15,375,192  | 169,185,708   | 4,918,027  | 3,493,885  | 4,628,708  | 13,040,620 | 182,226,328   |
| 2013 | 117,171,436 | 101,667,355 | 22,415,226  | 241,254,017   | 5,487,697  | 3,754,680  | 5,910,119  | 15,152,496 | 256,406,513   |
| 2023 | 230,672,968 | 189,662,728 | 43,045,333  | 463,381,029   | 5,311,301  | 4,997,324  | 6,711,191  | 17,019,816 | 480,400,845   |
| 2033 | 351,864,658 | 283,923,995 | 65,130,306  | 700,918,959   | 6,584,882  | 5,265,325  | 6,793,836  | 18,644,042 | 719,563,001   |
| 2043 | 435,983,731 | 350,388,805 | 81,786,509  | 868,159,045   | 8,892,842  | 7,680,916  | 9,635,762  | 26,209,520 | 894,368,565   |
| 2053 | 573,567,924 | 464,754,441 | 107,536,065 | 1,145,858,431 | 11,251,069 | 9,848,832  | 12,208,126 | 33,308,027 | 1,179,166,457 |
| 2063 | 763,732,035 | 634,024,644 | 143,832,474 | 1,541,589,154 | 14,435,673 | 11,992,120 | 15,199,627 | 41,627,420 | 1,583,216,573 |

## 5.6 Investment income and reserves

According to the SVb, the reserve at the end of 2003 is 144 million AFL. This amount includes the financial reserve of both the AOV and the AWW. In the base scenario, while applying a rate of return on investment based on the economic assumptions to the surpluses and deficits of the schemes, the fund is not financially stable over time.

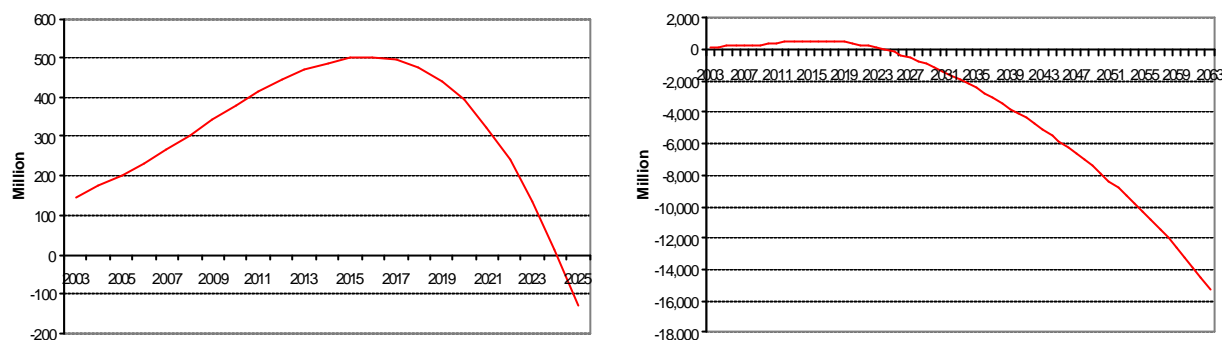
From the results, key years in the future evolution of the scheme were identified:

- Contributions alone are sufficient to meet the total expenditure of the scheme until 2013, and the reserve increases;
- From 2014, in order to meet the scheme's expenditure, part of the investment earnings must be used in addition to contributions, and the reserve is still increasing;
- From 2017, the total of contributions and investment earnings is no longer sufficient to meet the scheme's expenditure and the reserve starts decreasing;

- The reserve is exhausted in 2025.

In Figure 5.12, two graphs are used to show more clearly the projected development of the reserve from 2003 until 2063. The graph on the right hand side shows long term reserve projections. An imminent decline of the reserve can be seen as investment income is no longer available and subsequent deficits lead the scheme into a position of increasing deficits.

Figure 5.12 Reserves from 2003 to 2025 and reserves from 2003 to 2063 - Base scenario



In other words, under status-quo legislation and parameters, the AOV/AWW is able to increase its reserves for the next 10 years, however from this time onwards, the increasing deficits deplete the reserve. While the maximum reserve (in around 2016) would amount to 7.6 percent of GDP, the debt accumulated in 2030 would be around 11 percent of GDP, and about 40 percent by the end of the projection period. By the early 2020s at the latest, the AOV/AWW needs public transfers in order to maintain its social function of paying benefits.



## 6. Reform scenarios

Parametric reforms have been studied on the basis of the requests received from the Government (see Section 2). The main financial implications for each of the proposed reforms are presented in Table 6.1 in terms of the general average premium (GAP) as of today and projected PAYG cost rates for the years of 2033 and 2063. It should be emphasized that the alternative outcomes shown below should be interpreted with the underlying assumptions in mind.

Table 6.1 Summary of project results for possible policy changes

| Scenario  | First year of negative reserve | General Average Premium | AOV Pay-as-you-go in: |              |
|---|--------------------------------|-------------------------|-----------------------|--------------|
|   |                                |                         | 2033                  | 2063         |
| <b>1. Base</b>  | <b>2025</b>                    | <b>14.6%</b>            | <b>18.1%</b>          | <b>13.3%</b> |
| 2. Pension indexation based on wage growth  | 2017                           | 21.9%                   | 26.2%                 | 26.1%        |
| 3. Increase normal retirement age to 62 in 2005   | After 2063                     | 12.8%                   | 16.1%                 | 11.9%        |
| 4. Increase normal retirement age to 62 in 2005 and then increase to 65 over a 6-year transition period | After 2063                     | 10.7%                   | 13.1%                 | 9.9%         |
| 5. Increase the annual contribution ceiling to 60,000   | 2029                           | 13.9%                   | 17.2%                 | 12.6%        |
| 6. Increase the annual contribution ceiling to 75,000   | 2035                           | 13.3%                   | 16.4%                 | 12.1%        |
| 7. Application of contribution rate to gross wages  | 2027                           | 14.2%                   | 17.6%                 | 12.9%        |
| 8. Individualization  | After 2063                     | 12.2%                   | 14.6%                 | 10.9%        |
| 9. Reform   | After 2063                     | 10.3%                   | 12.4%                 | 9.2%         |

Note: The specific assumptions mentioned in the relevant section are an important determinant of the cost differences noted above.

This section presents the detailed actuarial analysis of the various parametric reform elements. Each of the individual elements of reform to the base scenario has been altered individually in order to isolate their effects. Section 6.8 describes the reform scenario consisting of several measures.

### 6.1 Pension indexation based on wage growth

The pension indexation based on wage growth scenario is presented in order to reconcile this valuation with the previous actuarial valuation. In fact, instead of fixing the single pension at 70 percent of minimum wage, this scenario assumes pension indexation based on average wage growth. It can be considered equivalent to the last valuation's base scenario. In the long term, this indexation alternative (in comparison to this report's base case) results in a considerable difference in the expenditure level, explaining the enormous difference in expenditure and deficit between the wage growth scenario and the base scenario presented in Section 5.

Table 6.2 presents the wage growth and inflation assumptions of the macro-economic framework. It is characterized by a significant difference in the respective long-term assumptions, as wage growth is expected to be 3.6 percent continuously and inflation 2.5 percent continuously. The difference in the two growth rates reflects the assumed labour productivity growth of one percent annually.

Table 6.2 Wage growth versus inflation

| Year               | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2013 | 2023 | 2033 | 2043 | 2053 | 2063 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Wage growth</b> | 0.6% | 5.0% | 4.6% | 4.5% | 4.4% | 4.3% | 3.7% | 3.6% | 3.6% | 3.6% | 3.6% | 3.6% |
| <b>Inflation</b>   | 3.8% | 3.5% | 3.4% | 3.3% | 3.2% | 3.1% | 2.6% | 2.5% | 2.5% | 2.5% | 2.5% | 2.5% |

In its financial logic (its impact on the SVb's finances), this scenario is, thus, equivalent to assuming a scenario in which future economic development occurs without any real wage increase, i.e. average wages grow fully in line with CPI.

Figure 6.1 shows the AOV PAYG rate compared to the legal contribution rate and the GAP. As can be seen, there is a large gap between the contribution rate and the GAP. In fact, the GAP is 21.9 percent, 10.4 percentage points higher than the contribution rate and 7.2 percentage points higher than in the base scenario. In other words, the present scenario shows the development of the base scenario in the case of zero future real wage growth (i.e. no labour productivity growth). As already illustrated in the previous valuation, the PAYG would stabilize at around 26 percent by the end of the projected period.

Figure 6.1 AOV PAYG rate and contribution rate – Pension indexation based on wage growth

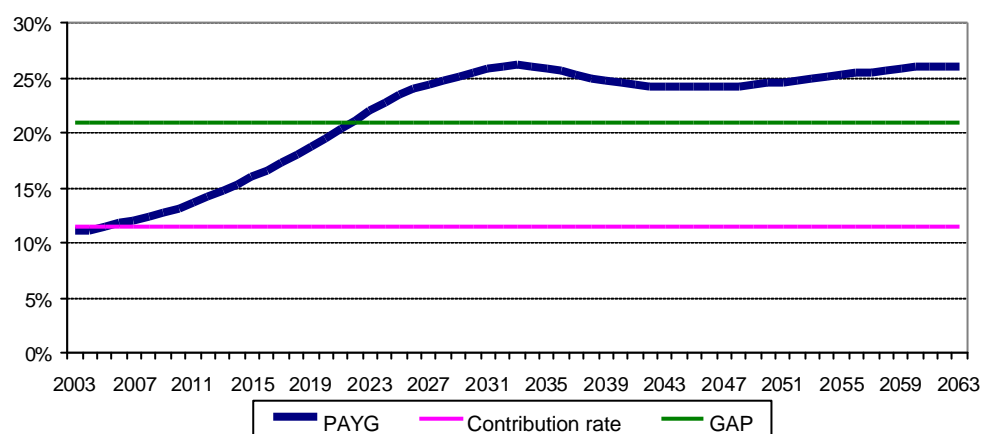


Figure 6.2 splits the AOV expenditure growth into its two factors, demographic and financial. In this specific case, only the financial factor affects the financial outcome, as the demographic factor remains unchanged in comparison to the base scenario. The average pension grows substantially faster than in the base scenario due to the assumption of 3.6 percent long-term wage growth. As a result of higher pension benefits, total expenditure will grow substantially over the next 30 years.

Figure 6.2 AOV annual expenditure growth – Pension indexation based on wage growth

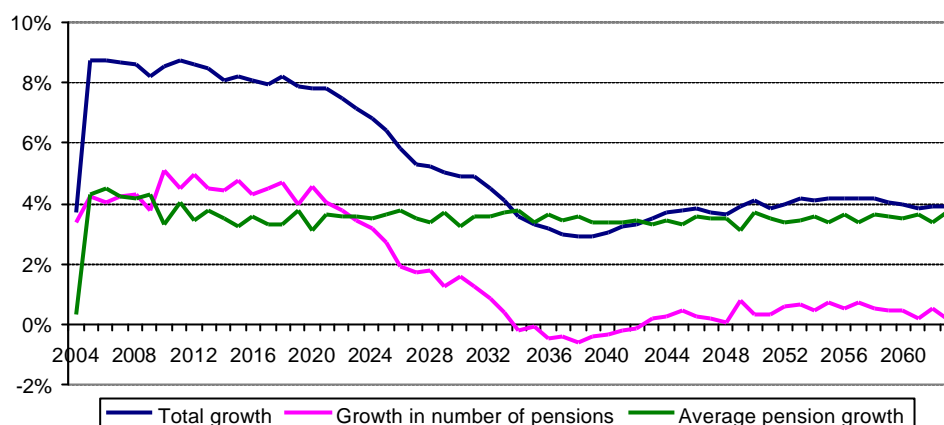


Table 6.3 presents standard comparisons between wages and pensions. Under this specific scenario, the average pension grows according to the average (insured) wage as the indexation rate is based on wage growth. As a result, the system replacement ratio, which, given the scheme characteristics, is identical to the standard individual's replacement ratio, remains constant over time and maintains the future value of the pension in relation to wages. Throughout the projected period, the replacement ratios are stable, however, the ratio of single pension over minimum wage is initially 75 percent and increases substantially over time. This significant growth can be explained by the fact the minimum wage is assumed to be indexed to inflation and the single pension indexed to wage growth.

Table 6.3 Replacement ratio – Pension indexation based on wage growth

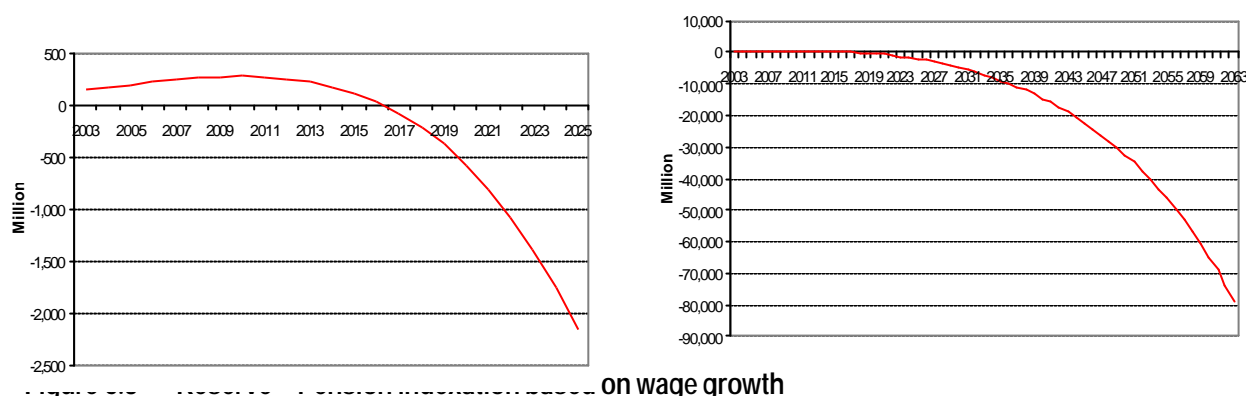
| Year | Gross average national wage<br>(1) | Average insured wage<br>(2) | Minimum wage<br>(3) | Contribution ceiling<br>(4) | Single pension<br>(5) | AOV average pension<br>(6) | AWW average pension<br>(7) | (5) / (1) Replacement ratio<br>(8) | (5) / (2) Replacement ratio<br>(9) | AOV Pay as you go rate<br>(10) |
|------|------------------------------------|-----------------------------|---------------------|-----------------------------|-----------------------|----------------------------|----------------------------|------------------------------------|------------------------------------|--------------------------------|
| 2003 | 3,623                              | 2,567                       | 1,200               | 4,108                       | 900                   | 846                        | 504                        | 24.8%                              | 35.1%                              | 11.1%                          |
| 2004 | 3,805                              | 2,666                       | 1,236               | 4,108                       | 900                   | 849                        | 506                        | 23.7%                              | 33.8%                              | 10.9%                          |
| 2005 | 3,980                              | 2,748                       | 1,279               | 4,108                       | 954                   | 875                        | 542                        | 24.0%                              | 34.7%                              | 11.3%                          |
| 2006 | 4,159                              | 2,868                       | 1,321               | 4,293                       | 997                   | 915                        | 579                        | 24.0%                              | 34.8%                              | 11.6%                          |
| 2007 | 4,341                              | 2,991                       | 1,364               | 4,481                       | 1,040                 | 955                        | 604                        | 24.0%                              | 34.8%                              | 11.9%                          |
| 2008 | 4,526                              | 3,113                       | 1,407               | 4,672                       | 1,085                 | 994                        | 634                        | 24.0%                              | 34.9%                              | 12.3%                          |
| 2013 | 5,492                              | 3,725                       | 1,619               | 5,669                       | 1,316                 | 1,204                      | 801                        | 24.0%                              | 35.3%                              | 14.6%                          |
| 2023 | 7,829                              | 5,139                       | 2,081               | 8,082                       | 1,876                 | 1,703                      | 1,213                      | 24.0%                              | 36.5%                              | 21.7%                          |
| 2033 | 11,144                             | 7,336                       | 2,676               | 11,505                      | 2,671                 | 2,423                      | 1,608                      | 24.0%                              | 36.4%                              | 25.8%                          |
| 2043 | 15,855                             | 10,632                      | 3,440               | 16,368                      | 3,800                 | 3,405                      | 2,326                      | 24.0%                              | 35.7%                              | 23.9%                          |
| 2053 | 22,544                             | 14,891                      | 4,422               | 23,272                      | 5,403                 | 4,772                      | 3,331                      | 24.0%                              | 36.3%                              | 24.6%                          |
| 2063 | 32,041                             | 21,202                      | 5,685               | 33,076                      | 7,679                 | 6,735                      | 4,655                      | 24.0%                              | 36.2%                              | 25.8%                          |

As can be seen from Figure 6.3, the reserve is expected to decline substantially and cause serious financial problems. From the results, key years in the future evolution of the scheme were identified:

- Contributions are not sufficient to meet the total expenditure of the scheme in 2009; however, the reserve still continues to increase as investment income compensates for the annual deficits.
- From 2011, the total of contributions and investment earnings is no longer sufficient to meet the scheme's expenditure and the reserve starts decreasing;
- The reserve is exhausted in 2017;

- The reserve would be –1,266 million AFL in 2023, -18,495 million AFL in 2043 and -76,210 million AFL in 2063.

Negative reserves are obviously not possible in the long term as the SVb would not be able to survive under such financial conditions. In similar cases around the world, pension schemes usually receive government transfers, however, it may be interesting to have this theoretical information for overview purposes as it shows the full fiscal costs, including interest to be paid on the negative reserve.



The problematic financial position under wage indexation has been addressed in the 2004 valuation and the updated results demonstrate that these problems remain tangible. Also, the wage-indexation scenario is of importance in the context of this report as it is the only scenario that preserves the level of single pensions relative to the national average wage or the insurable average wage, respectively.

## 6.2 Increasing the normal retirement age to 62

In the following subsection an increase in the normal retirement age to 62 years is discussed. The legislative adjustment is assumed to be in force at the beginning of 2005 without any transition period. The existing pensioners aged less than 62 years are considered to remain pensioners under this legislative change.

Under to this parametric change, no new pension will be granted for two years after its introduction, as no one will reach the normal retirement age during this transition period. As shown in Figure 6.4, the PAYG rate declines substantially from 2005 to 2007, after which time strong demographic effects will be felt which will increase the AOV expenditure level. The PAYG rate is expected to be 16.1 percent in 2033 and 11.9 percent in 2063.

PAYG rate growth is nevertheless not as significant as in the base scenario. In fact, contributors have to pay contributions for two additional years, providing considerable supplementary funds to the scheme. Also, as the expected life expectancy at 62 is lower, pension payments will be payable for fewer years. In total, the GAP is 12.8 percent, declining by 1.8 percentage points and getting closer to the current contribution rate of 11.5 percent.



Figure 6.4 AOV PAYG rate and contribution rate – Normal retirement age at 62

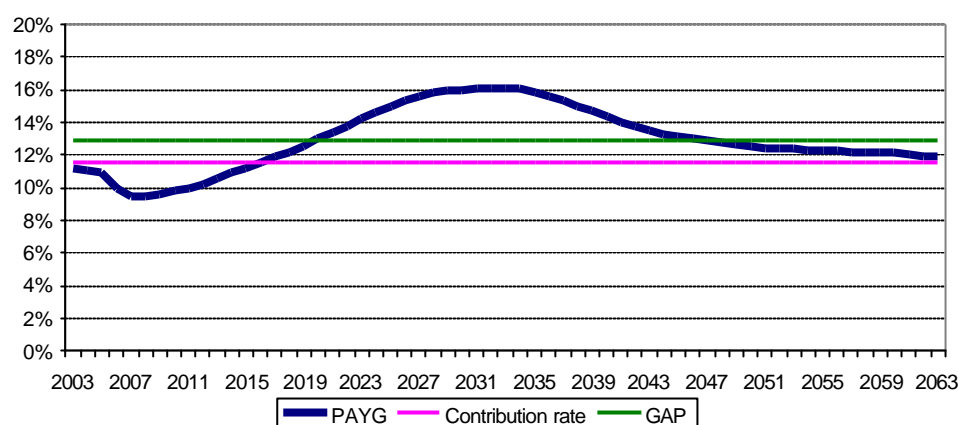


Figure 6.5 shows the expected effects of the increase in the normal retirement age to 62 years. The number of pensions decreases considerably for two consecutive years in 2005 and 2006 as no new pensioners will enter the scheme. After this two-year transitory period of negative growth in number of pensioners, the AOV expenditure growth becomes similar to that of the base scenario except permanently fewer people will reach the age of 62 years and be entitled to pension benefits.

Figure 6.5 AOV annual expenditure growth – Normal retirement age at 62

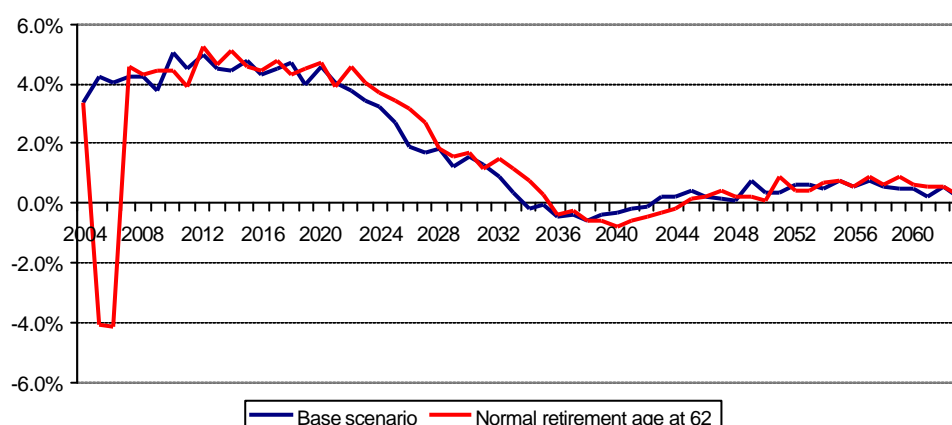


Table 6.4 presents standard comparisons between wages and pensions. There will be no major change with respect to average wage and average pension as the increase in the normal retirement age mainly affects the demographic factor. The contributors, however, have to work two more years and are therefore on average older and have earned more income. As a result, the average insured wages are slightly higher in comparison to the base scenario.

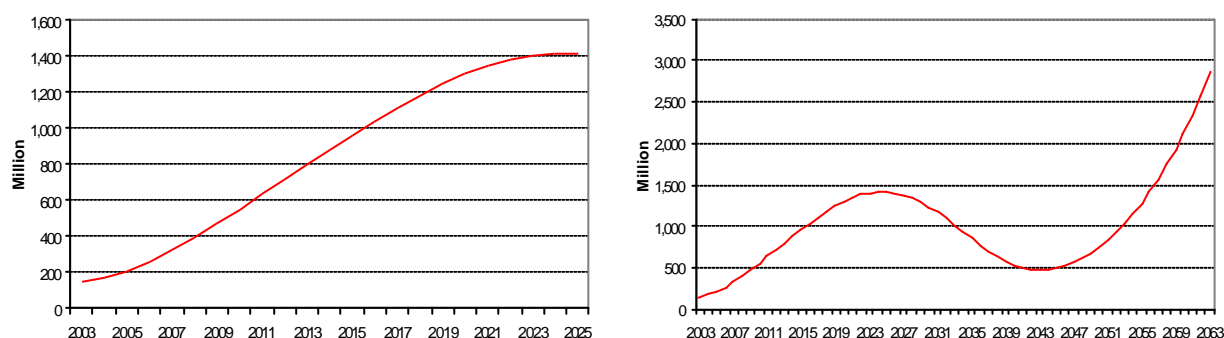
**Table 6.4 Replacement ratio – Normal retirement age at 62**

| Year | Gross average national wage (1) | Average insured wage (2) | Minimum wage (3) | Contribution ceiling (4) | Single pension (5) | AOV average pension (6) | AWW average pension (7) | (5) / (1) Replacement ratio (8) | (5) / (2) Replacement ratio (9) | AOV Pay as you go rate (10) |
|------|---------------------------------|--------------------------|------------------|--------------------------|--------------------|-------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------|
| 2003 | 3,623                           | 2,567                    | 1,200            | 4,108                    | 900                | 846                     | 504                     | 24.8%                           | 35.1%                           | 11.1%                       |
| 2004 | 3,805                           | 2,666                    | 1,236            | 4,108                    | 900                | 849                     | 506                     | 23.7%                           | 33.8%                           | 10.9%                       |
| 2005 | 3,980                           | 2,786                    | 1,279            | 4,108                    | 954                | 913                     | 542                     | 24.0%                           | 34.2%                           | 10.7%                       |
| 2006 | 4,159                           | 2,910                    | 1,321            | 4,293                    | 965                | 925                     | 561                     | 23.2%                           | 33.1%                           | 9.8%                        |
| 2007 | 4,341                           | 3,037                    | 1,364            | 4,481                    | 975                | 893                     | 566                     | 22.5%                           | 32.1%                           | 9.4%                        |
| 2008 | 4,526                           | 3,163                    | 1,407            | 4,672                    | 985                | 903                     | 576                     | 21.8%                           | 31.1%                           | 9.4%                        |
| 2013 | 5,492                           | 3,804                    | 1,619            | 5,669                    | 1,133              | 1,037                   | 689                     | 20.6%                           | 29.8%                           | 10.5%                       |
| 2023 | 7,829                           | 5,306                    | 2,081            | 8,082                    | 1,457              | 1,322                   | 942                     | 18.6%                           | 27.5%                           | 14.2%                       |
| 2033 | 11,144                          | 7,544                    | 2,676            | 11,505                   | 1,873              | 1,694                   | 1,128                   | 16.8%                           | 24.8%                           | 16.1%                       |
| 2043 | 15,855                          | 10,893                   | 3,440            | 16,368                   | 2,408              | 2,167                   | 1,474                   | 15.2%                           | 22.1%                           | 13.5%                       |
| 2053 | 22,544                          | 15,320                   | 4,422            | 23,272                   | 3,096              | 2,741                   | 1,908                   | 13.7%                           | 20.2%                           | 12.4%                       |
| 2063 | 32,041                          | 21,773                   | 5,685            | 33,076                   | 3,980              | 3,492                   | 2,413                   | 12.4%                           | 18.3%                           | 11.9%                       |

As can be seen from Figure 6.6, the reserve is expected to increase significantly over the next 25 years. From the results, key years in the future evolution of the scheme were identified:

- Contributions are not sufficient to meet the total expenditure of the scheme in 2020, however, the reserve still continues to increase as investment income offsets annual deficits;
- From 2026, the total of contributions and investment earnings is no longer sufficient to meet scheme expenditure and the reserve starts decreasing;
- From 2044, the total of contributions and investment earnings is sufficient to meet scheme expenditure and the reserve starts increasing again;
- The reserve is expected to be 1,463 million AFL in 2023, 618 million AFL in 2043 and 3,096 million AFL in 2063.

**Figure 6.6 Reserve – Normal retirement age at 62**



In conclusion, this parametric change can create substantial savings. In interpreting the results, the following points should be kept in mind:

- The labour market is assumed to react directly to this parametric change by extending the individual careers accordingly without creating any additional (youth) unemployment. Contributors remain active two years longer and, thus, pay additional revenue during this period. It is worth mentioning that older contributors continue earning higher wages over the full projection period (according to year 2002's salary scale).

- Life expectancy at 62 years is about two years shorter than at age 60 and, thus, benefits have to be paid on shorter periods.

Compared to the base scenario, the SVb can increase its revenue by around 2.1 million AFL in 2005 and 3.3 million AFL in 2010, and decrease its expenditure by approximately 5.8 million AFL in 2005 and 27.9 million AFL in 2010.

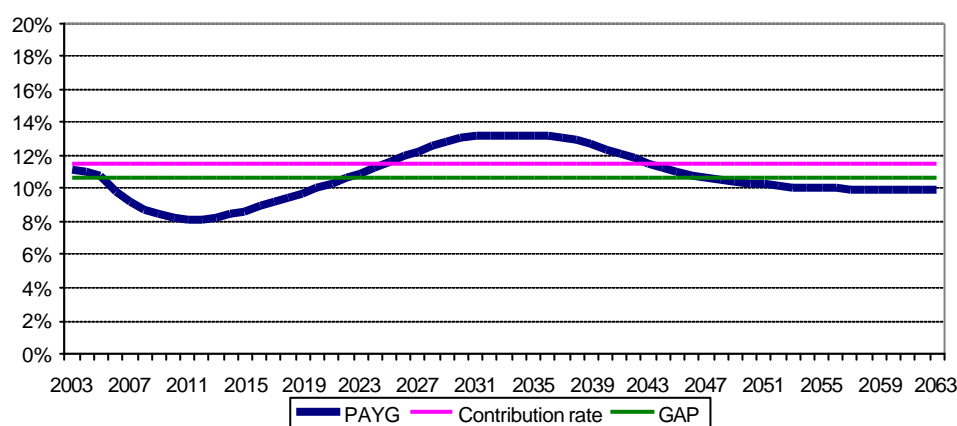
The increase in the normal age of retirement has a substantial positive effect on the financial position of the SVb but the general average premium is still considerably higher than the current legal rate. Thus, if only this parametric change were implemented, the contribution rate would still need to be increased in the near future.

### 6.3 Increasing the normal retirement age to 65

The SVb may consider moving the normal retirement age up to 65 years in order to improve its financial situation more substantially as the positive reserve development under the scenario in Section 6.2 (retirement age 62) could easily be reversed with a slight change in the underlying macroeconomic assumptions.

This scenario involves an increase of the normal age of retirement to 62 in 2005 followed by a series of six biannual increases to 65 years in 2011. Figure 6.7 shows the resulting PAYG rate of the AOV. The improvement in the institution's financial position is obvious as the GAP falls below the present legal contribution rate. The SVb can meet all its financial obligations for at least the next 60 years by increasing the normal retirement age to 65 years (all other assumptions unchanged). Also, significant surpluses are expected for the next 20 years, which would help to build a healthy reserve.

Figure 6.7 AOV PAYG rate and contribution rate – Normal retirement age at 65

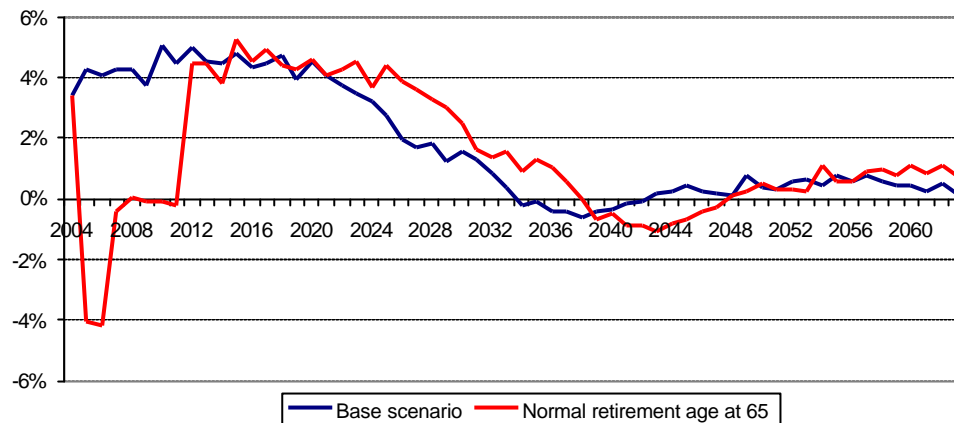


The number of new pensions is very low over the six-year transition period and reduces the demographic pressure on the scheme. Simultaneously, contribution income increases to a large extent because contributors have to pay for five additional years (assuming the same labour market assumptions as under the scenario described in Section 6.2). Compared to the base scenario, the SVb increases its revenue by around 2.6 million AFL in 2005, 6.3 million AFL in 2010 and 10.9 million AFL in 2015 and decreases its expenditure by around 5.8 million AFL in 2005, 51.8 million AFL in 2010 and 89.1 million AFL in 2015.

Figure 6.8 shows the expenditure growth produced by increasing the normal retirement age to 65 years in comparison to the base scenario. The main effects of this parametric change are demographic. If the retirement age is raised to 65 years, this will in fact reduce the

number of pensioners between 2005 and 2011, delay the payment of pensions by five years, and reduce the number of new pensioners, as the age condition is more restrictive.

**Figure 6.8 AOV annual expenditure growth – Normal retirement age at 65**



As already shown in Table 6.4 (under the scenario in Section 6.2), Table 6.5 shows no major changes in average wage and average pension as only the demographic factor is affected by increases in normal retirement age. For a more accurate interpretation of the results, however, it should be mentioned that the model assumes full employment until retirement age and, thus, the average insured wage is even higher than in the previous scenario.

**Table 6.5 Replacement ratio – Normal retirement age at 65**

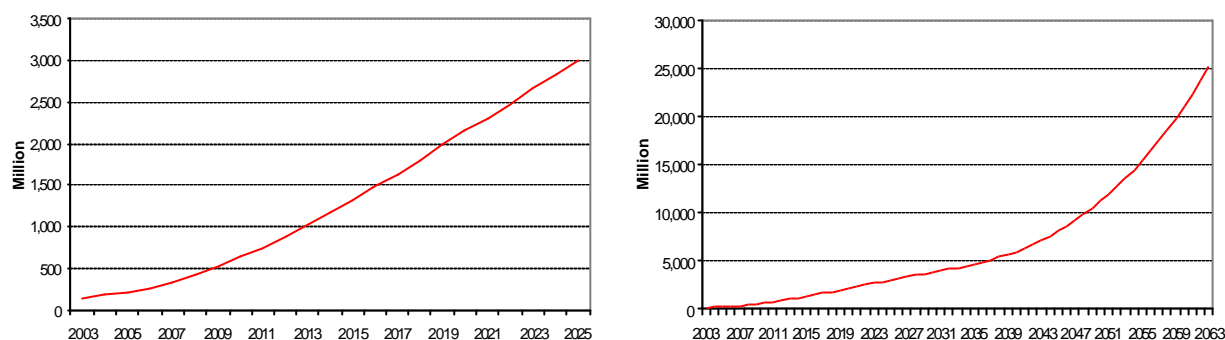
| Year | Gross average national wage (1) | Average insured wage (2) | Minimum wage (3) | Contribution ceiling (4) | Single pension (5) | AOV average pension (6) | AWW average pension (7) | (5) / (1) Replacement ratio (8) | (5) / (2) Replacement ratio (9) | AOV Pay as you go rate (10) |
|------|---------------------------------|--------------------------|------------------|--------------------------|--------------------|-------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------|
| 2003 | 3,623                           | 2,567                    | 1,200            | 4,108                    | 900                | 846                     | 504                     | 24.8%                           | 35.1%                           | 11.1%                       |
| 2004 | 3,805                           | 2,666                    | 1,236            | 4,108                    | 900                | 849                     | 506                     | 23.7%                           | 33.8%                           | 10.9%                       |
| 2005 | 3,980                           | 2,797                    | 1,279            | 4,108                    | 954                | 913                     | 542                     | 24.0%                           | 34.1%                           | 10.7%                       |
| 2006 | 4,159                           | 2,927                    | 1,321            | 4,293                    | 965                | 925                     | 561                     | 23.2%                           | 33.0%                           | 9.8%                        |
| 2007 | 4,341                           | 3,061                    | 1,364            | 4,481                    | 975                | 916                     | 566                     | 22.5%                           | 31.9%                           | 9.1%                        |
| 2008 | 4,526                           | 3,197                    | 1,407            | 4,672                    | 985                | 924                     | 576                     | 21.8%                           | 30.8%                           | 8.6%                        |
| 2013 | 5,492                           | 3,877                    | 1,619            | 5,669                    | 1,133              | 1,039                   | 689                     | 20.6%                           | 29.2%                           | 8.2%                        |
| 2023 | 7,829                           | 5,472                    | 2,081            | 8,082                    | 1,457              | 1,322                   | 942                     | 18.6%                           | 26.6%                           | 10.9%                       |
| 2033 | 11,144                          | 7,771                    | 2,676            | 11,505                   | 1,873              | 1,697                   | 1,128                   | 16.8%                           | 24.1%                           | 13.3%                       |
| 2043 | 15,855                          | 11,140                   | 3,440            | 16,368                   | 2,408              | 2,180                   | 1,474                   | 15.2%                           | 21.6%                           | 11.6%                       |
| 2053 | 22,544                          | 15,765                   | 4,422            | 23,272                   | 3,096              | 2,749                   | 1,908                   | 13.7%                           | 19.6%                           | 10.1%                       |
| 2063 | 32,041                          | 22,391                   | 5,685            | 33,076                   | 3,980              | 3,488                   | 2,413                   | 12.4%                           | 17.8%                           | 10.0%                       |

Figure 6.9 demonstrates the fiscal power of increasing retirement age. The impact of such a move remains enormous even if the underlying favorable labour market assumptions were softened. From the results, key years in the future evolution of the scheme were identified:

- Contributions are not sufficient to meet the total expenditure of the scheme from 2030 to 2037, however, the reserve still continues to increase as significant investment income compensate annual deficits;
- From 2038, the total of contributions is again sufficient to meet the scheme's expenditure and the reserve continues to increase over the entire projection period;

- The reserve is expected to be 2,720 million AFL in 2023, 7,268 million AFL in 2043 and 25,505 million AFL in 2063.

**Figure 6.9 Reserve – Normal retirement age at 65**



The increase in the normal retirement age to 65 appears to be an excellent proposal in order to maintain the scheme financially stable, but, of course, it implies major socio-economic changes for the Aruban population.

#### 6.4 Increasing the initial contribution ceiling to 60,000 AFL

The current contribution assessment ceiling is set at 4,108 AFL per month and it has not been increased since 1998. The ceiling should be indexed at least every year according to national average wage growth in order to cover the same relative amount of generated total wage volume over time (assuming constant wage distribution). Table 6.6 shows contribution income lost caused by not indexing the contribution ceiling based on wage growth. In 2003 only, lost contribution income is estimated to be almost 7.7 million AFL.

**Table 6.6 Contribution income lost due to constant contribution ceiling (in million AFL)**

| Year                            | 1999 | 2000 | 2001 | 2002 | 2003 |
|---------------------------------|------|------|------|------|------|
| <b>Contribution income lost</b> | 1.58 | 2.23 | 5.24 | 6.83 | 7.68 |

In other words, in 2003, the SVb's reserve could have been about 23 to 24 million AFL more, not including interest income.

This scenario simulates an increase of the contribution ceiling to 5,000 AFL per month in 2005 and its subsequent annual indexation in line with average gross wages. The GAP decreases by 0.7 percentage points compared to the base scenario. Although this parametric change positively influences the financial situation over the entire projected period, the impact is even more significant at the beginning of the projection period. In fact, the additional income created in 2005 is 10.2 million AFL (AOV and AWW). Figure 6.10 shows the development of the AOV PAYG rate. A significant decline is observed at the time of the introduction of the ceiling's increase.

Figure 6.10 AOV PAYG rate and contribution rate – Initial contribution ceiling at 60,000 AFL

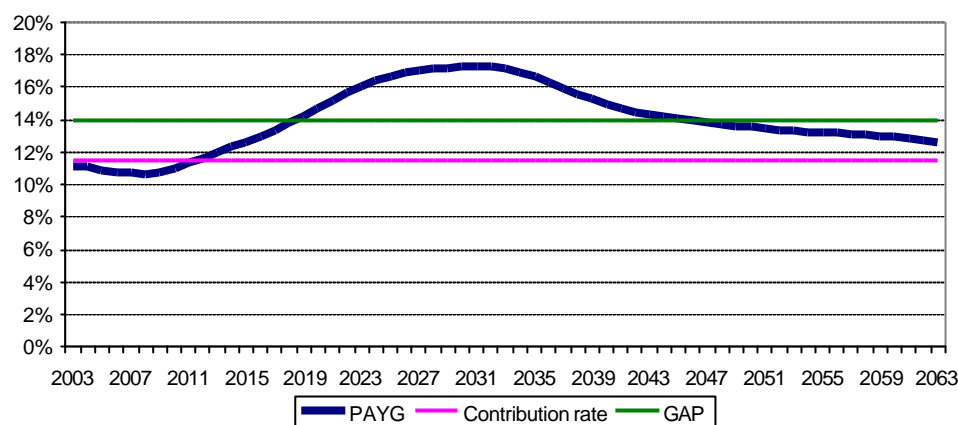
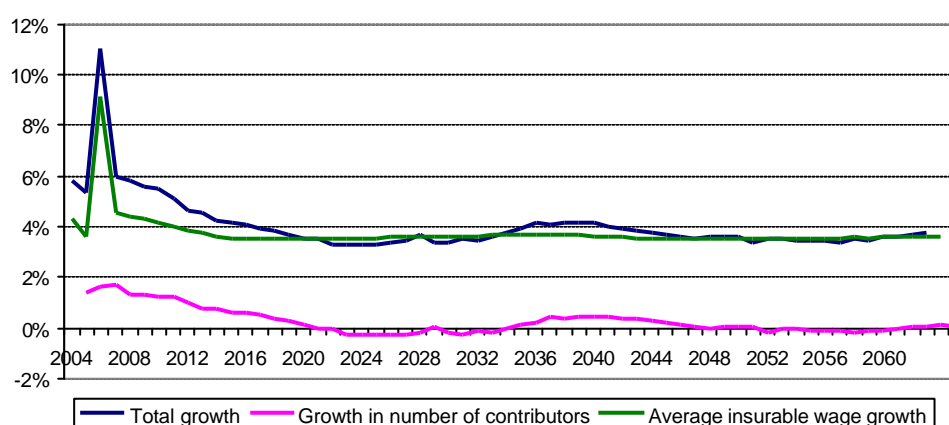


Figure 6.11 shows the insurable base growth split into its two underlying factors, the demographic and the wages factors. The average annual contribution increases dramatically in 2005, as the contribution ceiling is increased to 5,000 AFL per month. In fact, the average insurable wage increases by 9 percent, and in combination with the growing number of contributors, the total insurable base grows by 11 percent. In the long run, growth rates of the insurable base stabilize around 3.6 percent per year as most of the annual increase is fuelled by average wage development.

Figure 6.11 Annual growth rates of the insurable base – Initial contribution ceiling at 60,000 AFL



As can be seen from Table 6.7, the contribution ceiling is increased to 5,000 AFL per month in 2005. The direct effect of this parametric change is that the average insured wage increases by 9 percent. By contrast, the average national wage increases by only 4.6 percent for the same year, however, the increase in the average insured wage leads to an even lower replacement ratio. In 2063, pensioners receive less than one fifth of the average insured wage and only 12.4 percent of the average national wage.

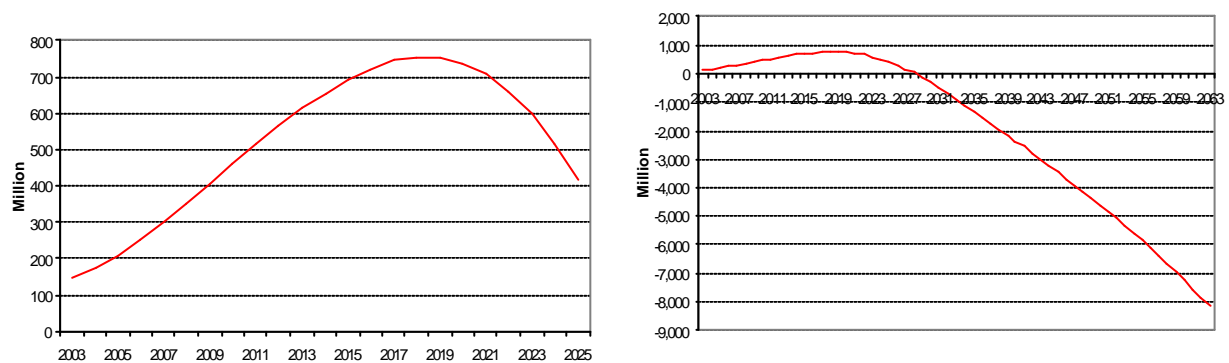
**Table 6.7 Replacement ratio – Initial contribution ceiling at 60,000 AFL**

| Year | Gross average national wage (1) | Average insured wage (2) | Minimum wage (3) | Contribution ceiling (4) | Single pension (5) | AOV average pension (6) | AWW average pension (7) | (5) / (1) Replacement ratio (8) | (5) / (2) Replacement ratio (9) | AOV Pay as you go rate (10) |
|------|---------------------------------|--------------------------|------------------|--------------------------|--------------------|-------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------|
| 2003 | 3,623                           | 2,567                    | 1,200            | 4,108                    | 900                | 846                     | 504                     | 24.8%                           | 35.1%                           | 11.1%                       |
| 2004 | 3,805                           | 2,666                    | 1,236            | 4,108                    | 900                | 849                     | 506                     | 23.7%                           | 33.8%                           | 10.9%                       |
| 2005 | 3,980                           | 2,908                    | 1,279            | 5,000                    | 954                | 875                     | 542                     | 24.0%                           | 32.8%                           | 10.7%                       |
| 2006 | 4,159                           | 3,035                    | 1,321            | 5,224                    | 965                | 885                     | 561                     | 23.2%                           | 31.8%                           | 10.6%                       |
| 2007 | 4,341                           | 3,165                    | 1,364            | 5,453                    | 975                | 895                     | 566                     | 22.5%                           | 30.8%                           | 10.6%                       |
| 2008 | 4,526                           | 3,295                    | 1,407            | 5,686                    | 985                | 903                     | 576                     | 21.8%                           | 29.9%                           | 10.5%                       |
| 2013 | 5,492                           | 3,943                    | 1,619            | 6,898                    | 1,133              | 1,036                   | 689                     | 20.6%                           | 28.7%                           | 11.9%                       |
| 2023 | 7,829                           | 5,431                    | 2,081            | 9,835                    | 1,457              | 1,322                   | 942                     | 18.6%                           | 26.8%                           | 16.0%                       |
| 2033 | 11,144                          | 7,753                    | 2,676            | 13,999                   | 1,873              | 1,699                   | 1,128                   | 16.8%                           | 24.2%                           | 17.1%                       |
| 2043 | 15,855                          | 11,247                   | 3,440            | 19,917                   | 2,408              | 2,158                   | 1,474                   | 15.2%                           | 21.4%                           | 14.3%                       |
| 2053 | 22,544                          | 15,744                   | 4,422            | 28,319                   | 3,096              | 2,734                   | 1,908                   | 13.7%                           | 19.7%                           | 13.3%                       |
| 2063 | 32,041                          | 22,415                   | 5,685            | 40,248                   | 3,980              | 3,490                   | 2,413                   | 12.4%                           | 17.8%                           | 12.6%                       |

As can be seen from Figure 6.12, the reserve increases for the next 15 years but declines immensely thereafter. From the results, key years in the future evolution of the scheme were identified:

- Contributions alone are sufficient to meet the total expenditure of the scheme until 2015, and the reserve increases;
- From 2016, part of the investment earnings must be used, in addition to contributions, to meet the scheme's expenditure, and the reserve is still increasing;
- From 2019, the total of contributions and investment earnings is no longer sufficient to meet the scheme's expenditure and the reserve starts decreasing;
- The reserve is exhausted in 2029;
- In absolute terms, the reserve is expected to be 670 million AFL in 2023, -2,779 million AFL in 2043 and -7,674 million AFL in 2063.

**Figure 6.12 Reserve – Initial contribution ceiling at 60,000 AFL**



The increase of the annual contribution ceiling to 60,000 AFL is a measure providing significant financial improvement to the SVb, however in comparison to the base case, the reserve's first year of negative reserves would only be shifted forward in time by 4 years.

## 6.5 Increasing the initial contribution ceiling to 75,000 AFL

This scenario is an extension of the previous scenario in order to show the impact of a more substantial increase of the ceiling. In this scenario, the annual contribution ceiling is increased to 75,000 AFL in 2005 and then indexed according to average wage growth.

Figure 6.13 shows the PAYG rate together with the GAP and the present legal rate. The GAP is expected to be 13.3 percent, which is 1.3 and 0.6 percentage points below the base scenario and the scenario described in Section 6.4, respectively.

Figure 6.13 AOV PAYG rate and contribution rate – Initial contribution ceiling at 75,000 AFL

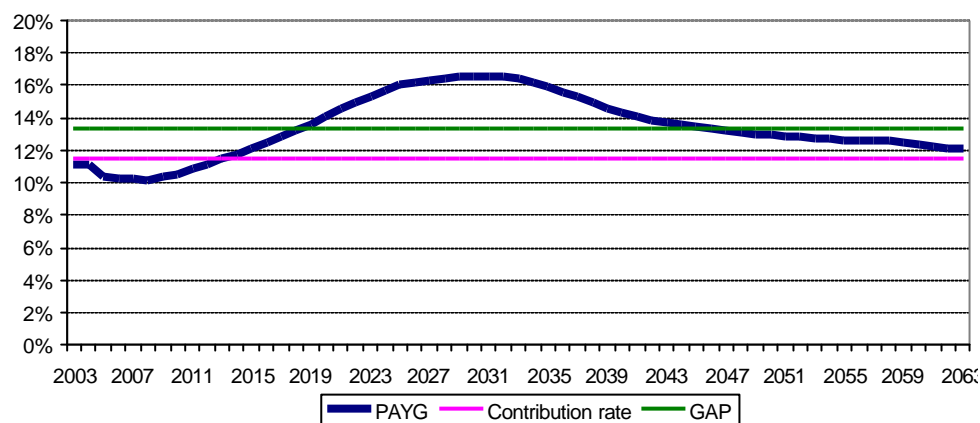
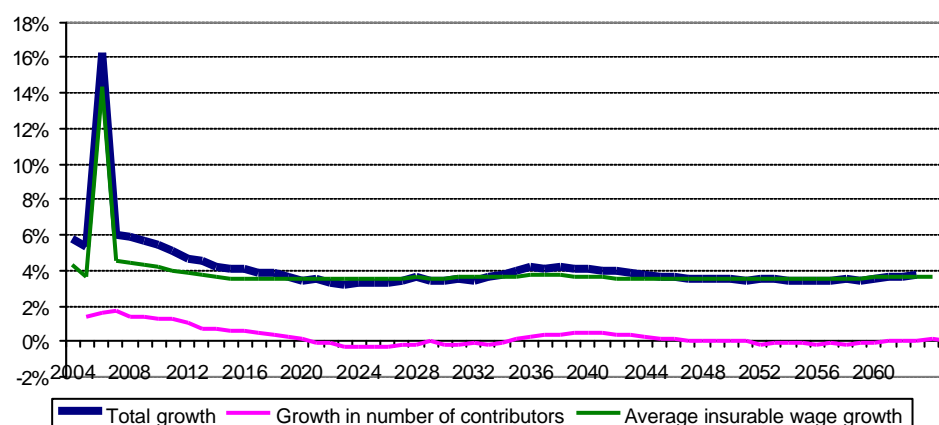


Figure 6.14 shows growth patterns similar to the previous scenario, however the consequence of the contribution ceiling increase is even more significant at the onset of the measure. In fact, in 2005, the total insurable base growth is estimated to be 16 percent, and the average insurable wage growth 14 percent.

Figure 6.14 Annual growth rates of the insurable base– Initial contribution ceiling at 75,000 AFL



As can be seen from Table 6.8, the contribution ceiling is increased to 6,250 AFL per month in 2005. The monthly average insured wage is 3,045 AFL, which is 297 AFL higher than in the base scenario. In terms of replacement ratio, the ratio based on insured wage is very low and would be only 17.0 percent in 2063.



**Table 6.8 Replacement ratio – Initial contribution ceiling at 75,000 AFL**

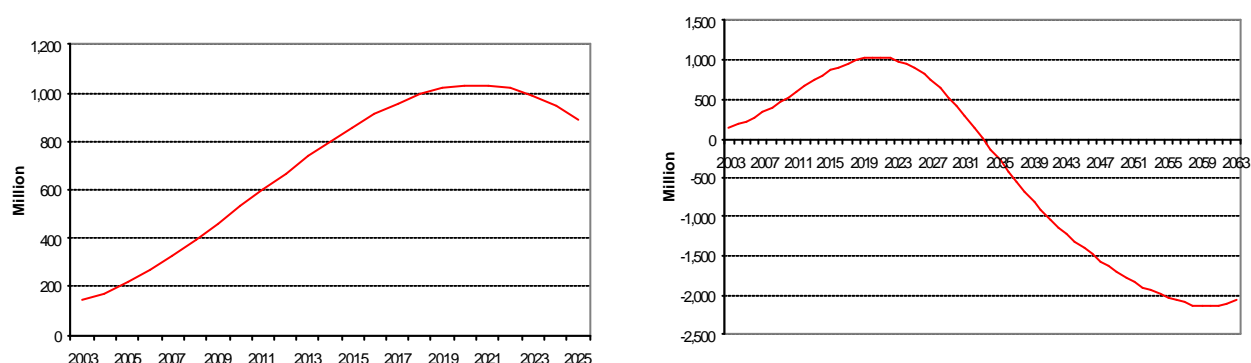
| Year | Gross average national wage (1) | Average insured wage (2) | Minimum wage (3) | Contribution ceiling (4) | Single pension (5) | AOV average pension (6) | AWW average pension (7) | (5) / (1) Replacement ratio (8) | (5) / (2) Replacement ratio (9) | AOV Pay as you go rate (10) |
|------|---------------------------------|--------------------------|------------------|--------------------------|--------------------|-------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------|
| 2003 | 3,623                           | 2,567                    | 1,200            | 4,108                    | 900                | 846                     | 504                     | 24.8%                           | 35.1%                           | 11.1%                       |
| 2004 | 3,805                           | 2,666                    | 1,236            | 4,108                    | 900                | 849                     | 506                     | 23.7%                           | 33.8%                           | 10.9%                       |
| 2005 | 3,980                           | 3,045                    | 1,279            | 6,250                    | 954                | 875                     | 542                     | 24.0%                           | 31.3%                           | 10.2%                       |
| 2006 | 4,159                           | 3,179                    | 1,321            | 6,530                    | 965                | 885                     | 561                     | 23.2%                           | 30.3%                           | 10.2%                       |
| 2007 | 4,341                           | 3,316                    | 1,364            | 6,816                    | 975                | 895                     | 566                     | 22.5%                           | 29.4%                           | 10.1%                       |
| 2008 | 4,526                           | 3,452                    | 1,407            | 7,107                    | 985                | 903                     | 576                     | 21.8%                           | 28.5%                           | 10.1%                       |
| 2013 | 5,492                           | 4,132                    | 1,619            | 8,623                    | 1,133              | 1,036                   | 689                     | 20.6%                           | 27.4%                           | 11.3%                       |
| 2023 | 7,829                           | 5,682                    | 2,081            | 12,293                   | 1,457              | 1,322                   | 942                     | 18.6%                           | 25.6%                           | 15.3%                       |
| 2033 | 11,144                          | 8,109                    | 2,676            | 17,499                   | 1,873              | 1,699                   | 1,128                   | 16.8%                           | 23.1%                           | 16.4%                       |
| 2043 | 15,855                          | 11,776                   | 3,440            | 24,896                   | 2,408              | 2,158                   | 1,474                   | 15.2%                           | 20.4%                           | 13.7%                       |
| 2053 | 22,544                          | 16,477                   | 4,422            | 35,398                   | 3,096              | 2,734                   | 1,908                   | 13.7%                           | 18.8%                           | 12.7%                       |
| 2063 | 32,041                          | 23,456                   | 5,685            | 50,311                   | 3,980              | 3,490                   | 2,413                   | 12.4%                           | 17.0%                           | 12.1%                       |

It can be observed from Figure 6.15 that the short-term and medium-term projections are optimistic under this scenario; however, the fund is financially unstable in the long term. From the results, key years in the future evolution of the scheme were identified:

- Contributions alone is sufficient to meet the total expenditure of the scheme until 2017, and the reserve increases;
- From 2018, in order to meet the scheme's expenditure, part of the investment earnings must be used in addition to contributions, and the reserve is still increasing;
- From 2022, the total of contributions and investment earnings is no longer sufficient to meet the scheme's expenditure and the reserve starts decreasing;
- The reserve is exhausted in 2035;
- In absolute terms, the reserve is expected to be 1,080 million AFL in 2023, -947 million AFL in 2043 and -1,388 million AFL in 2063.

In comparison to the base case, the year of the first negative reserve would be shifted forward in time by ten years.

**Figure 6.15 Reserve – Initial contribution ceiling at 75,000 AFL**



Although this specific parametric measure appears to improve the financial situation of the scheme, one must also consider the relationship between the contributions paid by individuals and the benefits received under the current legislative framework of the SVb. The contribution ceiling may have to be kept at reasonable levels in order to maintain a satisfactory ratio between the contributions paid and the benefits received (Table 3.9).

## 6.6 Application of contribution rate to gross wages rather than taxable wages

The SVb has addressed the issue of redefining the insurable wage from taxable to gross. It was possible to estimate the effects of such a legislative change based on the data provided by the Central Bureau of Statistics (CBS). The difference between gross wages and taxable wages is estimated to amount to three percent. The definition of taxable wage is gross wage minus all legal tax deductions. For this scenario, it is assumed that the insurable base definition changes taxable wages to gross wages in 2005, i.e. collecting contributions on a three percent higher contribution base.

Figure 6.16 shows a decline in the PAYG rate in 2005. As expected, the impact is observed throughout the projection period. The GAP is 14.2 percent and at the far end of the projection period the PAYG is almost equal to the legal contribution rate.

**Figure 6.16 AOV PAYG rate and contribution rate – Application of contribution rate to gross wages rather than taxable wages**

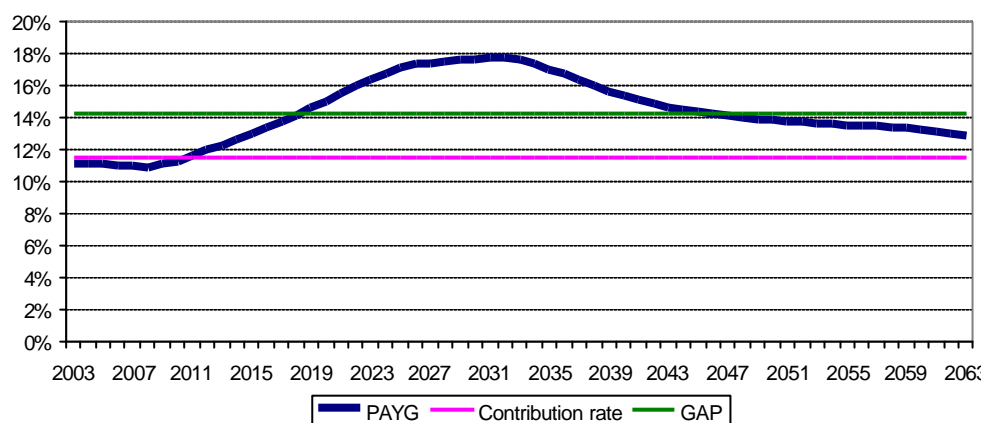


Figure 6.17 shows the abrupt increase of around 8.1 percent of the insurable base growth in 2005, of which around two points are attributed to the redefinition of the contributory/taxable wage. The strong influence of this major legislative change in 2005 would have a strong impact throughout the projection period as the contribution base is enlarged by this parametric change.

**Figure 6.17 Annual growth rates of the insurable base– Application of contribution rate to gross wages rather than taxable wages**

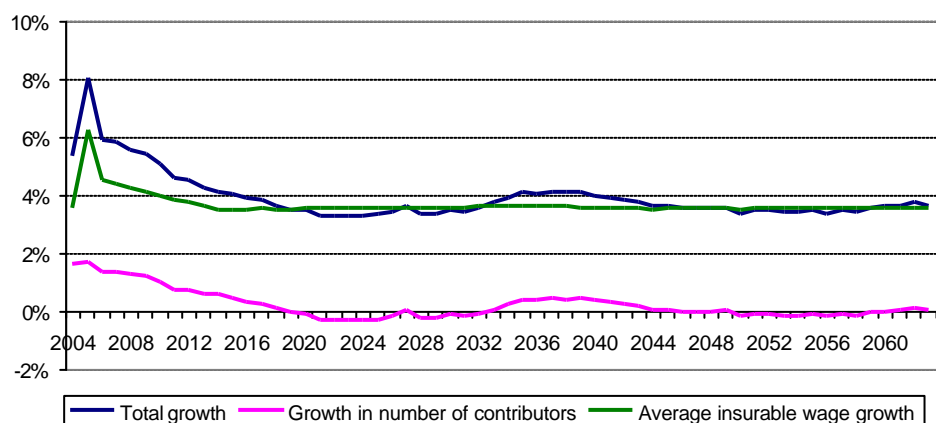


Table 6.9 presents the usual standard comparisons between wages and pensions.

**Table 6.9 Replacement ratio – Application of contribution rate to gross wages rather than taxable wages**

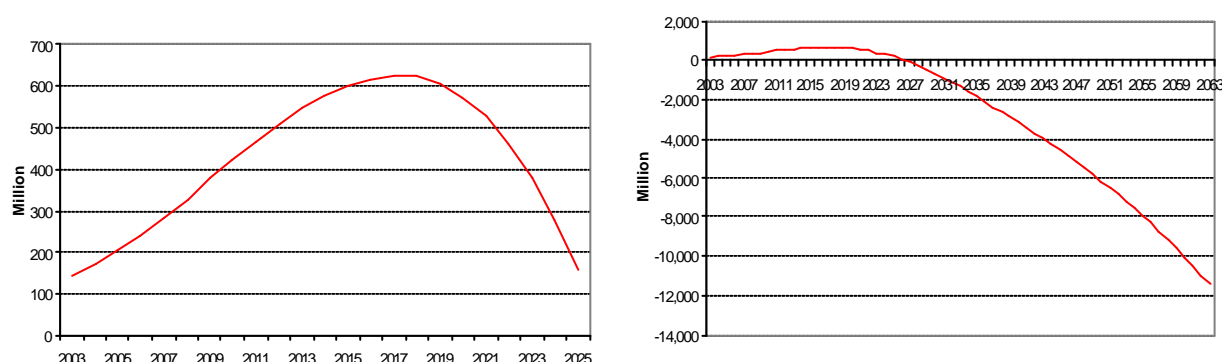
| Year | Gross average national wage (1) | Average insured wage (2) | Minimum wage (3) | Contribution ceiling (4) | Single pension (5) | AOV average pension (6) | AWW average pension (7) | (5) / (1) Replacement ratio (8) | (5) / (2) Replacement ratio (9) | AOV Pay as you go rate (10) |
|------|---------------------------------|--------------------------|------------------|--------------------------|--------------------|-------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------|
| 2003 | 3,623                           | 2,567                    | 1,200            | 4,108                    | 900                | 846                     | 504                     | 24.8%                           | 35.1%                           | 11.1%                       |
| 2004 | 3,805                           | 2,666                    | 1,236            | 4,108                    | 900                | 849                     | 506                     | 23.7%                           | 33.8%                           | 10.9%                       |
| 2005 | 3,980                           | 2,831                    | 1,279            | 4,108                    | 954                | 875                     | 542                     | 24.0%                           | 33.7%                           | 11.0%                       |
| 2006 | 4,159                           | 2,954                    | 1,321            | 4,293                    | 965                | 885                     | 561                     | 23.2%                           | 32.7%                           | 10.9%                       |
| 2007 | 4,341                           | 3,080                    | 1,364            | 4,481                    | 975                | 895                     | 566                     | 22.5%                           | 31.7%                           | 10.9%                       |
| 2008 | 4,526                           | 3,206                    | 1,407            | 4,672                    | 985                | 903                     | 576                     | 21.8%                           | 30.7%                           | 10.8%                       |
| 2013 | 5,492                           | 3,837                    | 1,619            | 5,669                    | 1,133              | 1,036                   | 689                     | 20.6%                           | 29.5%                           | 12.2%                       |
| 2023 | 7,829                           | 5,293                    | 2,081            | 8,082                    | 1,457              | 1,322                   | 942                     | 18.6%                           | 27.5%                           | 16.4%                       |
| 2033 | 11,144                          | 7,556                    | 2,676            | 11,505                   | 1,873              | 1,699                   | 1,128                   | 16.8%                           | 24.8%                           | 17.6%                       |
| 2043 | 15,855                          | 10,951                   | 3,440            | 16,368                   | 2,408              | 2,158                   | 1,474                   | 15.2%                           | 22.0%                           | 14.7%                       |
| 2053 | 22,544                          | 15,337                   | 4,422            | 23,272                   | 3,096              | 2,734                   | 1,908                   | 13.7%                           | 20.2%                           | 13.7%                       |
| 2063 | 32,041                          | 21,838                   | 5,685            | 33,076                   | 3,980              | 3,490                   | 2,413                   | 12.4%                           | 18.2%                           | 13.0%                       |

Figure 6.18 shows that this specific parametric change enhances the financial situation of the SVb and maintains the fund stable over time. From the results, key years in the future evolution of the scheme were identified:

- Contributions alone are sufficient to meet the total expenditure of the scheme until 2014, and the reserve increases;
- From 2015, in order to meet the scheme's expenditure, part of the investment earnings must be used in addition to contributions, and the reserve is still increasing;
- From 2018, the total of contributions and investment earnings is no longer sufficient to meet the scheme's expenditure and the reserve starts decreasing;
- The reserve is exhausted in 2027;
- In absolute terms, the reserve is expected to be 440 million AFL in 2023, -3,832 million AFL in 2043 and -11,176 million AFL in 2063.

Under this scenario, the year of the first negative reserve would be shifted forward in time by two years in comparison to the base case.

**Figure 6.18 Reserve – Application of contribution rate to gross wages rather than taxable wages**



Changing the contribution base could be complex in terms of negotiations with the government and the societal groups. As mentioned in the scenarios creating increases in the contribution ceiling, the pension received is not at all linked to contributions paid and contributors may feel that the scheme is inequitable.

Generally, however, the definition of insurable wage should be independent of the definition of the taxable wage. If not, tax policies might frequently interfere with social revenue policies (and vice versa). In other word, an identical definition might lead to situations where a tax policy cannot be applied as intended for reasons of social protection revenue.

## 6.7 Individualization

Individualization is the most complex structural reform measure studied in this actuarial valuation. At present, legislation stipulates that married couples pay contributions out of their joint gross wage up to the contribution assessment ceiling. Equally, married couples receive a joint pension. This scenario assumes that both contributions paid and pension benefits received are fully individualized. On the contribution side, two full contributions would be required from a married couple based on each spouse's wage. From the year of enforcement, married contributors also have the obligation to pay their full contributions up to the ceiling. With respect to pension benefit individualization, married pensions are separated into two single pensions and split pensions are upgraded to a single pension. For this scenario, it is assumed that all changes are enforced in 2005. It is worth mentioning that both scenarios, premium payments individualization and pension benefits individualization, are presented separately in Annex 2-16 to 2-21.

An exclusion to this scenario is the case of married pensioners with a difference of more than 20 years between them and married for no more than five years. These couples will only be entitled to one single pension and the younger partner will have to wait until the normal retirement age to receive their own single pension. This exclusion is not significant as we have estimated only 85 such cases among the pensioner population in Aruba.

Figure 6.19 shows the development of the AOV PAYG rate under this scenario. The increase is relatively sharp in 2005 as many married pensions are converted into single pensions; however, the GAP is 12.2 percent, which is 2.4 percentage points under the base scenario.

Figure 6.19 AOV PAYG rate and contribution rate – Individualization

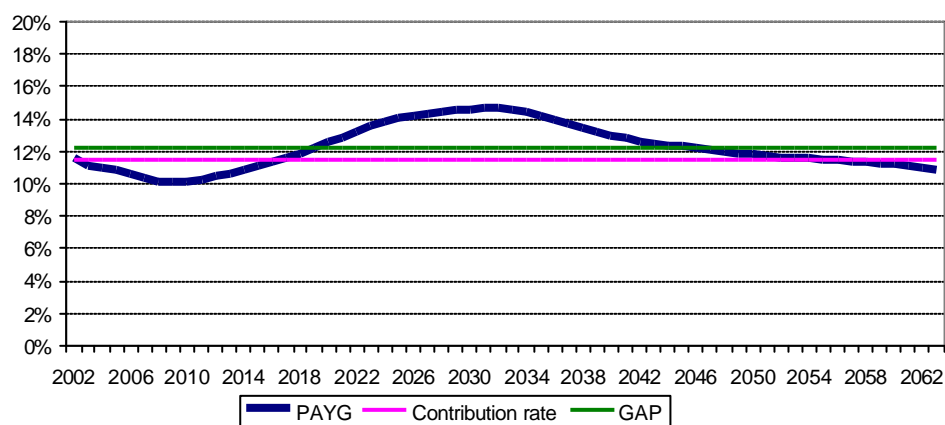


Figure 6.20 shows the enormous expenditure growth in 2005 as the number of pensions increases by around 34 percent due to individualization. In total, expenditure growth in 2005 is about 19 percent as the average pension decreases by 11 percent. This decline in the average pension is the result of separating the married pensions into single pensions. At the end of 2004 there are 1,325 split pensions, 6,372 single pensions and 3,391 married pensions. As a result of individualization, 3,391 new pensions would be added in 2005.

Figure 6.20 AOV annual expenditure growth – Individualization

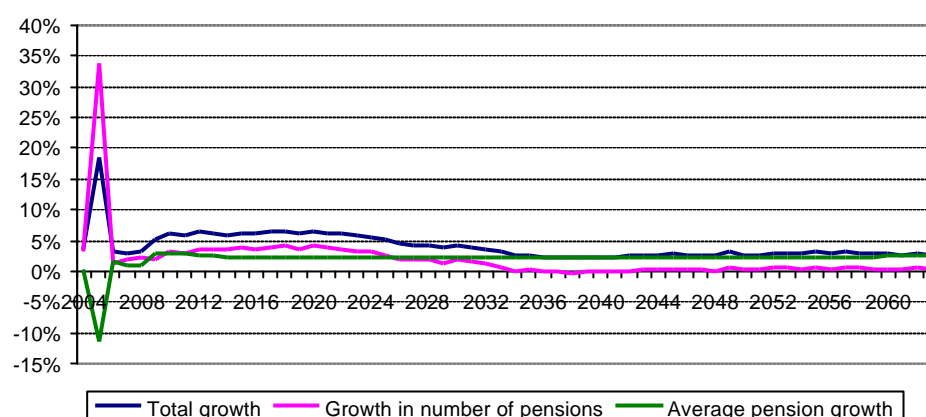


Figure 6.21 shows the insurable base growth split into its two underlying factors, the demographic and the wages factors. The number of contributors is left unaffected by the assumed change in legislation. The average contributory wage, however, changes quite substantially, as the contribution assessment ceiling in many cases now (starting in 2005) no longer imposes its dampening statistical effect on average contributory wages. In fact, the monthly average insured wage for the base scenario is 2,748 AFL in 2005 and comparatively 3,115 AFL for this scenario. Correspondingly, the average annual contribution increases dramatically in 2005, as the married couples' payment of contributions based on their joint wage (up to the ceiling) is no longer allowed. In fact, the average insurable wage increases by 17 percent, and in combination with the growing number of contributors, the total insurable base grows by 18.5 percent, however, growth rates of the insurable base stabilize over time and stay around 3.6 percent per annum.

Figure 6.21 Annual growth rates of the insurable base– Individualization

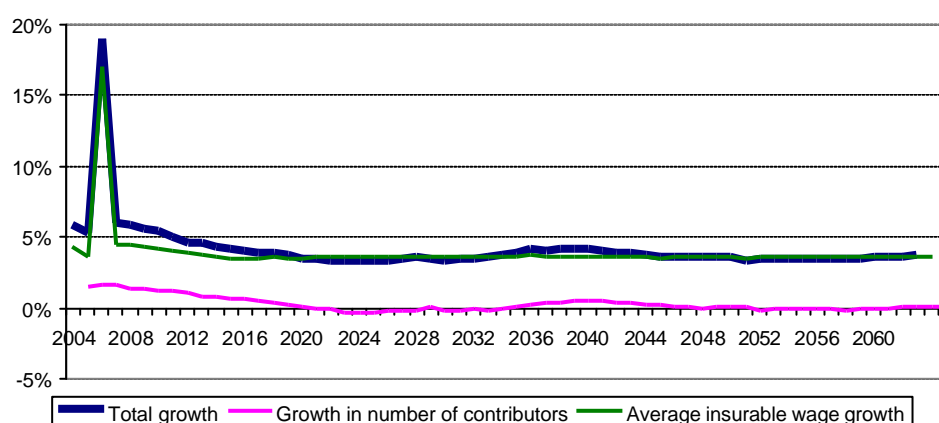


Table 6.10 presents the usual standard comparisons between wages and pensions.

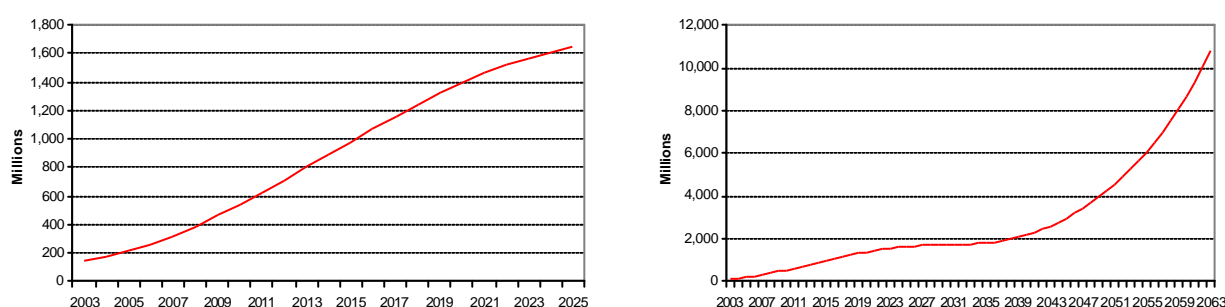
**Table 6.10 Replacement ratio – Individualization**

| Year | Gross average national wage (1) | Average insured wage (2) | Minimum wage (3) | Contribution ceiling (4) | Single pension (5) | AOV average pension (6) | AWW average pension (7) | (5) / (1) Replacement ratio (8) | (5) / (2) Replacement ratio (9) | AOV Pay as you go rate (10) |
|------|---------------------------------|--------------------------|------------------|--------------------------|--------------------|-------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------|
| 2003 | 3,623                           | 2,567                    | 1,200            | 4,108                    | 900                | 846                     | 504                     | 24.8%                           | 35.1%                           | 11.1%                       |
| 2004 | 3,805                           | 2,666                    | 1,236            | 4,108                    | 900                | 849                     | 506                     | 23.7%                           | 33.8%                           | 10.9%                       |
| 2005 | 3,980                           | 3,115                    | 1,279            | 4,108                    | 954                | 890                     | 542                     | 24.0%                           | 30.6%                           | 10.9%                       |
| 2006 | 4,159                           | 3,251                    | 1,321            | 4,293                    | 965                | 906                     | 561                     | 23.2%                           | 29.7%                           | 10.6%                       |
| 2007 | 4,341                           | 3,390                    | 1,364            | 4,481                    | 975                | 915                     | 566                     | 22.5%                           | 28.8%                           | 10.3%                       |
| 2008 | 4,526                           | 3,529                    | 1,407            | 4,672                    | 985                | 925                     | 576                     | 21.8%                           | 27.9%                           | 10.1%                       |
| 2013 | 5,492                           | 4,223                    | 1,619            | 5,669                    | 1,133              | 1,060                   | 689                     | 20.6%                           | 26.8%                           | 10.6%                       |
| 2023 | 7,829                           | 5,825                    | 2,081            | 8,082                    | 1,457              | 1,340                   | 942                     | 18.6%                           | 25.0%                           | 13.5%                       |
| 2033 | 11,144                          | 8,316                    | 2,676            | 11,505                   | 1,873              | 1,696                   | 1,128                   | 16.8%                           | 22.5%                           | 14.6%                       |
| 2043 | 15,855                          | 12,052                   | 3,440            | 16,368                   | 2,408              | 2,155                   | 1,474                   | 15.2%                           | 20.0%                           | 12.5%                       |
| 2053 | 22,544                          | 16,880                   | 4,422            | 23,272                   | 3,096              | 2,738                   | 1,908                   | 13.7%                           | 18.3%                           | 11.6%                       |
| 2063 | 32,041                          | 24,034                   | 5,685            | 33,076                   | 3,980              | 3,488                   | 2,413                   | 12.4%                           | 16.6%                           | 10.9%                       |

It can be seen from Figure 6.22 that this specific parametric change enhances the financial situation of the SVb and creates a substantial reserve. From the results, key years in the future evolution of the scheme were identified:

- Contributions alone are sufficient to meet the total expenditure of the scheme until 2021, and the reserve increases;
- From 2022, in order to meet the scheme's expenditure, part of the investment earnings must be used in addition to contributions, and the reserve is still increasing;
- Over the entire projection period, the total of contributions and investment earnings is sufficient to meet the scheme's expenditure;
- In absolute terms, the reserve is expected to be 1,567 million AFL in 2023, 2,604 million AFL in 2043 and 10,792 million AFL in 2063.

**Figure 6.22 Reserve –Individualization**



As mentioned in the first report, the provisions surrounding the payment of single and married AOV pensions appear to impact on the behavior of some insured persons nearing the normal retirement age. A well-designed pension system should limit the scope for differences in pension status (eligibility or rate of payment) based on deliberate behavioral decisions of insured persons. The SVb may wish to review the payment of married pensions given the deliberate decision options allowed and the long-term costs of no reform.

## 6.8 Reform scenario

The reform scenario is a combination of three of the previous parametric options. First, the normal retirement age is increased to 62 years, second, the annual contribution assessment ceiling is adjusted to 60,000 AFL and finally individualization is fully established. According to our simulations, all reforms are assumed to be enforced in 2005.

This scenario has been built according to the demands of SVb officials with a view to enhancing the financial status of the fund and building a substantial reserve. The effects are immediate as the PAYG rate declines to 7 percent in 2005 and remains under the legal contribution rate until 2024. The GAP is 10.3 percent, which is 1.2 percentage points under the legal rate and 4.3 percentage points under the base scenario. Figure 6.23 shows the improved financial situation under this scenario.

It should be noted that while this scenario does solve the financial problems of the fund and build a substantial reserve, as a consequence the retired population would have to pay a high price in terms of significantly reduced pension replacement ratios (see below).

Figure 6.23 AOV PAYG rate and contribution rate – Reform scenario

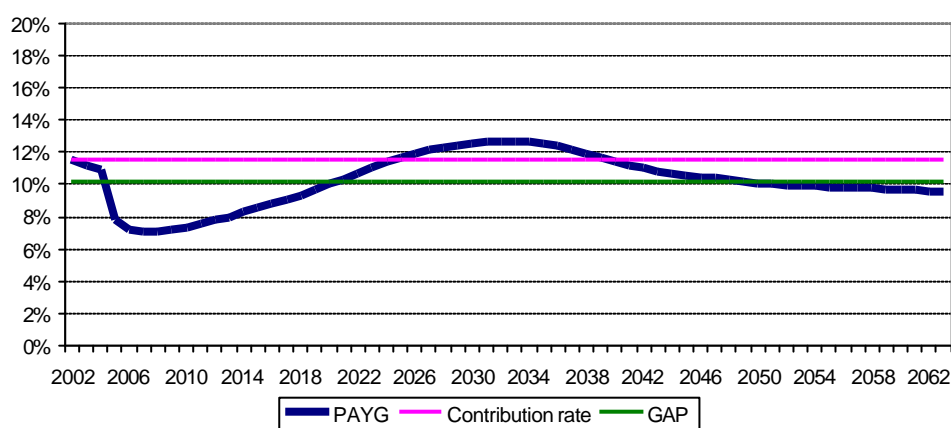
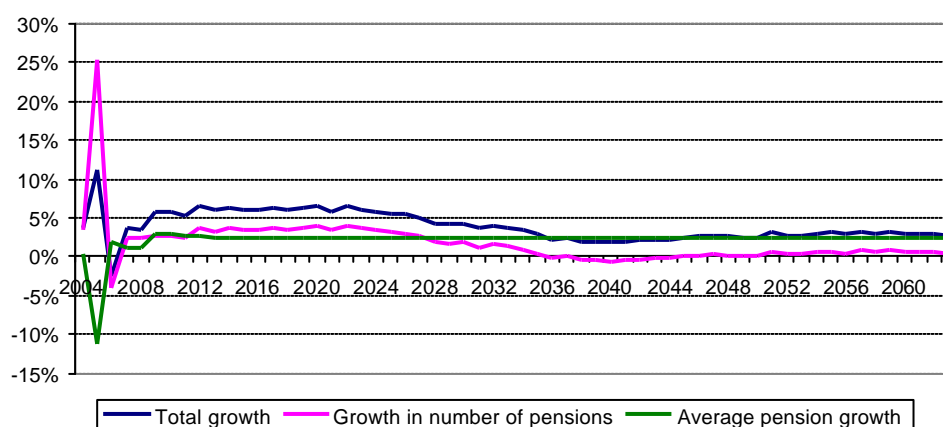


Figure 6.24 shows the AOV expenditure growth over the next 60 years. Expenditure growth occurs similar to that observed under the individualization scenario. The increase of the normal retirement age to 62 also impact on the expenditure development. As mentioned in Section 6.2, the number of pensions decreases considerably for two consecutive years in 2005 and 2006 as no new pensioners enter the scheme. Subsequent to the two-year transitory period of negative growth in number of pensioners, the AOV expenditure growth stabilizes but less people will always reach the age of 62 (in comparison to 60) and be entitled to pension benefits.

Figure 6.24 AOV annual expenditure growth – Reform scenario



As can be seen from Table 6.11, the contribution assessment ceiling is increased to 5,000 AFL per month in 2005. The direct effect of this parametric change combined with the premium individualization produces a substantial increase of the average insured wage. In fact, the average insured wage increases by 25.3 percent in 2005 and is expected to be 2,666 AFL in 2004 and increase up to 3,341 AFL in 2005. By contrast, the assumption is that the national average wage only increases by 4.6 percent for the same year.

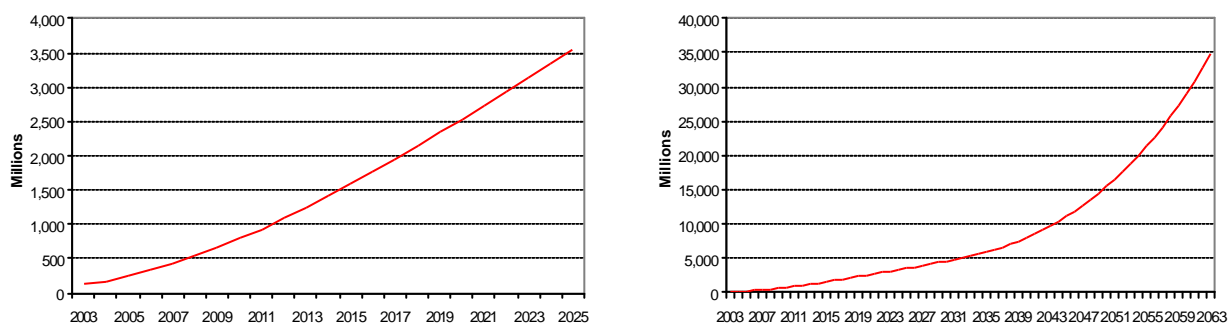
**Table 6.11 Replacement ratio – Reform scenario**

| Year | Gross average national wage<br>(1) | Average insured wage<br>(2) | Minimum wage<br>(3) | Contribution ceiling<br>(4) | Single pension<br>(5) | AOV average pension<br>(6) | AWW average pension<br>(7) | (1) / (5)<br>Replacement ratio<br>(8) | (2) / (5)<br>Replacement ratio<br>(9) | AOV Pay as you go rate<br>(10) |
|------|------------------------------------|-----------------------------|---------------------|-----------------------------|-----------------------|----------------------------|----------------------------|---------------------------------------|---------------------------------------|--------------------------------|
| 2003 | 3,623                              | 2,567                       | 1,200               | 4,108                       | 900                   | 846                        | 504                        | 24.8%                                 | 35.1%                                 | 11.1%                          |
| 2004 | 3,805                              | 2,666                       | 1,236               | 4,108                       | 900                   | 849                        | 506                        | 23.7%                                 | 33.8%                                 | 10.9%                          |
| 2005 | 3,980                              | 3,341                       | 1,279               | 5,000                       | 954                   | 890                        | 542                        | 24.0%                                 | 28.6%                                 | 9.5%                           |
| 2006 | 4,159                              | 3,491                       | 1,321               | 5,224                       | 965                   | 906                        | 561                        | 23.2%                                 | 27.6%                                 | 8.8%                           |
| 2007 | 4,341                              | 3,644                       | 1,364               | 5,453                       | 975                   | 916                        | 566                        | 22.5%                                 | 26.8%                                 | 8.6%                           |
| 2008 | 4,526                              | 3,796                       | 1,407               | 5,686                       | 985                   | 926                        | 576                        | 21.8%                                 | 26.0%                                 | 8.4%                           |
| 2013 | 5,492                              | 4,565                       | 1,619               | 6,898                       | 1,133                 | 1,062                      | 689                        | 20.6%                                 | 24.8%                                 | 8.8%                           |
| 2023 | 7,829                              | 6,357                       | 2,081               | 9,835                       | 1,457                 | 1,344                      | 942                        | 18.6%                                 | 22.9%                                 | 11.1%                          |
| 2033 | 11,144                             | 9,038                       | 2,676               | 13,999                      | 1,873                 | 1,699                      | 1,128                      | 16.8%                                 | 20.7%                                 | 12.4%                          |
| 2043 | 15,855                             | 13,062                      | 3,440               | 19,917                      | 2,408                 | 2,158                      | 1,474                      | 15.2%                                 | 18.4%                                 | 10.6%                          |
| 2053 | 22,544                             | 18,363                      | 4,422               | 28,319                      | 3,096                 | 2,742                      | 1,908                      | 13.7%                                 | 16.9%                                 | 9.6%                           |
| 2063 | 32,041                             | 26,096                      | 5,685               | 40,248                      | 3,980                 | 3,491                      | 2,413                      | 12.4%                                 | 15.2%                                 | 9.2%                           |

The combination of these parametric changes is sufficient to maintain the fund financially stable over time and a major reserve would accumulate (Figure 6.25). From the results, key years in the future evolution of the scheme were identified:

- Over the entire period of projection, the total of contributions and investment earnings is sufficient to meet the scheme's expenditure;
- In absolute terms, the reserve is expected to be 3,131 million AFL in 2023, 9,718 million AFL in 2043 and 34,915 million AFL in 2063.

**Figure 6.25 Reserve – Reform scenario**



The reform scenario appears to provide an efficient solution in order to maintain the fund financially stable over time. This major reform has the advantage of creating a healthy reserve and consequently ensures the continued existence of the social purposes of the SVb. This reform also limits the scope for differences in eligibility and rate of payment based on deliberate behavioral decisions of insured persons.



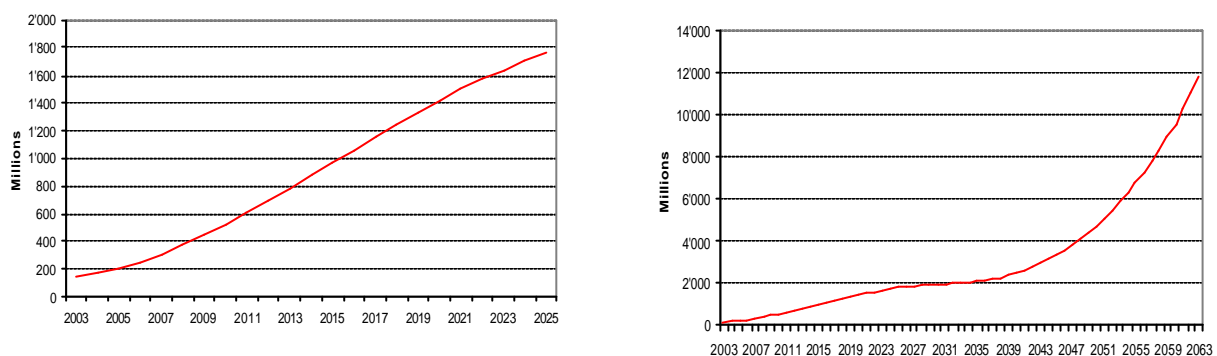
Care must be exercised in interpreting these outcomes and one must also keep in mind the underlying assumptions made. The following additional assumptions must also be achievable in order to produce the results previously presented.

- The rate of return on investments has to be at least 4.1 percent net per annum (i.e. after administration costs); and
- The labour market will have to adapt to the increase of the normal retirement age to 62 years by extending all careers by two years.

This reform comes, however, at a high price. In 2063, the replacement rate of the single pension is close to meaningless. In fact, the single pension replaces only 15 percent of the national average wage. The suggestion to fix the single pension at 70 percent of the minimum wage combined with the increase of the contribution ceiling and premium individualization gradually enlarges the gap between contributions paid and benefits received (see underlying assumptions on wage growth and inflation).

The ILO was asked to simulate the financial effects in case the legal contribution rate were reduced by two percentage points to 9.5 percent. Under this scenario, the SVb would also have a permanent positive reserve (Figure 6.26).

**Figure 6.26 Reserve – Reform scenario at AOV contribution rate of 9.5 percent**



In other words, the reform provides room for alternative uses of parts of the present legal contribution rate, for example reducing labour costs or increasing workers' private consumption or the build-up of a second tier of the same size (two percent contribution rate) or higher indexation of pensions under the present (reformed) scheme.



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## 7. A fully funded tier

Many alternative scenarios have been presented in Section 6 in order to properly address the problems of maintaining the value of individual pensions while also maintaining the scheme's financial stability at constant contribution rates. All scenarios show that there is no magic to rectify the foreseeable situation and that someone will have to pay.

At a first glance, pension indexation based on minimum wage growth could give the impression of being advantageous to other measures. However, this approach to consolidation of the SVb's finances should be considered with great caution as the underlying repercussions for beneficiaries are enormous. The single pension would become practically irrelevant, as the replacement ratio inevitably falls (in our calculations by 50 percent over the 60 year period). This way the principle of equivalency, generally inherent in contribution financed pension schemes, might become fully obsolete in Aruba.

Scenarios such as increasing the contribution ceiling, redefining the insurable base and premium individualization enlarge the contribution base and, thus, tend to further deteriorate the balance between contributions paid and benefits received (under CPI indexation) for the large group of high salary earners.

Thus, precautions must be taken in order to keep a reasonable minimum relationship between contributions paid and benefits received. In other words, the SVb has to maintain a minimum of relative fairness and therefore cannot afford to let replacement rates reduce.

One of the solutions proposed, especially by Aruba's social partners, is the implementation of a mandated fully funded second tier with individual accounts.

### 7.1 Financial implications of a fully funded tier

Estimates of the development of the reserve under a second tier have been calculated, based on four different contribution rates (two, four, six and eight percent) and the following further assumptions:

- only contributors under 50 years of age would be obliged to enter the scheme, as second tier pensions for older contributors would be close to meaningless;
- the starting year for the creation of the second tier would be 2005;
- the rate of return on investment is equal to the interest rate assumed in the economic frame (Section 4) minus one percent<sup>38</sup> for administration cost, i.e. on average four percent net over the 60 year period;
- retirement age is 62 years;
- life-expectancy at retirement is 14 years for men and 24 years for women.

Under the second tier, contributions must be paid on top of the existing or reduced legal AOV rate. Contributors accumulate capital each year and are credited investment income.

<sup>38</sup>Which is very moderate.

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At retirement, the accumulated value of the personal account will be transformed into an annuity acting as a pension<sup>39</sup>.

The regulations that should govern the second tier in detail have deliberately not been specified. The following questions will need to be examined in detail: Who should pay the contribution to the second tier: workers, employers, both? Should the second tier be under the umbrella of the SVb, the SVb using private investment firms' expertise for making investment decisions, or should contributions go directly to competing financial companies? Should financial companies be obliged to establish their own umbrella organization, responsible for collection and investment decisions? Should pension entitlements be in form of monthly payments only, or should lump-sum payments be allowed for? If so, under which conditions? Should investment accounts/pension entitlements be inheritable?

The sole objective of this section of the report is to provide general information on the future size and development of such a fund and give concrete assessments on the income replacement provided by individual additional pensions (under the given model assumptions).

Tables 7.1 to 7.4 show the global financial statements of the fund and the development of the reserve under different assumptions. Depending on the contribution rate, within the next 20 years the accumulated reserves reach between about 12 and almost 50 percent of GDP. By the end of the projection period, these ratios stabilize between 21 and 86 percent. It is worth noting that no expenditure occurs before 2018, as it would be the first year of eligibility.

Table 7.5 presents individual examples of the concrete application of the new tier according to contribution rate, age and sex. For simplicity, gender specific assumptions were made with respect to life expectancy (see above assumptions). If such a tier were actually introduced, the government would have to consider the use of unisex life tables, which is socially appropriate. In that case, the replacement ratios shown in Table 7.5 for men would decline whereas those for women would increase.

As can be seen, female pension annuities are smaller than those of males as women usually contribute less and their life expectancy at 62 is higher than that of men. Annuities also increase with the contribution rate and the number of years contributed. As demonstrated in Sections 5 and 6, the replacement ratio without the second tier support is about 35 percent in 2003 and declines constantly over the projected period because pensions are assumed to be indexed in line with inflation.

The second tier aims to maintain the combined replacement ratio at the above level. This goal can only be achieved for persons (not all, however) with a long (full) contribution record, i.e. about 35 to 40 years after the implementation of the tier. For example, a man aged 25 in 2005 and contributing over 37 years, retiring at 62 in 2042, would receive an annuity replacing almost 16 percent of his income; together with the AOV pension he would receive 31 percent, broadly reflecting today's replacement rates under the AOV alone (Table 7.5).

This replacement would, however, only be achievable at a contribution rate of six percent.

Under the same logic, women would receive less or would have to pay a higher contribution rate (about two additional points according to Table 7.5). All persons with a

<sup>39</sup>There are different types of annuities. Here, for reasons of simplicity, constant (non-indexed) annuities were assumed.

shorter contribution record (unemployment periods, child rearing periods, etc.) would receive less.

**Table 7.1 Second tier financial development, contribution rate at two percent**

| Contribution rate              |  | 2.0%              |                   |                    |                    |                      |                      |                      |                      |                      |
|--------------------------------|--|-------------------|-------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                |  | 2005              | 2006              | 2017               | 2018               | 2023                 | 2033                 | 2043                 | 2053                 | 2063                 |
| <b>Contribution</b>            |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                           |  | 11,880,900        | 12,953,400        | 26,507,383         | 27,386,414         | 31,892,316           | 44,930,918           | 67,033,919           | 95,042,465           | 135,077,131          |
| Female                         |  | 8,695,054         | 9,476,934         | 19,327,498         | 20,057,596         | 24,020,291           | 34,215,989           | 50,294,235           | 70,857,504           | 101,046,156          |
| <b>Total</b>                   |  | <b>20,575,954</b> | <b>22,430,334</b> | <b>45,834,881</b>  | <b>47,444,010</b>  | <b>55,912,606</b>    | <b>79,146,907</b>    | <b>117,328,154</b>   | <b>165,899,969</b>   | <b>236,123,287</b>   |
| <b>Pension expenditures</b>    |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                           |  | 0                 | 0                 | 0                  | 927,988            | 8,613,136            | 33,757,886           | 63,547,223           | 120,376,578          | 197,671,908          |
| Female                         |  | 0                 | 0                 | 0                  | 457,118            | 4,173,397            | 18,307,018           | 37,675,735           | 72,808,177           | 118,201,251          |
| <b>Total</b>                   |  | <b>0</b>          | <b>0</b>          | <b>0</b>           | <b>1,385,106</b>   | <b>12,786,533</b>    | <b>52,064,904</b>    | <b>101,222,958</b>   | <b>193,184,755</b>   | <b>315,873,159</b>   |
| <b>Reserve</b>                 |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Beginning of the year          |  | 0                 | 21,320,208        | 524,501,936        | 598,117,749        | 1,010,398,040        | 2,019,573,018        | 3,502,738,327        | 5,547,988,914        | 7,979,413,394        |
| Annual Surplus or Deficit      |  | 20,575,954        | 22,430,334        | 45,834,881         | 46,058,904         | 43,126,074           | 27,082,003           | 16,105,196           | -27,284,786          | -79,749,872          |
| Investment income              |  | 744,254           | 2,236,473         | 27,780,932         | 30,877,702         | 46,903,500           | 91,382,900           | 169,961,804          | 249,493,808          | 363,724,867          |
| End of the year                |  | <b>21,320,208</b> | <b>45,987,016</b> | <b>598,117,749</b> | <b>675,054,354</b> | <b>1,100,427,614</b> | <b>2,138,037,921</b> | <b>3,688,805,327</b> | <b>5,770,197,935</b> | <b>8,263,388,389</b> |
| <b>Reserve in % of the GDP</b> |  | <b>0.52%</b>      | <b>1.07%</b>      | <b>8.21%</b>       | <b>8.91%</b>       | <b>12.11%</b>        | <b>16.78%</b>        | <b>19.94%</b>        | <b>21.70%</b>        | <b>21.95%</b>        |

**Table 7.2 Second tier financial development, contribution rate at four percent**

| Contribution rate              |  | 4.0%              |                   |                      |                      |                      |                      |                      |                       |                       |
|--------------------------------|--|-------------------|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|
|                                |  | 2005              | 2006              | 2017                 | 2018                 | 2023                 | 2033                 | 2043                 | 2053                  | 2063                  |
| <b>Contribution</b>            |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                           |  | 23,761,801        | 25,906,800        | 53,014,766           | 54,772,828           | 63,784,631           | 89,861,836           | 134,067,838          | 190,084,930           | 270,154,262           |
| Female                         |  | 17,390,107        | 18,953,869        | 38,654,996           | 40,115,191           | 48,040,581           | 68,431,977           | 100,588,469          | 141,715,008           | 202,092,312           |
| <b>Total</b>                   |  | <b>41,151,908</b> | <b>44,860,669</b> | <b>91,669,762</b>    | <b>94,888,019</b>    | <b>111,825,213</b>   | <b>158,293,814</b>   | <b>234,656,308</b>   | <b>331,799,938</b>    | <b>472,246,574</b>    |
| <b>Pension expenditures</b>    |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                           |  | 0                 | 0                 | 0                    | 1,855,975            | 17,226,272           | 67,515,771           | 127,094,445          | 240,753,156           | 395,343,816           |
| Female                         |  | 0                 | 0                 | 0                    | 914,236              | 8,346,794            | 36,614,037           | 75,351,471           | 145,616,353           | 236,402,502           |
| <b>Total</b>                   |  | <b>0</b>          | <b>0</b>          | <b>0</b>             | <b>2,770,211</b>     | <b>25,573,065</b>    | <b>104,129,808</b>   | <b>202,445,916</b>   | <b>386,369,510</b>    | <b>631,746,318</b>    |
| <b>Reserve</b>                 |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Beginning of the year          |  | 0                 | 42,640,416        | 1,049,003,871        | 1,196,235,497        | 2,020,796,080        | 4,039,146,037        | 7,005,476,654        | 11,095,977,827        | 15,958,826,789        |
| Annual Surplus or Deficit      |  | 41,151,908        | 44,860,669        | 91,669,762           | 92,117,808           | 86,252,147           | 54,164,006           | 32,210,392           | -54,569,572           | -159,499,744          |
| Investment income              |  | 1,488,508         | 4,472,946         | 55,561,864           | 61,755,403           | 93,807,001           | 182,765,800          | 339,923,608          | 498,987,615           | 727,449,733           |
| End of the year                |  | <b>42,640,416</b> | <b>91,974,031</b> | <b>1,196,235,497</b> | <b>1,350,108,708</b> | <b>2,200,855,227</b> | <b>4,276,075,843</b> | <b>7,377,610,654</b> | <b>11,540,395,871</b> | <b>16,526,776,778</b> |
| <b>Reserve in % of the GDP</b> |  | <b>1.05%</b>      | <b>2.13%</b>      | <b>16.42%</b>        | <b>17.82%</b>        | <b>24.21%</b>        | <b>33.56%</b>        | <b>39.89%</b>        | <b>43.41%</b>         | <b>43.90%</b>         |

**Table 7.3 Second tier financial development, contribution rate at six percent**

| Contribution rate              |  | 6.0%              |                    |                      |                      |                      |                      |                       |                       |                       |
|--------------------------------|--|-------------------|--------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
|                                |  | 2005              | 2006               | 2017                 | 2018                 | 2023                 | 2033                 | 2043                  | 2053                  | 2063                  |
| <b>Contribution</b>            |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                           |  | 35,642,701        | 38,860,200         | 79,522,149           | 82,159,243           | 95,676,947           | 134,792,755          | 201,101,758           | 285,127,395           | 405,231,393           |
| Female                         |  | 26,085,161        | 28,430,803         | 57,982,494           | 60,172,787           | 72,060,872           | 102,647,966          | 150,882,704           | 212,572,511           | 303,138,468           |
| <b>Total</b>                   |  | <b>61,727,862</b> | <b>67,291,003</b>  | <b>137,504,643</b>   | <b>142,332,029</b>   | <b>167,737,819</b>   | <b>237,440,721</b>   | <b>351,984,462</b>    | <b>497,699,907</b>    | <b>708,369,860</b>    |
| <b>Pension expenditures</b>    |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                           |  | 0                 | 0                  | 0                    | 2,783,963            | 25,839,408           | 101,273,657          | 190,641,668           | 361,129,735           | 593,015,724           |
| Female                         |  | 0                 | 0                  | 0                    | 1,371,354            | 12,520,190           | 54,921,055           | 113,027,206           | 218,424,530           | 354,603,753           |
| <b>Total</b>                   |  | <b>0</b>          | <b>0</b>           | <b>0</b>             | <b>4,155,317</b>     | <b>38,359,598</b>    | <b>156,194,712</b>   | <b>303,668,874</b>    | <b>579,554,265</b>    | <b>947,619,476</b>    |
| <b>Reserve</b>                 |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Beginning of the year          |  | 0                 | 63,960,624         | 1,573,505,807        | 1,794,353,246        | 3,031,194,119        | 6,058,719,055        | 10,508,214,981        | 16,643,966,741        | 23,938,240,183        |
| Annual Surplus or Deficit      |  | 61,727,862        | 67,291,003         | 137,504,643          | 138,176,712          | 129,378,221          | 81,246,009           | 48,315,588            | -81,854,358           | -239,249,616          |
| Investment income              |  | 2,232,762         | 6,709,419          | 83,342,796           | 92,633,105           | 140,710,501          | 274,148,700          | 509,885,412           | 748,481,423           | 1,091,174,600         |
| End of the year                |  | <b>63,960,624</b> | <b>137,961,047</b> | <b>1,794,353,246</b> | <b>2,025,163,063</b> | <b>3,301,282,841</b> | <b>6,414,113,764</b> | <b>11,066,415,981</b> | <b>17,310,593,806</b> | <b>24,790,165,167</b> |
| <b>Reserve in % of the GDP</b> |  | <b>1.57%</b>      | <b>3.20%</b>       | <b>24.63%</b>        | <b>26.73%</b>        | <b>36.32%</b>        | <b>50.34%</b>        | <b>59.83%</b>         | <b>65.11%</b>         | <b>65.85%</b>         |

**Table 7.4 Second tier financial development, contribution rate at eight percent**

| Contribution rate              |  | 8.0%              |                    |                      |                      |                      |                      |                       |                       |                       |
|--------------------------------|--|-------------------|--------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
|                                |  | 2005              | 2006               | 2017                 | 2018                 | 2023                 | 2033                 | 2043                  | 2053                  | 2063                  |
| <b>Contribution</b>            |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                           |  | 47,523,602        | 51,813,600         | 106,029,532          | 109,545,657          | 127,569,263          | 179,723,673          | 268,135,677           | 380,169,861           | 540,308,524           |
| Female                         |  | 34,780,214        | 37,907,738         | 77,309,992           | 80,230,382           | 96,081,163           | 136,863,955          | 201,176,939           | 283,430,015           | 404,184,623           |
| <b>Total</b>                   |  | <b>82,303,816</b> | <b>89,721,338</b>  | <b>183,339,524</b>   | <b>189,776,039</b>   | <b>223,650,425</b>   | <b>316,587,628</b>   | <b>469,312,615</b>    | <b>663,599,876</b>    | <b>944,493,147</b>    |
| <b>Pension expenditures</b>    |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                           |  | 0                 | 0                  | 0                    | 3,711,950            | 34,452,544           | 135,031,543          | 254,188,891           | 481,506,313           | 790,687,631           |
| Female                         |  | 0                 | 0                  | 0                    | 1,828,472            | 16,693,587           | 73,228,073           | 150,702,941           | 291,232,706           | 472,805,004           |
| <b>Total</b>                   |  | <b>0</b>          | <b>0</b>           | <b>0</b>             | <b>5,540,422</b>     | <b>51,146,131</b>    | <b>208,259,616</b>   | <b>404,891,832</b>    | <b>772,739,019</b>    | <b>1,263,492,635</b>  |
| <b>Reserve</b>                 |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Beginning of the year          |  | 0                 | 85,280,832         | 2,098,007,742        | 2,392,470,994        | 4,041,592,159        | 8,078,292,074        | 14,010,953,309        | 22,191,955,655        | 31,917,653,578        |
| Annual Surplus or Deficit      |  | 82,303,816        | 89,721,338         | 183,339,524          | 184,235,617          | 172,504,294          | 108,328,012          | 64,420,783            | -109,139,144          | -318,999,488          |
| Investment income              |  | 2,977,016         | 8,945,892          | 111,123,728          | 123,510,806          | 187,614,001          | 365,531,600          | 679,847,216           | 997,975,231           | 1,454,899,467         |
| End of the year                |  | <b>85,280,832</b> | <b>183,948,062</b> | <b>2,392,470,994</b> | <b>2,700,217,417</b> | <b>4,401,710,455</b> | <b>8,552,151,686</b> | <b>14,755,221,308</b> | <b>23,080,791,742</b> | <b>33,053,553,556</b> |
| <b>Reserve in % of the GDP</b> |  | <b>2.09%</b>      | <b>4.26%</b>       | <b>32.84%</b>        | <b>35.64%</b>        | <b>48.42%</b>        | <b>67.12%</b>        | <b>79.78%</b>         | <b>86.82%</b>         | <b>87.80%</b>         |

**Table 7.5 Second tier financial development, individual examples**

| Individual cases                | Pension        | AOV single        | Combined          | Replacement rate                 | Replacement rate             |
|---------------------------------|----------------|-------------------|-------------------|----------------------------------|------------------------------|
|                                 | annuity at age | pension at age of | pension at age of | at age of                        | at age of                    |
|                                 | of retirement  | retirement        | retirement        | retirement<br>(combined pension) | retirement<br>(Annuity only) |
| <b>Contribution rate of 2 %</b> |                |                   |                   |                                  |                              |
| Male of 25 years old in 2005    | 804            | 2,348             | 3,152             | 20.6%                            | 5.3%                         |
| Male of 40 years old in 2005    | 274            | 1,611             | 1,885             | 20.9%                            | 3.9%                         |
| Female of 25 years old in 2005  | 572            | 2,348             | 2,920             | 19.1%                            | 3.7%                         |
| Female of 40 years old in 2005  | 219            | 1,611             | 1,830             | 20.3%                            | 3.1%                         |
| <b>Contribution rate of 4 %</b> |                |                   |                   |                                  |                              |
| Male of 25 years old in 2005    | 1,609          | 2,348             | 3,957             | 25.9%                            | 10.5%                        |
| Male of 40 years old in 2005    | 548            | 1,611             | 2,159             | 23.9%                            | 7.8%                         |
| Female of 25 years old in 2005  | 1,144          | 2,348             | 3,492             | 22.8%                            | 7.5%                         |
| Female of 40 years old in 2005  | 438            | 1,611             | 2,049             | 22.7%                            | 6.2%                         |
| <b>Contribution rate of 6 %</b> |                |                   |                   |                                  |                              |
| Male of 25 years old in 2005    | 2,413          | 2,348             | 4,761             | 31.1%                            | 15.8%                        |
| Male of 40 years old in 2005    | 823            | 1,611             | 2,434             | 27.0%                            | 11.7%                        |
| Female of 25 years old in 2005  | 1,715          | 2,348             | 4,064             | 26.5%                            | 11.2%                        |
| Female of 40 years old in 2005  | 657            | 1,611             | 2,268             | 25.1%                            | 9.2%                         |
| <b>Contribution rate of 8 %</b> |                |                   |                   |                                  |                              |
| Male of 25 years old in 2005    | 3,217          | 2,348             | 5,566             | 36.4%                            | 21.0%                        |
| Male of 40 years old in 2005    | 1,097          | 1,611             | 2,708             | 30.0%                            | 15.6%                        |
| Female of 25 years old in 2005  | 2,287          | 2,348             | 4,635             | 30.3%                            | 14.9%                        |
| Female of 40 years old in 2005  | 876            | 1,611             | 2,487             | 27.6%                            | 12.3%                        |

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## 7.2 Future development of financial sector assets – some tentative observations

Total assets of the non-financial institutions of Aruba, including the mortgage banks, pensions funds (including APFA<sup>40</sup> and SVb), life insurance companies, finance companies and the Aruban Investment Bank, amounted to 2,558.7 million AFL by the end of 2003<sup>41</sup>, which is equivalent to 71 percent of GDP. Out of this, 20 percent were claims on debtors abroad and 80 percent domestic claims. Out of the latter, 30 percent were private sector claims, dominated by mortgages, 26 percent claims on the government<sup>42</sup> and 44 percent other domestic claims. On the liability side, the consolidated balance sheet of the non-financial institutions is dominated by pension fund provisions (78 percent) and the insurance reserve fund (18 percent).

Furthermore, by the end of 2003 the commercial banks held assets in the order of 3,237 million AFL, equivalent to 90 percent of GDP, which were claims on banks and cash (24 percent), investments (four percent), loans mainly to enterprises, to the owners/constructors of buildings (mortgages) and to individuals (65 percent) and others (seven percent). Liabilities are mainly deposits (83 percent).

Thus, including the relatively small financial assets of the central bank and the treasury, the volume of total assets held by the whole financial sector of Aruba amounted to 6,499.4 million AFL by the end of 2003, equivalent to 181 percent of GDP. Of this total, 27 percent is allocated to foreign debtors and 73 percent to domestic debtors.

Out of the total of 6,499.4 million AFL the SVb assets represent four percent.

As a result of its oligopolistic market structure, as well as the small scale of the domestic banking sector, interest rates in Aruba are generally inflexible. The difference between interest on loans and deposits amounted to six percent in 2003<sup>43</sup>. The volume of non-performing loans amounts to about one third of regulatory capital<sup>44</sup>, which is equivalent to approximately three percent of total loans<sup>45</sup>.

In 2003, the financial sector held average claims on individuals in the order of 22,000 AFL per inhabitant of legal capacity (equivalent to 12,430US\$ or 9,160€<sup>46</sup>). This figure includes mortgages but excludes private company loans and other loans to private households (for example loans by retail sellers to individuals). At the same time, the average claim of the financial sector per company was 320,000 AFL (181,000US\$ or 133,000€).

Indebtedness of those against whom claims are actually being held are most probably significantly higher than the above estimates as not all persons of legal capacity and not all enterprises have taken up loans from the financial sector, either because they belong to the

<sup>40</sup>Civil servants pension fund.

<sup>41</sup>Source: Central Bank of Aruba.

<sup>42</sup>Including non-financial public enterprises.

<sup>43</sup>Weighted average interest rate margin. Source: Central Bank of Aruba.

<sup>44</sup>Source: Central Bank of Aruba.

<sup>45</sup>ILO estimate.

<sup>46</sup>€US\$ exchange rate calculated at official ILO rate (beginning of 2005).

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group of surplus units or because of business default rules of the financial sector. For a more complete assessment, the above figures would also need to be related to the income of individuals and the financial structure, turnover and profitability of enterprises in order to see where indebtedness might present a critical financial burden to debtors. Such research would, however, go beyond the limits of this report.

The following provisional considerations of possible future developments of the financial sector are to be related to the macro-economic frame of Section 4.

Financial sector claims on the government are equivalent to government debt. Increases in such claims can only<sup>47</sup> occur as long as the government issues debt instruments, i.e. as long as it runs deficits. Over recent years, the government has significantly increased its debt/GDP ratio from 28.5 percent in 2000 to 41.5 percent in 2003. One of the reasons for this increase was the high health insurance deficit. Under the assumption that the government maintains the ratio of 41.5 percent stable at its present level, total government debt would increase, over the base case projection, to a level of 15,600 million AFL in 2063. Assuming that the government decreases the debt/GDP ratio back to its 2000 level of 28.5 percent until 2007, then kept it constant, total government debt would increase to 10,700 million AFL in 2063. If the year 2003 ratios were kept constant, the claims of the financial sector of Aruba, including the SVb, on this debt could in 2063 amount to between 5,600 million AFL (constant debt/GDP ratio) and 3,900 million AFL (reduced debt/GDP ratio).

It has been argued that the indebtedness of private households (individuals) in Aruba has reached its upper limits, and that these limits should not be surpassed or sooner or later, severe social and societal problems<sup>48</sup> may occur. It is therefore assumed that the 2003 GDP ratio of claims of the whole financial sector on individuals remains constant over the projection period (broadly implying that no further increase in the rate at which new private household loans are taken out; details depend on term structure, not considered here in any detail). In 2063, the whole financial sector's claims on individuals would amount to 15,800 million AFL (163,000 AFL per person of legal capacity).

Under similar logic, i.e. the share in GDP of the financial sector's claims on private enterprises kept constant, the total volume of claims would increase to 10,300 million AFL by 2063. Under the assumption that the number of enterprises remains unchanged, claims per company would increase to 3.3 million AFL. In real terms, this would imply a duplication of claims per enterprise<sup>49</sup>. Alternatively, under an assumed duplication of the number of enterprises, real claims per enterprise could be maintained constant over time.

Thus, at present broad trends, domestic assets of the financial sector could in total amount to around 30,000 million AFL in 2063 (excluding other domestic claims)<sup>50</sup>.

<sup>47</sup>Total government debt comprises claims of the financial sector, claims of other domestic sectors (enterprises, private households) and claims of the rest of the world (foreign debt). The financial sector of Aruba can only increase its claims on the government if the government continues running deficits, or in case of acquisition of such claims from the other domestic sectors or from the rest of the world. For simplicity of the argument, the possibility of such acquisitions is ignored.

<sup>48</sup>Meeting ILO with Central Bank of Aruba on 19 October 2004.

<sup>49</sup>Nominal per-firm values deflated with GDP deflator.

<sup>50</sup>These calculations, *not* in any case intended to show *probable* results, were undertaken to show magnitudes of possible developments in the financial sector, and their impact on the indebtedness of



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Returning to the issue of the accumulation of funds under the proposed second tier in Section 7.1, a six percent contribution rate is the only rate at which annuities can be calculated that would produce sufficient income replacement. In 2063 the six-percent-fund would have accumulated reserves in the order of 25,000 million AFL (Table 7.4).

According to the logic applied in this section (government and private households must not increase their respective debt/GDP ratios), the only domestic sector to absorb the second tier funds accumulated is the enterprise sector. Instead of being indebted with 10,300 million AFL, it would at least have to accumulate debt in the order of 25,000 million AFL<sup>51</sup>.

Obviously, these results imply that all domestic sectors<sup>52</sup> continue to take up loans, i.e. government, enterprises and private households alike. At any total volume of assets of the financial sector given, there is a linear relationship between the three domestic sectors. If, for example, the government reduces its debt (runs budget surpluses), then the take-up rate of loans in the enterprise sector or of private households (or of both) has to increase accordingly. The calculations for the enterprise sector show that any increase in the financial sector's claims either has to be accompanied by higher indebtedness of existing enterprises or by an increase of the number of enterprises financed by means of initial public offerings (IPOs) of one kind or another<sup>53</sup>. *Mutatis mutandis*, the same reasoning applies for private households. In other words, the assumption of the financial sector growing in line with GDP implies that (1) existing companies grow on average (expand their production of goods and services and also through the issuance of shares/bonds/take up of loans), (2) that the net number of companies grows (the implementation of new companies being financed by the issuance of shares/bonds/take up of loans) and (3) that, broadly, the relative number<sup>54</sup> of private households/individuals taking up loans, while having sufficient income for pay back, remains unchanged over time. The creation of new enterprises, however, requires adequate conditions, for example in terms of skilled labour and taxation, and also a sufficient number of persons with entrepreneurial spirits who successfully master the trial-and-error process of a market economy.

The only way to escape this logic is to accumulate claims on economic sectors (governments, enterprises, private households) located in the rest of the world, i.e. abroad. For a small country in a big world, such as Aruba, this seems to be a natural option, however, the viability of this option, especially when pursued as a long-term strategy, depends heavily on the international markets' long-term acceptance of Aruba's currency. Non-acceptance would be equivalent to putting the exchange rate regime (US\$-peg) at risk. International long-term acceptance of the AFL can only be achieved if Aruba's economy provides goods and services that meet the demand of sectors (individuals) abroad. In other words, Aruba must maintain and improve its tourism industry and related

the main domestic sectors of Aruba (government, private households, enterprises). Under the given macro-economic scenario, the calculated estimates must be considered conservative (low). Experience shows that the capital-GDP-ratio in most industrialized countries increases over time, implying that for any additional amount of GDP produced, the required additional capital stock increases faster.

<sup>51</sup>The calculations are presented for 2063 only for reasons of convenience. *Relative* magnitudes apply to all years of the projection horizon.

<sup>52</sup>For the time being disregarding the rest of the world.

<sup>53</sup>As there is no stock market in place in Aruba, such public offerings would have to be financed through the issuance of company bonds or direct bank loans.

<sup>54</sup>Relative to the total population.

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services as well as, to the maximum sustainable, broaden its industrial base. In the long run, whether it would be sufficient to base Aruba's economy fully on tourism (and oil refinery) can not be discussed with due detail in this report. Whatever the future structure of the economy is, Aruba, as a small country, bases its exchange rate regime on the assessment and evaluation of financial markets abroad. Any significant move by Aruba's financial sector to "ship out" amounts of additional national currency to the international markets might put the exchange rate at risk. While this is not expected to happen, such aspects have to be seriously considered when shaping Aruba's future pension system.

The exchange rate risk can only be reduced to zero by joining either the US\$- or the € currency zones, but of course the price to be paid for such a move would be giving up monetary autonomy.

### **7.3 Second tier funds – the undecided impact on savings and growth**

Given the calculations in Sections 7.1 and 7.2, the question arises as to whether Aruba's economy can in future afford the funds stemming from a second tier. In a modestly growing economy, as assumed in this report, there will always be sufficient surplus units offering savings to the financial sector (inflow to the liabilities side of the financial sector balance sheet). Equally, under the same growth assumption, there will be sufficient numbers of deficit units demanding liquidity (outflow on the assets side of the balance sheet) in order to finance consumption (government and private households; including mortgages) and investment in tangibles and non-tangibles (government, enterprises).

In case the second tier's funds are additional to the present assets (the savings rate increases) under the financial sector (about 180 percent of GDP), they would add between 21 and 85 percent of GDP in the long run (66 percent in case of a six percent contribution rate). The second tier would finally hold "ownership" of between 10 and 40 percent of Aruba's economy. In any case, additional funds would require, but not necessarily result in, a dynamically growing enterprise sector as discussed in Section 7.2 – more in the case of a high contribution rate, less in case of a lower rate.

Another possibility could be that second tier funds are not additional to but would substitute funds accumulating anyway (i.e. the savings rate does not react). In this case, a possible positive growth impact of a second tier would not be an issue.

The question as to whether second tier funds actually boost economic growth rates has been frequently debated, the discussion peaking during the 1990s. Empirical results of research undertaken in different countries seem to support both sides of the argument. A solution to this paradox appears possible when taking into account diverging institutional arrangements in different countries. In order to increase an economy's growth path, institutions (monetary, financial, capital market, labour market, others) have to be designed such that they effectively manage the required savings-to-growth transformation mechanisms. If institutional arrangements are counterproductive in this sense, then the mechanism does not work. In this report, Aruba's respective institutional arrangements are not discussed.

From a pension financing point of view, the main problem to be solved is to maintain the deficit units' long term creditworthiness, i.e. their potential to pay back, in a timely manner, the principal plus the required interest (rate of return) as these payments would constitute pensioners' old-age income. Maintenance of the deficit units' long-term creditworthiness depends, inter alia, on the above issue of institutional design.

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## 8. Improving the efficiency of contribution collection

### 8.1 International practice<sup>55</sup>

There are two basic ways to organize the collection of social security contributions. Contributions can either be collected parallel to the collection of taxes, or integrated into the collection of taxes. Both the older Western European parallel and the younger US integrated systems were introduced under given historical circumstances. In some countries, where parallel systems worked inefficiently, they were transformed into integrated systems. Recently, some of the Eastern European transition countries and countries of the former Soviet Union have taken steps to move from dual systems to integrated systems. At the same time, however, many of these countries are in the process of introducing new parallel systems as a consequence of new, complementary pension schemes (see below).

An alternative model can be found in countries that rely on funded, individual account approaches as their predominant system for pension provision. In the Asian countries operating provident funds, fund managers collect the contributions directly through an agent. Provident funds, essentially public sector institutions, may be viewed as a type of social insurance institution operating a parallel collection system. However, because of the nature of the scheme, they are very different from a Western European type of social insurance institution and have a lot in common with private sector systems based on fund management. The collection system (not the benefit system) is similar in most countries of Latin America where, again, private fund managers collect contributions directly and independently from the tax collection system.

In Western as well as Eastern Europe, in recent years countries have added complementary defined contribution plans to their core schemes. In the US, there are large voluntary, funded defined contribution plans and individual account systems, in which contributions are paid directly to private fund managers by employers, employees and the self-employed.

In reality, it is difficult to typify collection mechanisms by country. Most countries, in fact, display a combination of collection mechanisms and in a sense are mixed systems, a mixture of parallel and integrated systems. The following table shows a classification of selected countries by their predominant type of collection system.

<sup>55</sup>This section draws substance from a paper by Stanford G. Ross (IMF): Collection of social contributions: Current practice and critical issues. Theme 1 of the International Conference on Changes in the Structure and Organization of Social Security Administration. International Social Security Association (ISSA), Cracow, Poland, 3-4 June 2004.

**Table 8.1 Classification of selected countries by predominant type of pension contribution collection agency<sup>56</sup>**

**Tax collection agencies**

|                 |   |
|-----------------|---|
| Argentina       | Federal Public Revenue Administration                 |
| Canada          | Canada Customs and Revenue Agency                     |
| Hungary         | Tax agency  |
| Russia          | Ministry of Tax and Contributions                     |
| Sweden          | National Tax Board                                    |
| The Netherlands | Tax office (for universal social security; see below) |
| United States   | Internal Revenue Service, Treasury Department         |
| United Kingdom  | Board of Inland Revenue                               |

**Social security organizations**

|                   |  |
|-------------------|--|
| Belgium           | National Social Security Office  |
| Brazil            | National Social Security Institute   |
| Bulgaria          | National Social Security Institute <sup>1)</sup>   |
| China             | Social Insurance Agencies  |
| France            | Social Security Institutions   |
| Germany           | Health Insurance Funds   |
| Hong Kong (China) | Central Provident Fund   |
| Indonesia         | Employees Social Security Scheme   |
| Japan             | Social Insurance Offices   |
| Korea             | Korea National Pension Corporation   |
| Malaysia          | Employees Provident Fund   |
| Mexico            | Social Insurance Institute   |
| Philippines       | Social Security System   |
| Poland            | Social Insurance Institution   |
| Singapore         | Central Provident Fund   |
| Switzerland       | Administering institutions   |
| The Netherlands   | UWV - Institution responsible for unemployment insurance and disability (for work-related pensions; see above) <sup>2)</sup> |
| Thailand          | Social Security Office   |
| Uruguay           | Social Insurance Bank  |

1) Planned to be unified with tax collection (merger expected for 1 January 2006).

2) As of 1 January 2006 to be transferred to the tax office.

In reality, the variety of systems used by different countries does not mean that all these systems are working efficiently and effectively. Making social security institutions, notably pension institutions, operate effectively is an enormous task and, when achieved, maintaining effectiveness requires continuous intense quality control of administrative processes.

<sup>56</sup>Excerpt from Stanford G. Ross (IMF): Collection of social contributions: Current practice and critical issues. Theme 1 of the International Conference on Changes in the Structure and Organization of Social Security Administration. International Social Security Association (ISSA), Cracow, Poland, 3-4 June 2004. Appendix 1.

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In some parts of the world, pension institutions work with high reliability even if policy issues abound, such as in Japan, the US, and Western Europe. In other parts of the world, having reliable institutions is very problematic even apart from policy issues.

A key consideration in developing pension institutions is to have good design and then strong project management to implement that design. Also, the development and implementation of the design has to be based on administrative fundamentals that need to be respected. The most important among such fundamentals is that government-wide coordination is needed for any collection mechanism, be it integrated or parallel, be it tax or contribution. Modern collection techniques rely on the use of sophisticated information technology and data that must be gathered and shared on a government-wide basis.

From these observations, the following preliminary conclusions may be drawn with respect to integrating or separating tax and contribution collection. Success or failure of any such move depends on (1) the status of modernization of the tax administration; (2) the status of modernization of the social security (pension) administration; (3) the particular culture surrounding revenue collection and taxpayer/contributor compliance, including issues of priority given to tax versus contribution collection.

In systems that are operating on an integrated approach (such as Aruba), the efficiency of contribution collection, of course, depends on the status of modernity of the common institution (See Section 8.2).

The experience of countries initially using parallel systems, which then attempted to integrate revenue collection, is mixed. For example, in Sweden the process of integration worked extremely well because both the social insurance agency and the tax administration were working on highly modern levels so that the task of integration could be narrowly focused on the transfer of collection functions. But, even in countries like the UK, Ireland and Italy, integration took place with a variety of problems on both the social security institution and revenue agency side. Efforts were only successful when the integration process was combined with substantial modernization on both sides.

In Central and Eastern Europe, it is often the case that both the social security institution and the revenue collection agency need significant modernization. In such circumstances, integration of collection activities is far more challenging.

It is apparent that an integration project can be implemented only if the tax administration has modernized to the point where it is effectively using modern information technology and has a reasonably reliable employer-based system for the withholding of personal income taxes. If tax modernization has proceeded to this point, accepting responsibility for the social contribution collection would be reasonable since the basic foundations are present.

It should be mentioned that, although possible in principle, no integration project is known where a social security institution undertook responsibility for tax collection. In the case of Bulgaria, the social insurance institution was essentially modernized, which led to a plan to create a new revenue administration that could modernize tax collection as well as integrate the collection of social contributions. However, the existing tax administration agency was too weak to take responsibility for the integration. It lacked core competencies.

It is difficult to estimate the costs of contribution collection under different collection systems. Under any system, costs arise on the contributors' side and on the collectors' side. Economic efficiency arguments support the view that collection under an integrated system is cheaper than under a parallel system, however this assumption is only true if the integrated system has the basic foundations mentioned above. If a stand-alone contribution collection system is more efficient and more effective than the tax system, then integration is costly. If separation of an integrated system into separate tax and contribution collection

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systems provides room for modernization in at least one of the two, then such a move might lead to a more cost-efficient situation than a continued inefficient integrated system.

Based on available empirical information, administrative costs of efficiently working mature public pension systems, if responsible for contribution collection, could and should be kept in the order of 1.5 to 2.5 percent of contributions collected, subject to such concrete circumstances as, for example, the size of the covered population and/or the number of enterprises<sup>57</sup>. Out of this amount, less than half of one percent might be attributable to the very act of contribution collection. This estimate excludes the costs on the employer and/or employee side, which are, however, usually also very low. By contrast, the administration costs of privately managed schemes of individual accounts on a funded basis are much higher. In Latin America they have been calculated to amount to up to 50 percent of collected individual contributions<sup>58</sup>. In the UK, estimates range between 20 and 30 percent, and they might not be much lower in the rest of Europe<sup>59</sup>. It has been argued that high administration costs of private schemes are partially attributable to the specifically high collection costs of such schemes.

## 8.2 The case of Aruba

Aruba's contribution collection system is integrated with tax collection through the tax revenue office. The SVb receives contributions collected from the tax office as a transfer but is not directly involved in the actual process of contribution collection. The SVb also gets a list from the tax office of all companies that pay their AOV/AWW contribution, however immediate consistency checks of contribution inflow is not possible as the SVb is neither in a position to check the completeness of the list nor the status of the payment balance per company. The SVb also has no access to contributors' individual details.

The ILO has been asked for recommendations for improved efficiency in the contribution collection process based on a review of the present system and methods, especially addressing the question as to whether the tax office or the Social Insurance Bank should undertake contribution collection.

To date, the Tax office is in charge of contribution collection. Under this current situation, the ILO cannot guarantee that the contribution collection process would be more efficient if it were handled directly by the SVb. In terms of mere administration costs, one can reasonably assume that if the SVb takes over the collection process, administration costs will increase even if there is already a system in place for the collection of contributions for the Accident and Sickness scheme.

One area in need of improvement is in terms of the amount of and accessibility of information available to the SVb. At this point, the SVb has very little information about

<sup>57</sup>See, for example, Bundesministerium für Gesundheit (Bonn): Daten des Gesundheitswesens 2001. Nomos Baden-Baden, 2001. P. 382. [Federal Ministry of Health (Bonn, Germany): Health data report 2001].

<sup>58</sup>See: Keeping the promise of Old Age Income Security in Latin America. A Regional Study of Social Security Reforms. Indermit S. Gill, Truman Packard and Juan Yermo with the assistance of Todd Pugatch. Regional Studies Program, The Office of the Chief Economist, Latin America and Caribbean Region, World Bank (2004).

<sup>59</sup>See: Paul Krugman: Social Security: lessons from the British. In: The New York Times; Saturday, January 15, 2005.

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contributions, as individual records are not available to SVb managers and it is therefore difficult to clearly evaluate the incoming contributions.

In order to regulate the contribution collection and especially to be able to obtain more detailed information, an annual auditing and reporting of the collected AOV/AWW premiums through an independent accountant is recommended.

Another area of concern is that the existing system does not allow for the enforcement of some legislative parameters. For example, the current method used to collect contributions through the Tax Office does not allow the enforcement of Section 8 of the AOV Ordinance to account for years where no contribution has been paid. In fact, this regulation stipulates that discounts of three percent should apply for each annual contribution payment missed and where the pensioner is negligibly at fault for not having paid his contributions in the past. For each registered annual payment missed, the SVb will save, in nominal terms, about 9,000 AFL in future pension payments as the pension will be discounted. The law should also be enforced in the same manner on employers so that they are held responsible for contribution payments missed in order to inconsistencies between employers and employees.

In order to enforce this regulation, it is absolutely necessary to include individual records and full detailed information on contributions.

The contribution revenue transferred to the SVb in 2002 was based on an (implicit) amount of 1,110.7 million AFL of contributory wages. In the same year, according to information received by the Central Bureau of Statistics, the sum of taxable wages amounted to an estimated 1,310.1 million AFL. Thus, assuming this estimate is reliable and (in principle) fully applicable to SVb contributions, contributions in the order of about 25 million AFL were not collected, which amounts to about 15 percent of AOV/AWW contributions<sup>60</sup>.

While it is observed that the sum of taxable insurable wages is higher than the sum of SVb insurable wages, in order to explain the gap, a number of factors must be taken into consideration. Firstly, the taxable base needs to be reduced by deductible items such as home mortgages. Secondly, married couples pay their AOV contribution up to the combined amount of their salaries for the total of the wage ceiling. Thirdly, workers above 60 years of age are exempt from contribution, and finally, the non-compliance rate plays a role.

The actual amount of non-compliance, i.e. illegal non-payment of contributions, is unknown. Taking into account the simulative results of the scenarios in Sections 6.6 and 6.7 and the sum of wages earned by workers aged 60 and over, non-compliance might lie in the order of five percent of the insurable wages due, equivalent to one third of the above-mentioned total of 15% (25 million AFL) of contributions lost. This non-compliance rate is of particular concern to the SVb and also to its constituents, as the loss it implies is (quite rightly) unsatisfactory as it increases the pressure on the future finances of the SVb. The SVb, however, as a consequence of the integrated collection system operating in Aruba, is, administratively, put into the role of a mere observer instead of being able to enforce contributors' compliance.

Accordingly, a separation of the contribution collection function from the tax collection function must be considered. In this case the SVb would assume the contribution collection function along with its traditional benefit payment function.

<sup>60</sup>This loss of contributions adds to the SVb's revenue losses due to the non-adjustment of the ceiling.

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Among the advantages of such a move would clearly be the fact that the SVb would assume full control over the contribution collection process. In this way, the SVb could concentrate on contribution collection, especially in those cases where compliance is low or zero, and the demographically induced future financial problems of the SVb's long-term branch would be partially solved through enhanced administrative effectiveness. In fact, under the base case assumptions, exhaustion of the reserve could be postponed by six years (from 2023 to 2029) if non-compliance was reduced to zero (from five percent). Of course, the actual additional revenue collected under improved collection effectiveness might be lower due to the cost impact on enterprises operating on the margin of bankruptcy, however, an additional three to five years before the reserve is exhausted can be considered a realistic result of improved collection effectiveness.

Such an organizational move is recommendable unless the modernization of the tax office, which is presently on its way, leads to improvements not only with respect to information technology but also, equally important, to a modernized collection system that takes into account the special revenue collection requirements of social security, which may, in cases, be different from tax revenue. Requirements of mutual cooperation between the tax office administration and the SVb's administration, as addressed in Section 8.1, would have to be fulfilled. Indeed, the actual modernization process of the tax revenue should be undertaken under active participation of the SVb (and the health insurance) in order to incorporate the institution's interests right from the beginning.

If, under the given circumstances, this is impossible or not advisable, then a separation of the contribution collection function (combined for the SVb and the health insurance) should be seriously considered. Before undertaking such a step, a clear project plan, supported by the whole government administration, would have to be set up and the personnel and information technology requirements would have to be assessed. The details of such a plan are beyond the scope of this report.



## 9. Tightening pension entitlements and better allocation of the contribution rate

### 9.1 Limiting pension payments to legal residents

Under the current SVb's legislation, some unclear dispositions exist regarding pension entitlements. The Law stipulates that every person who lived on the island is eligible for pension entitlements. In fact, pension entitlements are legally based on a vague residency status. The SVb may want to tighten pension entitlements in order to avoid cases where illegal residents claim pension rights.

According to SVb officials, such cases have been very limited or simply non-existent. The reason is obvious because illegal residents are exposed to imminent sanctions such as deportation. The responsibility of the SVb is certainly not to act as an immigration guardian but in order to be consistent with the existing governmental laws and prevent such ambiguous cases, it is preferable and recommendable to adjust this legal disposition by using the words "legal resident" rather than "who lived on the island".

### 9.2 More appropriate allocation of the AOV/AWW contribution rate

The ILO has been asked for recommendations on a more appropriate allocation of the AOV/AWW contribution rate. As was seen in Table 5.3, the AWW PAYG rate over the next 60 years will never exceed one percent. In fact, under the base scenario assumptions, the long-term estimates are closer to 0.4 percent, which is 1.6 percentage points less than the AWW legal contribution rate. On the other hand, the AOV branch experiences a PAYG rate considerably higher than its allocated current contribution rate and is in serious need of additional funding.

Table 9.1 Legal contribution rate and PAYG rate

| Scheme | Legal contribution rate | PAYG Rate |       |       |       |       |       |       |
|--------|-------------------------|-----------|-------|-------|-------|-------|-------|-------|
|        |                         | 2003      | 2013  | 2023  | 2033  | 2043  | 2053  | 2063  |
| AWW    | 2.0%                    | 0.9%      | 0.8%  | 0.6%  | 0.5%  | 0.5%  | 0.4%  | 0.4%  |
| AOV    | 11.5%                   | 11.1%     | 12.7% | 17.5% | 19.4% | 16.6% | 15.3% | 14.5% |

Table 9.1 shows that there is a clear imbalance on the contribution rate allocation. The SVb may want to adjust the contribution separation between the AWW and the AOV in order to properly represent their future financial situation. A shift of one percentage point from the AWW contribution rate to the AOV contribution rate should be considered. In this way, more contribution income could be allocated to the AOV as the new contribution rate would be 12.5 percent, and the AWW branch would remain sufficiently financed.



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## 10. Financial auditing routines for the SVb

The ILO has been requested to comment on the proposal to carry out actuarial reviews of the SVb every five years and more frequently only if needed.

The ILO understands that the request does not refer to actuarial reviews as such but to the frequency of such reviews.

Actuarial reviews are generally considered necessary on a regular basis in order to provide information as to whether the broad revenue and expenditure trends of the system under review are sustainable in the long term. The time horizon of such reviews often is over more than one generation, i.e. up to between 50 and 75 years (in this report, the time horizon is 60 years).

There are, however, established procedures that have shorter projection periods, for example five or ten years. The five-year period is the typical period required by governments for mid-term budget planning purposes. Sometimes, especially when governments have implemented explicit development plans, ten-year periods have been used. If pension schemes are subsidized by the budget or in cases where the pension scheme's financial situation is fragile in the sense that government subsidies might be required in the immediate future, then detailed projections focusing on the scheme are required in order to provide strong estimates for the required state transfers. The more the scheme is approaching a financial status indicating a need for state transfers, the more frequent projections of revenue and expenditure have to be carried out, for budgetary reasons. Once state transfers are needed, such calculations are reduced to a one-year time period.

It should be noted that the choice of time periods between one, five and ten years has been mainly as a result of historical factors. In previous times, when modern information technology was not available, it made a substantial difference in effort and resources required whether a projection was made over one, five or ten years. Nowadays, once a computer model is calibrated for projecting one year, it can usually be easily applied for projecting five and ten years. If models for these time periods explicitly use demographic population projection techniques, then they can usually also be expanded to a 50- or 75-year time period. It is not so much the technique that makes the difference between models with different time periods, but mainly the interpretation of the results.

Given this background, it is advisable to have regular annual projections of the SVb's finances. In fact, the SVb itself, in cooperation with the government (especially with respect to agreeing on the underlying demographic and macro-economic assumptions) should be able to carry out actuarial projections of its revenue and expenditure on an annual basis, for example by using the ILO model. In terms of human resources, this would mean the additional employment of two specialists (economist/actuary or equivalent qualification) for the update, maintenance and use of the model.

If the SVb does not feel competent or lacks the staff to carry out such projections on its own, then, at least, there should be annual medium term "trend-based" projections over a time period of 10 to 15 years. This period is recommended as the minimum in order to cover the period of possible critical reserve development as indicated in Figure 5.12. The notion "trend-based" has to be carefully interpreted, however. The main demographic problems of the SVb's old-age benefit branch will, according to the assumptions underlying this report, occur during the next 20 to 30 years (many more pensioners, less additional contributors). A trend-based approach would have to check this assumption on a revolving basis and adjust it according to new information available. In other words, a

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simplified trend approach (as opposed to a fully fledged actuarial projection) would also, at least, have to make use of a revolving fine-tuned demographic sub-module.

Under this condition (an adequate model with a 10- to 15- year projection period exists and is regularly being applied), full actuarial reviews might be required only every five years. Under such a rule, the annual valuations would serve as financial guidance and possibly early warnings under given legislation whereas the quinquennial actuarial reviews would check for long-term consistency of the parameters of the scheme.

In any case, the shorter-range projections should also be given official character and be published regularly in a constant format.

Furthermore it is strongly recommended to have the SVb's balance sheet ready and published together with the cashflow sheet and other information on the SVb (contributors, beneficiaries, staff, etc.) by the beginning of every year, which could either be kept separate from the regular projections or be made an integral part thereof.

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## 11. Conclusions and recommendations

### 11.1 Conclusions

Whichever reform option is adopted, there is no solution to Aruba's growing old-age financing problem that could satisfy all stakeholders of the AOV/AWW scheme equally. Benefit eligibility conditions will have to be tightened (in particular, by increasing the retirement age) and more money will be needed to finance Aruba's demographic transition. At the same time, measures have to be taken in order to maintain present relative benefit levels (replacement rates) necessary in order to avoid future old-age poverty, without upsetting society's consensus on the scheme's highly redistributive design, which has contributed substantially to poverty avoidance in Aruba.

The reform option (Section 6.8) is a step in the right direction, however, it cannot be recommended as the sole measure as it leads to old-age poverty in the medium and longer term (due to assumed CPI-indexation). An amount would have to be added to the reform, which at least maintains present relative pension benefit levels (replacement rates).

One possibility is to add a second tier to the present, reformed, scheme. Such a tier could be designed in different ways (PAYG, funded, mix). In this report only some aspects of a mandated fully funded second tier (individual accounts) were discussed as this design has been discussed in Aruba most intensely. In order to make this tier meaningful (in terms of expected replacement rates of individual annuities), a contribution rate of at least six percent would be required. At such a rate, combined replacement rates (AOV (CPI-indexed) and second tier combined) can be expected to maintain the present gross<sup>61</sup> system replacement rate of about 30 percent of the average insurable wage (assuming wage-indexation of the ceiling) in the long run.

Another possibility would be to use the same additional six percent of wages and salaries in order to finance the AOV under present principles (after reform along the lines of Section 6.8), modified however by wage-indexation of pensions (instead of CPI-indexation). Costs for contributors would be the same but old-age income expectations for the individual contributor would be safe in comparison to the above second tier approach. Under such a scenario, the SVb would have a permanently positive reserve over the full projection period accumulating 60, 55 and 45 percent of GDP in 2023, 2043 and 2063, respectively.

The focus on wage-indexation of pensions is important. Usually, CPI-indexation of pensions is considered socially and economically adequate. This is not the case in Aruba because in cases where CPI-indexation is adequate, individual pensions, at initial payment, are income related, i.e. they reflect the individual wage-earners' actual lifetime income. CPI-indexation, then, guarantees the purchasing power of each individual pension over the lifetime of the pensioner. In Aruba, the individual pension is independent of individual lifetime income, and is flat for everyone. Here, even at the onset of pension payment, the pension is not related to individual income. As long as wages grow at higher rates than the CPI, individual wages at retirement will be increasingly inconsistent with the flat pension level. In other words, the flat pension will have to be increased regularly in line with wages

<sup>61</sup>"Gross" relates to single pension in percent of *gross insurable wage*. In percent of the average *net* insurable wage the replacement rate is about 37 per cent (2003; ILO estimate). The same rate related, however, to the (estimated) (gross) *national average wage* is 25 per cent (2003; ILO-estimate).

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in order to maintain the relative difference between pension and wage levels. In this report, it is proposed to adjust pensions regularly (annually) with wages. This could also be done allowing for longer periods between adjustments, however if this were done, increases would have to be more substantial in order to catch up with wage developments, as it was last done in 1994<sup>62</sup>.

Under both of these options (adding six percentage points to the contribution rate) the balance between contributions paid and benefits received would not differ significantly from that under the present scheme (Table 3.9). Higher contribution payments and higher benefits would generally offset each other.

A six percentage point increase in the contribution rate (either under a second tier or under a reformed AOV) would be, of course, a drastic measure. Therefore, an incremental introduction would be advisable, which in an economy with growing nominal wages might be the most acceptable approach for contributors (whether employers and/or workers). The above-mentioned fact that the AOV would accumulate substantial reserves under this scenario would also allow for a careful fine-tuning (reduced in comparison to these model calculations, especially in case rate of returns were higher than assumed) of the legal contribution rate over time. One could also consider a further careful increase of the legal retirement age in due time, further reducing to some extent the need for contribution rate increases.

Control calculations show that under the reformed AOV (Section 6.8; wage-indexed) a long-term legal rate of 16.0 percent would be sufficient to maintain a substantial reserve in the long term<sup>63</sup>.

Increasing the contribution rate to a total of 18.0<sup>64</sup> percent of insurable wages (under both a second tier solution as well as a reformed AOV/AWW solution) might be considered inappropriate by all societal groups of Aruba. This rate would add to the rate for sickness and to the (probably increasing under status-quo) rate for health insurance, however, there is no way of financing adequate old-age incomes at cheap rates. System logic as well as international experience shows that adequate pensions, paid in mature systems with adequate retirement ages, require contribution rates in the order of 20 percent of insurable wages. In concrete cases rates deviate from this average to the lower or more often to the higher, according to system specifications (Table 11.1).

For the time being, all reform scenarios discussed in this report have a serious administrative handicap as, thus far, no reliable, consistent and regular process for the estimation of a national average wage (national accounts concept) is in place. This is required at least for regular wage-indexation of the ceiling. If the ceiling is indexed accordingly, then wage-indexation of pensions can be based on the development of the average insurable wage, as this would closely reflect the development of the national average wage (as long as the ceiling is sufficiently high).

<sup>62</sup>See: See International Labour Office: Aruba. Report to the Government. Actuarial review of the General Old-age Pension scheme and the General Widows and Orphans Insurance Scheme as of 30 April 2003. Geneva, March 2004, page 1.

<sup>63</sup>Calculated as follows: 11.5% (present legal rate AOV) – 2% (potential to reduce legal rate after reform (S. 6.8)) + 6.0% (second tier or modified reformed AOV) + 0.5% (safety margin) = 16.0% (total rate; excluding AWW).

<sup>64</sup>Seventeen percent in case one point were shifted from the AWW to the AOV.

Table 11.1 Pension replacement rates in European welfare states<sup>1)</sup>

| Country    | Contribution<br>rate for<br>individuals<br>(incl. employers<br>contribution) | Pension-<br>able<br>age | Years<br>of<br>service | Replace-<br>ment<br>rate | 1 % contr.<br>buys ... %<br>replacement | Remarks  |  |
|------------|--|-------------------------|------------------------|--------------------------|---|--|--|
| France     | 19.85 %  | 60                      | 40                     | 45.00 %                  | 2.27 %                                  | Contr. for invalids<br>not included                    |  |
|            |  | 60                      | 35                     | 25.00 %                  | 1.26 %                                  |  |  |
|            |  | 65                      | 40                     | 45.00 %                  | 2.27 %                                  |  |  |
|            |  | 65                      | 35                     | 45.00 %                  | 2.27 %                                  |  |  |
| Luxembourg | 16.00 %  | 60                      | 40                     | 77.35 %                  | 4.83 %                                  | Plus state subsidy<br>equivalent to 8 %<br>contr. Rate |  |
|            |  | 60                      | 35                     | 68.45 %                  | 4.28 %                                  |  |  |
|            |  | 65                      | 40                     | 77.35 %                  | 4.83 %                                  |  |  |
|            |  | 65                      | 35                     | 68.45 %                  | 4.28 %                                  |  |  |
| Germany    | 19.30 %  | 60                      | Not possible           |                          | 2.23 %                                  | Plus state subsidy<br>equivalent to<br>5 % contr. Rate |  |
|            |  | 60                      |                        |                          |   |  |  |
|            |  | 63                      | 40                     | 43.0 %                   |   |  |  |
| Belgium    | 19.86 %  | 63                      | 35                     | 37.6 %                   | 1.95 %                                  | 3.5 % contr. rate<br>for invalidity<br>included        |  |
|            |  | 60                      | 40                     | 53.33 %                  | 2.69 %                                  |  |  |
|            |  | 65                      | 40                     |                          |   |  |  |
|            |  | 65                      | 35                     | 46.67 %                  | 2.35 %                                  |  |  |
| Aruba      | 11.50 %  | 60                      | 40                     | 35.10 %                  | 3.05 %                                  | Based on<br>residency, not on<br>contribution          |  |
|            |  |                         | 35                     | 35.10 %                  | 3.05 %                                  |  |  |

1) Data refer to the situation in 1999 / 2000, except Aruba: 2003.

Source: Bureau international du Travail – Genève: Luxembourg. Évaluation actuarielle et financière du régime général d'assurance pension de Grand-Duché de Luxembourg. Remis au Ministère de la sécurité sociale. Geneva 2001. P. 12; Aruba added to the table.

Questions of efficiency of contribution collection have also been addressed in the report (Section 8). Most of the difference between the estimated maximum sum of wages, which could be insured and the lower sum actually insured can be explained by legislation. Non-compliance is mainly related to illegal acts of non-payment of contributions, which is estimated at five percent of the insurable base due. This could be reduced through measures improving the effectiveness of contribution collection. At present the tax office, which is in charge of collecting contributions and transferring them to the SVb, is in a process of modernization. It remains to be seen how this process, when completed, will affect contribution collection in the future. If a factor analysis reveals that collected contributions increased due to higher efficiency, one might attribute the respective increase to higher compliance. In this case, the non-compliance problem would be solved and there would be no need for further action to be taken. Only in the unlikely case that the modernization of the tax collection system would result in a volume of contributions collected that cannot be explained by appropriate factor analysis, then the government might have to reconsider the existing unified tax-/contribution collection system.

Auditing and actuarial valuations of the SVb, and in particular the AOV/AWW, will also be necessary in the future. It is hoped that this report answers a number of questions, but it may also raise new ones. Whatever direction of reform the government might decide to move in, further or renewed detailed calculations will need to be undertaken, based on new data and assumptions. In order to substantiate its own standing within the national discussion, the SVb should take measures to improve its own capacities. It is hoped that this report contributes to such steps.

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## 11.2 Recommendations

1. It is recommended, firstly, to carry out the proposed reform measures as discussed in Section 6.8. This means to raise the contribution assessment ceiling to 60,000 AFL at the latest by 1 January 2006, ideally to increase the legal retirement age to 62 and to fully individualize contribution payments and pensions simultaneously. However, the recommended increase in the legal retirement age does not necessarily need to occur in 2006 as proposed in the ILO model, but it should not be postponed beyond 2008. Full individualization is included despite the high initial costs as the medium and long-term financial effects will be positive. Again, with respect to the timing of the introduction of individualization, there is some leeway. It may be considered that at least the individualization of contribution payments should occur in 2006. It is not necessary that individualization of pensions occur on that date, as a postponement of two to three years for the individualization of pensions will help to ease the effects of “dual” individualization on certain pensioners.
2. Secondly, a regular annual mechanism of ceiling indexation according to the development of the national average wage has to be made effective. This is core to any reform.
3. According to the foreseeable timetable, the first indexation of the ceiling could take place on 1 January 2007. For this purpose, time-series estimates of Aruba’s national average wage (national accounts methodology) should be available up to, at least, 2005. It is therefore important that the Central Bureau of Statistics (CBS; national accounting section) prepares these data and simultaneously establishes a reliable routine for wage estimation in future. In autumn 2006 a first preliminary estimate of the national average wage in 2006 should be available. Based on this information, details of the adjustment formula (lag structure, etc.) could be determined. The ceiling for the following year should be determined in autumn at the latest. The time available for the CBS to analyze the required statistics and prepare the estimates spans from spring 2005 to autumn 2006 when, at the latest, the ceiling for 2007 should be made public.
4. Given that the CBS information on the national average wage would be available, pensions should be indexed accordingly, i.e. based on the development of the national average wage. As pensions were increased on 1 January 2005, the next indexation should take place on 1 January 2006. As, according to (3), the required national average wage estimates will not be available in autumn 2005, pension indexation could be based, temporarily, on CPI development (for example [CPI Oct 2004 to Sep 2005] / [CPI Oct 2003 to Sep 2004]). The next indexation (1 January 2007) should be based on the same information (not necessarily exactly the same indexation formula, which would still have to be established) as used for ceiling indexation, i.e. the national average wage. Subsequent indexations should also not be based on average insurable earnings as these might be influenced by ceiling adjustments. Only if, after sufficient experience, national average wage and insurable wage prove to develop in parallel, one might use the administrative information available on the insurable wage for pension indexation.
5. On 1 January 2006 the AOV contribution rate should be increased by one percent, followed by a one percentage point increase each year until the target rate of 16 percent is reached. On 1 January 2006 this could be done by shifting one point from the AWW to the AOV, which leaves sufficient room for prudent financing of the AWW expenditure. Calculations suggest that the AOV would require 4.5 percentage points in addition to the present rate of 11.5 percent, however, depending on actual economic, labour market and financial market developments, a slightly lower additional amount might be sufficient.
6. Recommendations (1) to (5), together, result in a substantial increase of the SVb’s reserves several times above present levels (in percent of GDP). As investment in domestic markets of all accumulated funds might prove difficult or even impossible, the government and/or



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the SVb should explore, together with the central bank, options (in terms of quantity and quality) of investing parts of the accumulating amounts abroad (US, EU). An explicit investment policy also has to be formulated according to standard rules of efficient financial markets. While the reserves would accumulate under the SVb and, also, the government and/or the SVb would assume final responsibility, investment decisions, as well as general investment policy, should be outsourced to an investment board. Members of the board should be financial market specialists (possibly from Aruba's financial industry), the CBA, the SVb, employers and trade unions. Particular care must be exercised in formulating the statutes of the board (purpose, membership, voting procedures, etc.).

7. Thus far, no clear conclusions can be drawn as to whether the government should opt for outsourcing contribution collection to the SVb (or to the health insurance or to a common institute of both) or whether it should maintain the present organizational arrangement. It is recommended to wait for the results of the tax collection reform measures before considering further steps.

As an annotation to these recommendations, the following needs mentioning. It has been considered in Aruba to change the revenue base of the AOV from contributions to taxation and to complement the tax-financed flat-benefit system with a contribution-financed second tier (this option is not covered by this report). However, one of the implications of the findings of this report is that such a second tier could not be recommended to take the form of a defined-contribution (individual accounts) tier. Instead, a fully funded defined-benefit tier might be recommendable in such a case. Administration of the accumulating funds should be organized as under (6). However, the details of the implementation of such a reform (phasing in, transitory regulations, etc.) would have to be evaluated in a separate study, as the evolvement of the transitional effects might be problematic.

There are several reasons why a contribution-defined second tier is not recommended. One reason is that this approach would only provide a combined replacement rate of (around) 30 percent after a long transition period while, during the long transition, those who have to rely fully or mainly on the AOV pension (because of too short a savings period) will be provided with a CPI-indexed pension only. Another important reason is the difficulty of knowing where to place the accumulated reserves with the expectation of receiving reasonable long-term rates of return. The second tier, in combination with the reserves accumulated under the AOV/AWW (reform scenario), would also accumulate historically huge reserves and, thus, social security could become a monopolistic "owner" of the majority of Aruba's tangible capital stock over the longer term.

A "small solution", i.e. a second tier with a contribution rate of two percent is not recommended as this option will not even come close to solving the problem of a very low income replacement rate of AOV pensions. Meaningful pensions require substantial resources (contribution rates) under any financial regime.



# Annex 1

## Annex 1.1 Population

| Year | Total   | Age 0 - 15 | Age 16 - 59 | Age 60 & over | Ratio of Persons   |
|------|---------|------------|-------------|---------------|--------------------|
|      |         |            |             |               | 16-59 To 60 & Over |
| 2000 | 90,511  | 22,331     | 58,042      | 10,139        | 5.7                |
| 2001 | 91,960  | 22,281     | 59,201      | 10,477        | 5.7                |
| 2002 | 93,510  | 22,383     | 60,302      | 10,825        | 5.6                |
| 2003 | 94,529  | 22,341     | 60,965      | 11,222        | 5.4                |
| 2004 | 95,538  | 22,317     | 61,584      | 11,638        | 5.3                |
| 2005 | 96,541  | 22,078     | 62,306      | 12,157        | 5.1                |
| 2006 | 97,537  | 21,972     | 62,892      | 12,673        | 5.0                |
| 2007 | 98,528  | 21,878     | 63,418      | 13,233        | 4.8                |
| 2008 | 99,516  | 21,712     | 63,987      | 13,817        | 4.6                |
| 2009 | 100,500 | 21,541     | 64,599      | 14,360        | 4.5                |
| 2010 | 101,479 | 21,442     | 64,937      | 15,101        | 4.3                |
| 2011 | 102,454 | 21,262     | 65,393      | 15,798        | 4.1                |
| 2012 | 103,412 | 21,170     | 65,645      | 16,598        | 4.0                |
| 2013 | 104,353 | 21,019     | 65,970      | 17,365        | 3.8                |
| 2014 | 105,277 | 20,958     | 66,162      | 18,157        | 3.6                |
| 2015 | 106,180 | 20,942     | 66,200      | 19,038        | 3.5                |
| 2016 | 107,063 | 20,936     | 66,237      | 19,890        | 3.3                |
| 2017 | 107,918 | 21,033     | 66,074      | 20,811        | 3.2                |
| 2018 | 108,746 | 21,041     | 65,889      | 21,816        | 3.0                |
| 2019 | 109,545 | 21,172     | 65,660      | 22,713        | 2.9                |
| 2020 | 110,315 | 21,316     | 65,226      | 23,773        | 2.7                |
| 2021 | 111,052 | 21,466     | 64,812      | 24,774        | 2.6                |
| 2022 | 111,764 | 21,618     | 64,399      | 25,748        | 2.5                |
| 2023 | 112,449 | 21,766     | 63,996      | 26,686        | 2.4                |
| 2024 | 113,102 | 21,906     | 63,603      | 27,593        | 2.3                |
| 2025 | 113,722 | 22,034     | 63,285      | 28,403        | 2.2                |
| 2026 | 114,308 | 22,147     | 63,138      | 29,022        | 2.2                |
| 2027 | 114,861 | 22,245     | 63,026      | 29,590        | 2.1                |
| 2028 | 115,382 | 22,327     | 62,859      | 30,196        | 2.1                |
| 2029 | 115,868 | 22,393     | 62,821      | 30,654        | 2.0                |
| 2030 | 116,321 | 22,443     | 62,671      | 31,207        | 2.0                |
| 2031 | 116,740 | 22,477     | 62,586      | 31,677        | 2.0                |
| 2032 | 117,129 | 22,496     | 62,603      | 32,030        | 2.0                |
| 2033 | 117,486 | 22,498     | 62,744      | 32,244        | 1.9                |
| 2034 | 117,813 | 22,483     | 63,051      | 32,279        | 2.0                |
| 2035 | 118,111 | 22,455     | 63,310      | 32,346        | 2.0                |
| 2036 | 118,380 | 22,413     | 63,664      | 32,303        | 2.0                |
| 2037 | 118,622 | 22,359     | 64,003      | 32,260        | 2.0                |
| 2038 | 118,838 | 22,298     | 64,392      | 32,148        | 2.0                |
| 2039 | 119,031 | 22,234     | 64,710      | 32,086        | 2.0                |
| 2040 | 119,202 | 22,172     | 64,990      | 32,040        | 2.0                |
| 2041 | 119,355 | 22,113     | 65,210      | 32,032        | 2.0                |
| 2042 | 119,489 | 22,062     | 65,392      | 32,036        | 2.0                |
| 2043 | 119,608 | 22,020     | 65,469      | 32,119        | 2.0                |
| 2044 | 119,714 | 21,990     | 65,520      | 32,204        | 2.0                |
| 2045 | 119,810 | 21,971     | 65,500      | 32,339        | 2.0                |
| 2046 | 119,900 | 21,965     | 65,524      | 32,411        | 2.0                |
| 2047 | 119,986 | 21,970     | 65,555      | 32,461        | 2.0                |
| 2048 | 120,071 | 21,987     | 65,602      | 32,482        | 2.0                |
| 2049 | 120,158 | 22,014     | 65,448      | 32,696        | 2.0                |
| 2050 | 120,248 | 22,051     | 65,413      | 32,784        | 2.0                |
| 2051 | 120,344 | 22,096     | 65,384      | 32,864        | 2.0                |
| 2052 | 120,448 | 22,147     | 65,281      | 33,020        | 2.0                |
| 2053 | 120,562 | 22,202     | 65,166      | 33,193        | 2.0                |
| 2054 | 120,687 | 22,261     | 65,112      | 33,314        | 2.0                |
| 2055 | 120,824 | 22,321     | 64,977      | 33,526        | 1.9                |
| 2056 | 120,973 | 22,379     | 64,920      | 33,674        | 1.9                |
| 2057 | 121,135 | 22,436     | 64,806      | 33,893        | 1.9                |
| 2058 | 121,310 | 22,488     | 64,773      | 34,049        | 1.9                |
| 2059 | 121,496 | 22,535     | 64,780      | 34,181        | 1.9                |
| 2060 | 121,692 | 22,575     | 64,796      | 34,322        | 1.9                |
| 2061 | 121,897 | 22,607     | 64,904      | 34,386        | 1.9                |
| 2062 | 122,110 | 22,632     | 64,925      | 34,554        | 1.9                |
| 2063 | 122,329 | 22,649     | 65,059      | 34,622        | 1.9                |

## Annex 1.2 Economic assumptions (percent)

| Year | Nominal GDP<br>growth | Real GDP<br>growth | Inflation | Wage<br>growth | Rate of<br>return |
|------|-----------------------|--------------------|-----------|----------------|-------------------|
| 2003 | 5.2                   | 1.4                | 3.8       | 0.6            | 5.3               |
| 2004 | 6.4                   | 2.8                | 3.5       | 5.0            | 7.3               |
| 2005 | 6.3                   | 2.8                | 3.4       | 4.6            | 7.2               |
| 2006 | 6.0                   | 2.5                | 3.3       | 4.5            | 6.9               |
| 2007 | 5.8                   | 2.5                | 3.2       | 4.4            | 6.8               |
| 2008 | 5.7                   | 2.5                | 3.1       | 4.3            | 6.6               |
| 2009 | 5.6                   | 2.4                | 3.0       | 4.2            | 6.5               |
| 2010 | 5.2                   | 2.2                | 2.9       | 4.0            | 6.1               |
| 2011 | 5.0                   | 2.1                | 2.8       | 3.9            | 5.9               |
| 2012 | 4.8                   | 2.0                | 2.7       | 3.8            | 5.7               |
| 2013 | 4.6                   | 1.9                | 2.6       | 3.7            | 5.5               |
| 2014 | 4.4                   | 1.8                | 2.5       | 3.6            | 5.4               |
| 2015 | 4.3                   | 1.7                | 2.5       | 3.6            | 5.3               |
| 2016 | 4.2                   | 1.6                | 2.5       | 3.6            | 5.2               |
| 2017 | 4.1                   | 1.5                | 2.5       | 3.6            | 5.1               |
| 2018 | 4.0                   | 1.4                | 2.5       | 3.6            | 5.0               |
| 2019 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.9               |
| 2020 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.7               |
| 2021 | 3.7                   | 1.1                | 2.5       | 3.6            | 4.7               |
| 2022 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.6               |
| 2023 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2024 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2025 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2026 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2027 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2028 | 3.2                   | 0.7                | 2.5       | 3.6            | 4.2               |
| 2029 | 3.3                   | 0.7                | 2.5       | 3.6            | 4.3               |
| 2030 | 3.3                   | 0.7                | 2.5       | 3.6            | 4.3               |
| 2031 | 3.4                   | 0.8                | 2.5       | 3.6            | 4.4               |
| 2032 | 3.4                   | 0.9                | 2.5       | 3.6            | 4.4               |
| 2033 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2034 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.6               |
| 2035 | 3.7                   | 1.1                | 2.5       | 3.6            | 4.6               |
| 2036 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.7               |
| 2037 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.8               |
| 2038 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.8               |
| 2039 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.8               |
| 2040 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.8               |
| 2041 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.8               |
| 2042 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.8               |
| 2043 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.8               |
| 2044 | 3.9                   | 1.3                | 2.5       | 3.6            | 4.8               |
| 2045 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.8               |
| 2046 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.8               |
| 2047 | 3.8                   | 1.2                | 2.5       | 3.6            | 4.7               |
| 2048 | 3.7                   | 1.1                | 2.5       | 3.6            | 4.7               |
| 2049 | 3.7                   | 1.1                | 2.5       | 3.6            | 4.6               |
| 2050 | 3.6                   | 1.1                | 2.5       | 3.6            | 4.6               |
| 2051 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.6               |
| 2052 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2053 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2054 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2055 | 3.5                   | 0.9                | 2.5       | 3.6            | 4.5               |
| 2056 | 3.5                   | 0.9                | 2.5       | 3.6            | 4.5               |
| 2057 | 3.5                   | 0.9                | 2.5       | 3.6            | 4.5               |
| 2058 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2059 | 3.5                   | 0.9                | 2.5       | 3.6            | 4.5               |
| 2060 | 3.5                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2061 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.5               |
| 2062 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.6               |
| 2063 | 3.6                   | 1.0                | 2.5       | 3.6            | 4.6               |

## Annex 1.3 GDP projections

| Year | Nominal GDP<br>(million AFL) | Nominal GDP<br>per capita<br>(million AFL) | Labour income<br>share in nominal<br>GDP | Real GDP<br>(million AFL) | Labour<br>income<br>(million AFL) | Labour income<br>share in national<br>income | National<br>average<br>wage (AFL) | Insured sum<br>of wages<br>(million AFL) |
|------|------------------------------|--|--|---------------------------|-----------------------------------|--|-----------------------------------|--|
| 2000 | 3,327                        | 36,757                                     | 56.7%                                    | 2,886                     | 1,885                             | 62.1%  | 2,720                             | 1,264                                    |
| 2001 | 3,399                        | 36,958                                     | 56.4%                                    | 2,866                     | 1,918                             | 62.0%  | 2,903                             | 1,268                                    |
| 2002 | 3,421                        | 36,587                                     | 56.8%                                    | 2,792                     | 1,943                             | 61.9%  | 2,971                             | 1,310                                    |
| 2003 | 3,599                        | 38,075                                     | 56.8%                                    | 2,831                     | 2,044                             | 61.9%  | 2,963                             | 1,342                                    |
| 2004 | 3,830                        | 40,088                                     | 56.8%                                    | 2,910                     | 2,175                             | 61.9%  | 3,100                             | 1,413                                    |
| 2005 | 4,072                        | 42,183                                     | 56.8%                                    | 2,991                     | 2,312                             | 61.9%  | 3,231                             | 1,483                                    |
| 2006 | 4,315                        | 44,240                                     | 56.8%                                    | 3,067                     | 2,450                             | 61.9%  | 3,371                             | 1,571                                    |
| 2007 | 4,567                        | 46,351                                     | 56.8%                                    | 3,144                     | 2,593                             | 61.9%  | 3,519                             | 1,662                                    |
| 2008 | 4,827                        | 48,500                                     | 56.8%                                    | 3,221                     | 2,741                             | 61.9%  | 3,670                             | 1,754                                    |
| 2009 | 5,095                        | 50,695                                     | 56.8%                                    | 3,300                     | 2,893                             | 61.9%  | 3,823                             | 1,850                                    |
| 2010 | 5,359                        | 52,809                                     | 56.8%                                    | 3,372                     | 3,043                             | 61.9%  | 3,978                             | 1,943                                    |
| 2011 | 5,625                        | 54,900                                     | 56.8%                                    | 3,441                     | 3,194                             | 61.9%  | 4,135                             | 2,034                                    |
| 2012 | 5,892                        | 56,979                                     | 56.8%                                    | 3,508                     | 3,346                             | 61.9%  | 4,294                             | 2,125                                    |
| 2013 | 6,163                        | 59,059                                     | 56.8%                                    | 3,575                     | 3,500                             | 61.9%  | 4,455                             | 2,216                                    |
| 2014 | 6,436                        | 61,130                                     | 56.8%                                    | 3,640                     | 3,654                             | 61.9%  | 4,617                             | 2,309                                    |
| 2015 | 6,714                        | 63,231                                     | 56.8%                                    | 3,704                     | 3,812                             | 61.9%  | 4,785                             | 2,403                                    |
| 2016 | 6,998                        | 65,359                                     | 56.8%                                    | 3,764                     | 3,974                             | 61.9%  | 4,959                             | 2,494                                    |
| 2017 | 7,285                        | 67,509                                     | 56.8%                                    | 3,822                     | 4,137                             | 61.9%  | 5,139                             | 2,592                                    |
| 2018 | 7,577                        | 69,679                                     | 56.8%                                    | 3,877                     | 4,303                             | 61.9%  | 5,325                             | 2,688                                    |
| 2019 | 7,873                        | 71,866                                     | 56.8%                                    | 3,928                     | 4,470                             | 61.9%  | 5,519                             | 2,781                                    |
| 2020 | 8,169                        | 74,055                                     | 56.8%                                    | 3,975                     | 4,639                             | 61.9%  | 5,718                             | 2,880                                    |
| 2021 | 8,471                        | 76,275                                     | 56.8%                                    | 4,019                     | 4,810                             | 61.9%  | 5,925                             | 2,975                                    |
| 2022 | 8,777                        | 78,531                                     | 56.8%                                    | 4,061                     | 4,984                             | 61.9%  | 6,140                             | 3,072                                    |
| 2023 | 9,090                        | 80,840                                     | 56.8%                                    | 4,102                     | 5,162                             | 61.9%  | 6,362                             | 3,175                                    |
| 2024 | 9,414                        | 83,233                                     | 56.8%                                    | 4,142                     | 5,346                             | 61.9%  | 6,592                             | 3,278                                    |
| 2025 | 9,746                        | 85,697                                     | 56.8%                                    | 4,182                     | 5,534                             | 61.9%  | 6,829                             | 3,391                                    |
| 2026 | 10,090                       | 88,273                                     | 56.8%                                    | 4,222                     | 5,730                             | 61.9%  | 7,075                             | 3,508                                    |
| 2027 | 10,449                       | 90,969                                     | 56.8%                                    | 4,264                     | 5,933                             | 61.9%  | 7,329                             | 3,636                                    |
| 2028 | 10,787                       | 93,493                                     | 56.8%                                    | 4,293                     | 6,126                             | 61.9%  | 7,592                             | 3,762                                    |
| 2029 | 11,141                       | 96,156                                     | 56.8%                                    | 4,324                     | 6,327                             | 61.9%  | 7,865                             | 3,887                                    |
| 2030 | 11,510                       | 98,947                                     | 56.8%                                    | 4,356                     | 6,536                             | 61.9%  | 8,146                             | 4,026                                    |
| 2031 | 11,898                       | 101,915                                    | 56.8%                                    | 4,391                     | 6,756                             | 61.9%  | 8,439                             | 4,164                                    |
| 2032 | 12,308                       | 105,079                                    | 56.8%                                    | 4,430                     | 6,989                             | 61.9%  | 8,741                             | 4,314                                    |
| 2033 | 12,741                       | 108,445                                    | 56.8%                                    | 4,472                     | 7,235                             | 61.9%  | 9,054                             | 4,476                                    |
| 2034 | 13,199                       | 112,034                                    | 56.8%                                    | 4,518                     | 7,495                             | 61.9%  | 9,378                             | 4,651                                    |
| 2035 | 13,684                       | 115,857                                    | 56.8%                                    | 4,567                     | 7,770                             | 61.9%  | 9,713                             | 4,843                                    |
| 2036 | 14,197                       | 119,929                                    | 56.8%                                    | 4,621                     | 8,062                             | 61.9%  | 10,060                            | 5,040                                    |
| 2037 | 14,735                       | 124,220                                    | 56.8%                                    | 4,677                     | 8,367                             | 61.9%  | 10,420                            | 5,250                                    |
| 2038 | 15,298                       | 128,727                                    | 56.8%                                    | 4,735                     | 8,687                             | 61.9%  | 10,792                            | 5,466                                    |
| 2039 | 15,888                       | 133,475                                    | 56.8%                                    | 4,796                     | 9,022                             | 61.9%  | 11,178                            | 5,691                                    |
| 2040 | 16,501                       | 138,431                                    | 56.8%                                    | 4,857                     | 9,370                             | 61.9%  | 11,579                            | 5,920                                    |
| 2041 | 17,141                       | 143,612                                    | 56.8%                                    | 4,921                     | 9,733                             | 61.9%  | 11,994                            | 6,153                                    |
| 2042 | 17,806                       | 149,018                                    | 56.8%                                    | 4,985                     | 10,111                            | 61.9%  | 12,424                            | 6,389                                    |
| 2043 | 18,496                       | 154,637                                    | 56.8%                                    | 5,049                     | 10,503                            | 61.9%  | 12,870                            | 6,630                                    |
| 2044 | 19,210                       | 160,469                                    | 56.8%                                    | 5,114                     | 10,908                            | 61.9%  | 13,333                            | 6,872                                    |
| 2045 | 19,945                       | 166,472                                    | 56.8%                                    | 5,178                     | 11,326                            | 61.9%  | 13,813                            | 7,121                                    |
| 2046 | 20,704                       | 172,674                                    | 56.8%                                    | 5,242                     | 11,756                            | 61.9%  | 14,309                            | 7,375                                    |
| 2047 | 21,480                       | 179,024                                    | 56.8%                                    | 5,303                     | 12,197                            | 61.9%  | 14,823                            | 7,640                                    |
| 2048 | 22,279                       | 185,547                                    | 56.8%                                    | 5,364                     | 12,651                            | 61.9%  | 15,355                            | 7,915                                    |
| 2049 | 23,097                       | 192,224                                    | 56.8%                                    | 5,423                     | 13,116                            | 61.9%  | 15,906                            | 8,200                                    |
| 2050 | 23,935                       | 199,050                                    | 56.8%                                    | 5,481                     | 13,591                            | 61.9%  | 16,477                            | 8,478                                    |
| 2051 | 24,794                       | 206,028                                    | 56.8%                                    | 5,536                     | 14,079                            | 61.9%  | 17,068                            | 8,776                                    |
| 2052 | 25,678                       | 213,191                                    | 56.8%                                    | 5,592                     | 14,581                            | 61.9%  | 17,679                            | 9,085                                    |
| 2053 | 26,585                       | 220,513                                    | 56.8%                                    | 5,645                     | 15,096                            | 61.9%  | 18,313                            | 9,396                                    |
| 2054 | 27,522                       | 228,040                                    | 56.8%                                    | 5,699                     | 15,628                            | 61.9%  | 18,969                            | 9,719                                    |
| 2055 | 28,486                       | 235,765                                    | 56.8%                                    | 5,753                     | 16,176                            | 61.9%  | 19,648                            | 10,059                                   |
| 2056 | 29,486                       | 243,743                                    | 56.8%                                    | 5,807                     | 16,744                            | 61.9%  | 20,353                            | 10,402                                   |
| 2057 | 30,523                       | 251,972                                    | 56.8%                                    | 5,862                     | 17,332                            | 61.9%  | 21,081                            | 10,769                                   |
| 2058 | 31,597                       | 260,470                                    | 56.8%                                    | 5,918                     | 17,942                            | 61.9%  | 21,836                            | 11,142                                   |
| 2059 | 32,709                       | 269,219                                    | 56.8%                                    | 5,974                     | 18,574                            | 61.9%  | 22,616                            | 11,543                                   |
| 2060 | 33,870                       | 278,322                                    | 56.8%                                    | 6,032                     | 19,233                            | 61.9%  | 23,425                            | 11,964                                   |
| 2061 | 35,078                       | 287,768                                    | 56.8%                                    | 6,093                     | 19,919                            | 61.9%  | 24,262                            | 12,401                                   |
| 2062 | 36,335                       | 297,558                                    | 56.8%                                    | 6,154                     | 20,633                            | 61.9%  | 25,127                            | 12,869                                   |
| 2063 | 37,646                       | 307,741                                    | 56.8%                                    | 6,218                     | 21,377                            | 61.9%  | 26,026                            | 13,335                                   |

## Annex 1.4 GDP growth projections (in percent)

| Year | Nominal<br>GDP | Nominal GDP<br>per capita | Real GDP | Labour<br>income | National<br>average<br>wage | Insured sum<br>of wages |
|------|----------------|---------------------------|----------|------------------|-----------------------------|-------------------------|
| 2001 | 2.2            | 0.5                       | -0.7     | 1.8              | 6.7                         | 0.3                     |
| 2002 | 0.7            | -1.0                      | -2.6     | 1.3              | 2.4                         | 3.4                     |
| 2003 | 5.2            | 4.1                       | 1.4      | 5.2              | -0.3                        | 2.4                     |
| 2004 | 6.4            | 5.3                       | 2.8      | 6.4              | 4.6                         | 5.3                     |
| 2005 | 6.3            | 5.2                       | 2.8      | 6.3              | 4.2                         | 4.9                     |
| 2006 | 6.0            | 4.9                       | 2.5      | 6.0              | 4.3                         | 5.9                     |
| 2007 | 5.8            | 4.8                       | 2.5      | 5.8              | 4.4                         | 5.8                     |
| 2008 | 5.7            | 4.6                       | 2.5      | 5.7              | 4.3                         | 5.6                     |
| 2009 | 5.6            | 4.5                       | 2.4      | 5.6              | 4.2                         | 5.5                     |
| 2010 | 5.2            | 4.2                       | 2.2      | 5.2              | 4.1                         | 5.0                     |
| 2011 | 5.0            | 4.0                       | 2.1      | 5.0              | 4.0                         | 4.7                     |
| 2012 | 4.8            | 3.8                       | 2.0      | 4.8              | 3.8                         | 4.5                     |
| 2013 | 4.6            | 3.7                       | 1.9      | 4.6              | 3.7                         | 4.3                     |
| 2014 | 4.4            | 3.5                       | 1.8      | 4.4              | 3.6                         | 4.2                     |
| 2015 | 4.3            | 3.4                       | 1.7      | 4.3              | 3.6                         | 4.1                     |
| 2016 | 4.2            | 3.4                       | 1.6      | 4.2              | 3.6                         | 3.8                     |
| 2017 | 4.1            | 3.3                       | 1.5      | 4.1              | 3.6                         | 3.9                     |
| 2018 | 4.0            | 3.2                       | 1.4      | 4.0              | 3.6                         | 3.7                     |
| 2019 | 3.9            | 3.1                       | 1.3      | 3.9              | 3.6                         | 3.5                     |
| 2020 | 3.8            | 3.0                       | 1.2      | 3.8              | 3.6                         | 3.5                     |
| 2021 | 3.7            | 3.0                       | 1.1      | 3.7              | 3.6                         | 3.3                     |
| 2022 | 3.6            | 3.0                       | 1.0      | 3.6              | 3.6                         | 3.3                     |
| 2023 | 3.6            | 2.9                       | 1.0      | 3.6              | 3.6                         | 3.4                     |
| 2024 | 3.6            | 3.0                       | 1.0      | 3.6              | 3.6                         | 3.3                     |
| 2025 | 3.5            | 3.0                       | 1.0      | 3.5              | 3.6                         | 3.5                     |
| 2026 | 3.5            | 3.0                       | 1.0      | 3.5              | 3.6                         | 3.4                     |
| 2027 | 3.6            | 3.1                       | 1.0      | 3.6              | 3.6                         | 3.7                     |
| 2028 | 3.2            | 2.8                       | 0.7      | 3.2              | 3.6                         | 3.4                     |
| 2029 | 3.3            | 2.8                       | 0.7      | 3.3              | 3.6                         | 3.3                     |
| 2030 | 3.3            | 2.9                       | 0.7      | 3.3              | 3.6                         | 3.6                     |
| 2031 | 3.4            | 3.0                       | 0.8      | 3.4              | 3.6                         | 3.4                     |
| 2032 | 3.4            | 3.1                       | 0.9      | 3.4              | 3.6                         | 3.6                     |
| 2033 | 3.5            | 3.2                       | 1.0      | 3.5              | 3.6                         | 3.7                     |
| 2034 | 3.6            | 3.3                       | 1.0      | 3.6              | 3.6                         | 3.9                     |
| 2035 | 3.7            | 3.4                       | 1.1      | 3.7              | 3.6                         | 4.1                     |
| 2036 | 3.8            | 3.5                       | 1.2      | 3.8              | 3.6                         | 4.1                     |
| 2037 | 3.8            | 3.6                       | 1.2      | 3.8              | 3.6                         | 4.2                     |
| 2038 | 3.8            | 3.6                       | 1.2      | 3.8              | 3.6                         | 4.1                     |
| 2039 | 3.9            | 3.7                       | 1.3      | 3.9              | 3.6                         | 4.1                     |
| 2040 | 3.9            | 3.7                       | 1.3      | 3.9              | 3.6                         | 4.0                     |
| 2041 | 3.9            | 3.7                       | 1.3      | 3.9              | 3.6                         | 3.9                     |
| 2042 | 3.9            | 3.8                       | 1.3      | 3.9              | 3.6                         | 3.8                     |
| 2043 | 3.9            | 3.8                       | 1.3      | 3.9              | 3.6                         | 3.8                     |
| 2044 | 3.9            | 3.8                       | 1.3      | 3.9              | 3.6                         | 3.6                     |
| 2045 | 3.8            | 3.7                       | 1.2      | 3.8              | 3.6                         | 3.6                     |
| 2046 | 3.8            | 3.7                       | 1.2      | 3.8              | 3.6                         | 3.6                     |
| 2047 | 3.8            | 3.7                       | 1.2      | 3.8              | 3.6                         | 3.6                     |
| 2048 | 3.7            | 3.6                       | 1.1      | 3.7              | 3.6                         | 3.6                     |
| 2049 | 3.7            | 3.6                       | 1.1      | 3.7              | 3.6                         | 3.6                     |
| 2050 | 3.6            | 3.6                       | 1.1      | 3.6              | 3.6                         | 3.4                     |
| 2051 | 3.6            | 3.5                       | 1.0      | 3.6              | 3.6                         | 3.5                     |
| 2052 | 3.6            | 3.5                       | 1.0      | 3.6              | 3.6                         | 3.5                     |
| 2053 | 3.5            | 3.4                       | 1.0      | 3.5              | 3.6                         | 3.4                     |
| 2054 | 3.5            | 3.4                       | 1.0      | 3.5              | 3.6                         | 3.4                     |
| 2055 | 3.5            | 3.4                       | 0.9      | 3.5              | 3.6                         | 3.5                     |
| 2056 | 3.5            | 3.4                       | 0.9      | 3.5              | 3.6                         | 3.4                     |
| 2057 | 3.5            | 3.4                       | 0.9      | 3.5              | 3.6                         | 3.5                     |
| 2058 | 3.5            | 3.4                       | 1.0      | 3.5              | 3.6                         | 3.5                     |
| 2059 | 3.5            | 3.4                       | 0.9      | 3.5              | 3.6                         | 3.6                     |
| 2060 | 3.5            | 3.4                       | 1.0      | 3.5              | 3.6                         | 3.6                     |
| 2061 | 3.6            | 3.4                       | 1.0      | 3.6              | 3.6                         | 3.7                     |
| 2062 | 3.6            | 3.4                       | 1.0      | 3.6              | 3.6                         | 3.8                     |
| 2063 | 3.6            | 3.4                       | 1.0      | 3.6              | 3.6                         | 3.6                     |

## Annex 1.5 Demographic and economic projections

| Year | Population | Labour force | Employed<br>population | Full time<br>equivalent jobs | Employees | Self-<br>employed | Unemployed | Contributors | Jobs   |
|------|------------|--------------|------------------------|------------------------------|-----------|-------------------|------------|--------------|--------|
| 2000 | 90,511     | 45,036       | 41,918                 | 38,941                       | 37,604    | 4,314             | 3,118      | 36,842       | 59,825 |
| 2001 | 91,960     | 45,519       | 42,237                 | 38,635                       | 37,467    | 4,771             | 3,281      | 35,777       | 56,177 |
| 2002 | 93,510     | 46,001       | 42,557                 | 37,388                       | 37,690    | 4,867             | 3,444      | 35,274       | 51,894 |
| 2003 | 94,529     | 46,557       | 43,163                 | 38,148                       | 38,148    | 5,015             | 3,394      | 36,357       | 52,633 |
| 2004 | 95,538     | 47,114       | 43,918                 | 38,694                       | 38,694    | 5,224             | 3,196      | 36,688       | 53,554 |
| 2005 | 96,541     | 47,688       | 44,696                 | 39,380                       | 39,380    | 5,316             | 2,992      | 37,338       | 54,503 |
| 2006 | 97,537     | 48,257       | 45,373                 | 39,977                       | 39,977    | 5,397             | 2,884      | 37,904       | 55,329 |
| 2007 | 98,528     | 48,824       | 46,052                 | 40,575                       | 40,575    | 5,477             | 2,772      | 38,470       | 56,156 |
| 2008 | 99,516     | 49,376       | 46,720                 | 41,163                       | 41,163    | 5,557             | 2,656      | 39,029       | 56,971 |
| 2009 | 100,500    | 49,924       | 47,387                 | 41,751                       | 41,751    | 5,636             | 2,537      | 39,586       | 57,784 |
| 2010 | 101,479    | 50,455       | 47,939                 | 42,237                       | 42,237    | 5,702             | 2,517      | 40,046       | 58,457 |
| 2011 | 102,454    | 50,983       | 48,439                 | 42,678                       | 42,678    | 5,761             | 2,544      | 40,465       | 59,067 |
| 2012 | 103,412    | 51,469       | 48,900                 | 43,084                       | 43,084    | 5,816             | 2,569      | 40,850       | 59,629 |
| 2013 | 104,353    | 51,928       | 49,335                 | 43,468                       | 43,468    | 5,868             | 2,592      | 41,213       | 60,160 |
| 2014 | 105,277    | 52,356       | 49,742                 | 43,826                       | 43,826    | 5,916             | 2,614      | 41,553       | 60,656 |
| 2015 | 106,180    | 52,739       | 50,105                 | 44,145                       | 44,145    | 5,959             | 2,634      | 41,856       | 61,098 |
| 2016 | 107,063    | 53,073       | 50,422                 | 44,425                       | 44,425    | 5,997             | 2,652      | 42,121       | 61,485 |
| 2017 | 107,918    | 53,353       | 50,687                 | 44,658                       | 44,658    | 6,029             | 2,666      | 42,342       | 61,808 |
| 2018 | 108,746    | 53,579       | 50,901                 | 44,847                       | 44,847    | 6,054             | 2,678      | 42,521       | 62,069 |
| 2019 | 109,545    | 53,750       | 51,062                 | 44,988                       | 44,988    | 6,073             | 2,688      | 42,655       | 62,265 |
| 2020 | 110,315    | 53,854       | 51,160                 | 45,075                       | 45,075    | 6,085             | 2,694      | 42,737       | 62,385 |
| 2021 | 111,052    | 53,916       | 51,218                 | 45,126                       | 45,126    | 6,092             | 2,698      | 42,786       | 62,455 |
| 2022 | 111,764    | 53,942       | 51,242                 | 45,147                       | 45,147    | 6,095             | 2,700      | 42,806       | 62,484 |
| 2023 | 112,449    | 53,944       | 51,242                 | 45,147                       | 45,147    | 6,095             | 2,702      | 42,806       | 62,485 |
| 2024 | 113,102    | 53,939       | 51,237                 | 45,143                       | 45,143    | 6,094             | 2,702      | 42,802       | 62,478 |
| 2025 | 113,722    | 53,917       | 51,215                 | 45,123                       | 45,123    | 6,091             | 2,702      | 42,783       | 62,452 |
| 2026 | 114,308    | 53,901       | 51,198                 | 45,109                       | 45,109    | 6,089             | 2,703      | 42,769       | 62,432 |
| 2027 | 114,861    | 53,893       | 51,190                 | 45,102                       | 45,102    | 6,089             | 2,703      | 42,763       | 62,422 |
| 2028 | 115,382    | 53,722       | 51,027                 | 44,958                       | 44,958    | 6,069             | 2,694      | 42,626       | 62,223 |
| 2029 | 115,868    | 53,573       | 50,886                 | 44,833                       | 44,833    | 6,052             | 2,687      | 42,508       | 62,050 |
| 2030 | 116,321    | 53,435       | 50,756                 | 44,719                       | 44,719    | 6,037             | 2,680      | 42,400       | 61,892 |
| 2031 | 116,740    | 53,333       | 50,658                 | 44,633                       | 44,633    | 6,025             | 2,674      | 42,318       | 61,773 |
| 2032 | 117,129    | 53,269       | 50,598                 | 44,580                       | 44,580    | 6,018             | 2,671      | 42,268       | 61,700 |
| 2033 | 117,486    | 53,243       | 50,574                 | 44,558                       | 44,558    | 6,015             | 2,670      | 42,248       | 61,670 |
| 2034 | 117,813    | 53,257       | 50,587                 | 44,570                       | 44,570    | 6,017             | 2,670      | 42,259       | 61,686 |
| 2035 | 118,111    | 53,310       | 50,638                 | 44,615                       | 44,615    | 6,023             | 2,673      | 42,301       | 61,748 |
| 2036 | 118,380    | 53,403       | 50,726                 | 44,693                       | 44,693    | 6,033             | 2,677      | 42,375       | 61,856 |
| 2037 | 118,622    | 53,516       | 50,834                 | 44,788                       | 44,788    | 6,046             | 2,682      | 42,465       | 61,987 |
| 2038 | 118,838    | 53,644       | 50,956                 | 44,895                       | 44,895    | 6,061             | 2,689      | 42,567       | 62,136 |
| 2039 | 119,031    | 53,793       | 51,097                 | 45,019                       | 45,019    | 6,077             | 2,696      | 42,685       | 62,308 |
| 2040 | 119,202    | 53,944       | 51,241                 | 45,147                       | 45,147    | 6,095             | 2,703      | 42,805       | 62,484 |
| 2041 | 119,355    | 54,103       | 51,393                 | 45,280                       | 45,280    | 6,113             | 2,711      | 42,932       | 62,668 |
| 2042 | 119,489    | 54,266       | 51,547                 | 45,416                       | 45,416    | 6,131             | 2,719      | 43,061       | 62,857 |
| 2043 | 119,608    | 54,426       | 51,699                 | 45,550                       | 45,550    | 6,149             | 2,727      | 43,188       | 63,042 |
| 2044 | 119,714    | 54,580       | 51,845                 | 45,679                       | 45,679    | 6,166             | 2,734      | 43,310       | 63,221 |
| 2045 | 119,810    | 54,714       | 51,973                 | 45,792                       | 45,792    | 6,182             | 2,741      | 43,417       | 63,376 |
| 2046 | 119,900    | 54,837       | 52,090                 | 45,895                       | 45,895    | 6,196             | 2,747      | 43,515       | 63,519 |
| 2047 | 119,986    | 54,933       | 52,182                 | 45,975                       | 45,975    | 6,206             | 2,751      | 43,591       | 63,631 |
| 2048 | 120,071    | 55,012       | 52,256                 | 46,041                       | 46,041    | 6,215             | 2,755      | 43,653       | 63,722 |
| 2049 | 120,158    | 55,067       | 52,309                 | 46,087                       | 46,087    | 6,222             | 2,758      | 43,697       | 63,786 |
| 2050 | 120,248    | 55,098       | 52,339                 | 46,113                       | 46,113    | 6,225             | 2,759      | 43,722       | 63,822 |
| 2051 | 120,344    | 55,108       | 52,348                 | 46,122                       | 46,122    | 6,226             | 2,760      | 43,730       | 63,834 |
| 2052 | 120,448    | 55,106       | 52,346                 | 46,120                       | 46,120    | 6,226             | 2,760      | 43,728       | 63,831 |
| 2053 | 120,562    | 55,086       | 52,328                 | 46,104                       | 46,104    | 6,224             | 2,758      | 43,713       | 63,809 |
| 2054 | 120,687    | 55,060       | 52,303                 | 46,082                       | 46,082    | 6,221             | 2,757      | 43,692       | 63,779 |
| 2055 | 120,824    | 55,026       | 52,270                 | 46,053                       | 46,053    | 6,217             | 2,755      | 43,665       | 63,739 |
| 2056 | 120,973    | 54,995       | 52,241                 | 46,028                       | 46,028    | 6,214             | 2,754      | 43,641       | 63,703 |
| 2057 | 121,135    | 54,966       | 52,213                 | 46,003                       | 46,003    | 6,210             | 2,752      | 43,617       | 63,669 |
| 2058 | 121,310    | 54,940       | 52,189                 | 45,982                       | 45,982    | 6,207             | 2,751      | 43,597       | 63,640 |
| 2059 | 121,496    | 54,913       | 52,163                 | 45,959                       | 45,959    | 6,204             | 2,750      | 43,575       | 63,608 |
| 2060 | 121,692    | 54,901       | 52,152                 | 45,949                       | 45,949    | 6,203             | 2,749      | 43,566       | 63,595 |
| 2061 | 121,897    | 54,901       | 52,152                 | 45,949                       | 45,949    | 6,203             | 2,749      | 43,566       | 63,594 |
| 2062 | 122,110    | 54,908       | 52,158                 | 45,955                       | 45,955    | 6,204             | 2,749      | 43,571       | 63,602 |
| 2063 | 122,329    | 54,928       | 52,177                 | 45,971                       | 45,971    | 6,206             | 2,750      | 43,587       | 63,625 |

## Annex 1.6 Wage growth by income groups

| Year | Male               |                       |                     | Female             |                       |                     |
|------|--------------------|-----------------------|---------------------|--------------------|-----------------------|---------------------|
|      | Average salary low | Average salary medium | Average salary high | Average salary low | Average salary medium | Average salary high |
| 2003 | 2.0                | 1.8                   | 0.6                 | 2.0                | 2.0                   | 1.3                 |
| 2004 | 5.2                | 5.1                   | 1.4                 | 5.2                | 5.2                   | 2.9                 |
| 2005 | 4.7                | 4.4                   | 1.1                 | 4.7                | 4.7                   | 2.4                 |
| 2006 | 4.5                | 4.7                   | 4.4                 | 4.5                | 4.5                   | 4.5                 |
| 2007 | 4.4                | 4.6                   | 4.3                 | 4.4                | 4.4                   | 4.4                 |
| 2008 | 4.3                | 4.4                   | 4.2                 | 4.3                | 4.3                   | 4.3                 |
| 2009 | 4.2                | 4.2                   | 4.1                 | 4.2                | 4.2                   | 4.1                 |
| 2010 | 4.1                | 4.0                   | 4.0                 | 4.1                | 4.1                   | 4.0                 |
| 2011 | 3.9                | 3.9                   | 3.8                 | 3.9                | 3.9                   | 3.9                 |
| 2012 | 3.8                | 3.7                   | 3.8                 | 3.8                | 3.8                   | 3.8                 |
| 2013 | 3.7                | 3.6                   | 3.6                 | 3.7                | 3.7                   | 3.7                 |
| 2014 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2015 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2016 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2017 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.7                 |
| 2018 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.7                 |
| 2019 | 3.6                | 3.5                   | 3.7                 | 3.6                | 3.6                   | 3.7                 |
| 2020 | 3.6                | 3.5                   | 3.7                 | 3.6                | 3.6                   | 3.7                 |
| 2021 | 3.7                | 3.5                   | 3.7                 | 3.7                | 3.7                   | 3.7                 |
| 2022 | 3.7                | 3.5                   | 3.7                 | 3.7                | 3.7                   | 3.7                 |
| 2023 | 3.7                | 3.5                   | 3.7                 | 3.7                | 3.7                   | 3.7                 |
| 2024 | 3.7                | 3.5                   | 3.7                 | 3.7                | 3.7                   | 3.7                 |
| 2025 | 3.7                | 3.6                   | 3.6                 | 3.7                | 3.7                   | 3.7                 |
| 2026 | 3.7                | 3.6                   | 3.6                 | 3.7                | 3.7                   | 3.7                 |
| 2027 | 3.7                | 3.6                   | 3.6                 | 3.7                | 3.7                   | 3.7                 |
| 2028 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2029 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2030 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2031 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2032 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2033 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2034 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2035 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2036 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2037 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2038 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2039 | 3.6                | 3.7                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2040 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2041 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2042 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2043 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2044 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2045 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2046 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2047 | 3.5                | 3.6                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2048 | 3.5                | 3.5                   | 3.6                 | 3.5                | 3.5                   | 3.6                 |
| 2049 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2050 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2051 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2052 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2053 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2054 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2055 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2056 | 3.6                | 3.5                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2057 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2058 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2059 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2060 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2061 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2062 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |
| 2063 | 3.6                | 3.6                   | 3.6                 | 3.6                | 3.6                   | 3.6                 |



## Annex 1.7 Salary scale<sup>65</sup> (AFL per annum)

| Year | Male               |                       |                     | Female             |                       |                     |
|------|--------------------|-----------------------|---------------------|--------------------|-----------------------|---------------------|
|      | Average salary low | Average salary medium | Average salary high | Average salary low | Average salary medium | Average salary high |
| 2002 | 10,136             | 28,160                | 44,144              | 10,136             | 20,632                | 38,784              |
| 2003 | 10,338             | 28,673                | 44,391              | 10,338             | 21,043                | 39,297              |
| 2004 | 10,876             | 30,123                | 44,994              | 10,876             | 22,138                | 40,437              |
| 2005 | 11,385             | 31,453                | 45,467              | 11,385             | 23,175                | 41,412              |
| 2006 | 11,903             | 32,939                | 47,482              | 11,903             | 24,229                | 43,262              |
| 2007 | 12,430             | 34,446                | 49,534              | 12,430             | 25,302                | 45,152              |
| 2008 | 12,965             | 35,959                | 51,614              | 12,965             | 26,391                | 47,077              |
| 2009 | 13,506             | 37,477                | 53,723              | 13,506             | 27,491                | 49,028              |
| 2010 | 14,053             | 38,992                | 55,854              | 14,053             | 28,605                | 51,010              |
| 2011 | 14,605             | 40,501                | 58,004              | 14,605             | 29,728                | 53,014              |
| 2012 | 15,164             | 42,019                | 60,183              | 15,164             | 30,865                | 55,048              |
| 2013 | 15,726             | 43,534                | 62,379              | 15,726             | 32,010                | 57,102              |
| 2014 | 16,289             | 45,059                | 64,603              | 16,289             | 33,157                | 59,172              |
| 2015 | 16,873             | 46,635                | 66,923              | 16,873             | 34,345                | 61,321              |
| 2016 | 17,479             | 48,263                | 69,339              | 17,479             | 35,579                | 63,556              |
| 2017 | 18,108             | 49,948                | 71,858              | 18,108             | 36,859                | 65,881              |
| 2018 | 18,759             | 51,693                | 74,479              | 18,759             | 38,183                | 68,288              |
| 2019 | 19,437             | 53,493                | 77,207              | 19,437             | 39,565                | 70,795              |
| 2020 | 20,144             | 55,354                | 80,044              | 20,144             | 41,004                | 73,401              |
| 2021 | 20,881             | 57,280                | 82,987              | 20,881             | 42,504                | 76,110              |
| 2022 | 21,647             | 59,272                | 86,037              | 21,647             | 44,062                | 78,920              |
| 2023 | 22,442             | 61,350                | 89,195              | 22,442             | 45,680                | 81,832              |
| 2024 | 23,267             | 63,513                | 92,455              | 23,267             | 47,359                | 84,846              |
| 2025 | 24,123             | 65,773                | 95,826              | 24,123             | 49,103                | 87,969              |
| 2026 | 25,012             | 68,127                | 99,306              | 25,012             | 50,913                | 91,200              |
| 2027 | 25,935             | 70,566                | 102,898             | 25,935             | 52,792                | 94,542              |
| 2028 | 26,870             | 73,092                | 106,606             | 26,870             | 54,695                | 97,940              |
| 2029 | 27,839             | 75,719                | 110,439             | 27,839             | 56,666                | 101,452             |
| 2030 | 28,841             | 78,448                | 114,401             | 28,841             | 58,706                | 105,080             |
| 2031 | 29,885             | 81,282                | 118,496             | 29,885             | 60,830                | 108,841             |
| 2032 | 30,970             | 84,246                | 122,733             | 30,970             | 63,038                | 112,739             |
| 2033 | 32,096             | 87,344                | 127,118             | 32,096             | 65,331                | 116,779             |
| 2034 | 33,264             | 90,585                | 131,656             | 33,264             | 67,708                | 120,965             |
| 2035 | 34,474             | 93,967                | 136,355             | 34,474             | 70,171                | 125,302             |
| 2036 | 35,728             | 97,488                | 141,219             | 35,728             | 72,724                | 129,799             |
| 2037 | 37,023             | 101,130               | 146,252             | 37,023             | 75,360                | 134,451             |
| 2038 | 38,356             | 104,880               | 151,461             | 38,356             | 78,075                | 139,259             |
| 2039 | 39,733             | 108,731               | 156,853             | 39,733             | 80,876                | 144,233             |
| 2040 | 41,151             | 112,672               | 162,437             | 41,151             | 83,762                | 149,374             |
| 2041 | 42,611             | 116,727               | 168,226             | 42,611             | 86,734                | 154,688             |
| 2042 | 44,117             | 120,895               | 174,227             | 44,117             | 89,800                | 160,188             |
| 2043 | 45,674             | 125,188               | 180,450             | 45,674             | 92,970                | 165,885             |
| 2044 | 47,287             | 129,637               | 186,907             | 47,287             | 96,252                | 171,790             |
| 2045 | 48,956             | 134,244               | 193,603             | 48,956             | 99,649                | 177,908             |
| 2046 | 50,686             | 139,028               | 200,551             | 50,686             | 103,172               | 184,254             |
| 2047 | 52,479             | 143,968               | 207,752             | 52,479             | 106,821               | 190,832             |
| 2048 | 54,341             | 149,075               | 215,217             | 54,341             | 110,610               | 197,659             |
| 2049 | 56,271             | 154,363               | 222,955             | 56,271             | 114,540               | 204,737             |
| 2050 | 58,274             | 159,823               | 230,973             | 58,274             | 118,617               | 212,077             |
| 2051 | 60,351             | 165,465               | 239,278             | 60,351             | 122,844               | 219,683             |
| 2052 | 62,505             | 171,304               | 247,884             | 62,505             | 127,228               | 227,566             |
| 2053 | 64,737             | 177,337               | 256,799             | 64,737             | 131,773               | 235,732             |
| 2054 | 67,053             | 183,586               | 266,036             | 67,053             | 136,487               | 244,194             |
| 2055 | 69,455             | 190,057               | 275,600             | 69,455             | 141,375               | 252,960             |
| 2056 | 71,949             | 196,780               | 285,507             | 71,949             | 146,452               | 262,049             |
| 2057 | 74,537             | 203,783               | 295,766             | 74,537             | 151,720               | 271,466             |
| 2058 | 77,225             | 211,063               | 306,387             | 77,225             | 157,192               | 281,227             |
| 2059 | 80,010             | 218,619               | 317,377             | 80,010             | 162,860               | 291,330             |
| 2060 | 82,900             | 226,495               | 328,757             | 82,900             | 168,744               | 301,800             |
| 2061 | 85,896             | 234,689               | 340,537             | 85,896             | 174,842               | 312,642             |
| 2062 | 88,999             | 243,195               | 352,726             | 88,999             | 181,158               | 323,865             |
| 2063 | 92,211             | 252,032               | 365,343             | 92,211             | 187,696               | 335,480             |

<sup>65</sup> The insured population is divided by sex and by three different income groups in order to increase the sensibility of our projections.

## Annex 1.8 Second tier – Financial statement – Contribution at two percent

| Contribution rate                          |  | 2.0%              |                   |                    |                    |                      |                      |                      |                      |                      |
|--|--|-------------------|-------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|  |  | 2005              | 2006              | 2017               | 2018               | 2023                 | 2033                 | 2043                 | 2053                 | 2063                 |
| <b>Contribution</b>                        |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                                       |  | 11,880,900        | 12,953,400        | 26,507,383         | 27,386,414         | 31,892,316           | 44,930,918           | 67,033,919           | 95,042,465           | 135,077,131          |
| Female                                     |  | 8,695,054         | 9,476,934         | 19,327,498         | 20,057,596         | 24,020,291           | 34,215,989           | 50,294,235           | 70,857,504           | 101,046,156          |
| <b>Total</b>                               |  | <b>20,575,954</b> | <b>22,430,334</b> | <b>45,834,881</b>  | <b>47,444,010</b>  | <b>55,912,606</b>    | <b>79,146,907</b>    | <b>117,328,154</b>   | <b>165,899,969</b>   | <b>236,123,287</b>   |
| <b>Pension expenditures</b>                |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                                       |  | 0                 | 0                 | 0                  | 927,988            | 8,613,136            | 33,757,886           | 63,547,223           | 120,376,578          | 197,671,908          |
| Female                                     |  | 0                 | 0                 | 0                  | 457,118            | 4,173,397            | 18,307,018           | 37,675,735           | 72,808,177           | 118,201,251          |
| <b>Total</b>                               |  | <b>0</b>          | <b>0</b>          | <b>0</b>           | <b>1,385,106</b>   | <b>12,786,533</b>    | <b>52,064,904</b>    | <b>101,222,958</b>   | <b>193,184,755</b>   | <b>315,873,159</b>   |
| <b>Reserve</b>                             |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Beginning of the year                      |  | 0                 | 21,320,208        | 524,501,936        | 598,117,749        | 1,010,398,040        | 2,019,573,018        | 3,502,738,327        | 5,547,988,914        | 7,979,413,394        |
| Annual Surplus or Deficit                  |  | 20,575,954        | 22,430,334        | 45,834,881         | 46,058,904         | 43,126,074           | 27,082,003           | 16,105,196           | -27,284,786          | -79,749,872          |
| Investment income                          |  | 744,254           | 2,236,473         | 27,780,932         | 30,877,702         | 46,903,500           | 91,382,900           | 169,961,804          | 249,493,808          | 363,724,867          |
| <b>End of the year</b>                     |  | <b>21,320,208</b> | <b>45,987,016</b> | <b>598,117,749</b> | <b>675,054,354</b> | <b>1,100,427,614</b> | <b>2,138,037,921</b> | <b>3,688,805,327</b> | <b>5,770,197,935</b> | <b>8,263,388,389</b> |
| <b>Reserve in % of the GDP</b>             |  | <b>0.52%</b>      | <b>1.07%</b>      | <b>8.21%</b>       | <b>8.91%</b>       | <b>12.11%</b>        | <b>16.78%</b>        | <b>19.94%</b>        | <b>21.70%</b>        | <b>21.95%</b>        |
| <b>Second pillar Monthly pension</b>       |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                                       |  | 0                 | 0                 | 0                  | 137                | 232                  | 395                  | 887                  | 1,236                | 1,516                |
| Female                                     |  | 0                 | 0                 | 0                  | 120                | 167                  | 339                  | 680                  | 963                  | 1,166                |
| <b>AOV monthly pension</b>                 |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                                       |  | 954               | 965               | 1,253              | 1,285              | 1,457                | 1,873                | 2,408                | 3,096                | 3,980                |
| Female                                     |  | 954               | 965               | 1,253              | 1,285              | 1,457                | 1,873                | 2,408                | 3,096                | 3,980                |
| <b>Combined monthly pension</b>            |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                                       |  | 954               | 965               | 1,253              | 1,421              | 1,689                | 2,268                | 3,295                | 4,332                | 5,496                |
| Female                                     |  | 954               | 965               | 1,253              | 1,405              | 1,623                | 2,212                | 3,088                | 4,058                | 5,146                |
| <b>Monthly gross average</b>               |  | <b>3,980</b>      | <b>4,159</b>      | <b>6,330</b>       | <b>6,559</b>       | <b>7,829</b>         | <b>11,144</b>        | <b>15,855</b>        | <b>22,544</b>        | <b>32,041</b>        |
| <b>Replacement rate for new pensioners</b> |  |                   |                   |                    |                    |                      |                      |                      |                      |                      |
| Male                                       |  | 24.0%             | 23.2%             | 19.8%              | 21.7%              | 21.6%                | 20.3%                | 20.8%                | 19.2%                | 17.2%                |
| Female                                     |  | 24.0%             | 23.2%             | 19.8%              | 21.4%              | 20.7%                | 19.9%                | 19.5%                | 18.0%                | 16.1%                |

## Annex 1.9 Second tier – Financial statement – Contribution at four percent

| Contribution rate                          |  | 4.0%              |                   |                      |                      |                      |                      |                      |                       |                       |
|--|--|-------------------|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|
|  |  | 2005              | 2006              | 2017                 | 2018                 | 2023                 | 2033                 | 2043                 | 2053                  | 2063                  |
| <b>Contribution</b>                        |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                                       |  | 23,761,801        | 25,906,800        | 53,014,766           | 54,772,828           | 63,784,631           | 89,861,836           | 134,067,838          | 190,084,930           | 270,154,262           |
| Female                                     |  | 17,390,107        | 18,953,869        | 38,654,996           | 40,115,191           | 48,040,581           | 68,431,977           | 100,588,469          | 141,715,008           | 202,092,312           |
| <b>Total</b>                               |  | <b>41,151,908</b> | <b>44,860,669</b> | <b>91,669,762</b>    | <b>94,888,019</b>    | <b>111,825,213</b>   | <b>158,293,814</b>   | <b>234,656,308</b>   | <b>331,799,938</b>    | <b>472,246,574</b>    |
| <b>Pension expenditures</b>                |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                                       |  | 0                 | 0                 | 0                    | 1,855,975            | 17,226,272           | 67,515,771           | 127,094,445          | 240,753,156           | 395,343,816           |
| Female                                     |  | 0                 | 0                 | 0                    | 914,236              | 8,346,794            | 36,614,037           | 75,351,471           | 145,616,353           | 236,402,502           |
| <b>Total</b>                               |  | <b>0</b>          | <b>0</b>          | <b>0</b>             | <b>2,770,211</b>     | <b>25,573,065</b>    | <b>104,129,808</b>   | <b>202,445,916</b>   | <b>386,369,510</b>    | <b>631,746,318</b>    |
| <b>Reserve</b>                             |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Beginning of the year                      |  | 0                 | 42,640,416        | 1,049,003,871        | 1,196,235,497        | 2,020,796,080        | 4,039,146,037        | 7,005,476,654        | 11,095,977,827        | 15,958,826,789        |
| Annual Surplus or Deficit                  |  | 41,151,908        | 44,860,669        | 91,669,762           | 92,117,808           | 86,252,147           | 54,164,006           | 32,210,392           | -54,569,572           | -159,499,744          |
| Investment income                          |  | 1,488,508         | 4,472,946         | 55,561,864           | 61,755,403           | 93,807,001           | 182,765,800          | 339,923,608          | 498,987,615           | 727,449,733           |
| <b>End of the year</b>                     |  | <b>42,640,416</b> | <b>91,974,031</b> | <b>1,196,235,497</b> | <b>1,350,108,708</b> | <b>2,200,855,227</b> | <b>4,276,075,843</b> | <b>7,377,610,654</b> | <b>11,540,395,871</b> | <b>16,526,776,778</b> |
| <b>Reserve in % of the GDP</b>             |  | <b>1.05%</b>      | <b>2.13%</b>      | <b>16.42%</b>        | <b>17.82%</b>        | <b>24.21%</b>        | <b>33.56%</b>        | <b>39.89%</b>        | <b>43.41%</b>         | <b>43.90%</b>         |
| <b>Second pillar Monthly pension</b>       |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                                       |  | 0                 | 0                 | 0                    | 273                  | 465                  | 789                  | 1,774                | 2,472                 | 3,033                 |
| Female                                     |  | 0                 | 0                 | 0                    | 239                  | 333                  | 679                  | 1,361                | 1,926                 | 2,333                 |
| <b>AOV monthly pension</b>                 |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                                       |  | 954               | 965               | 1,253                | 1,285                | 1,457                | 1,873                | 2,408                | 3,096                 | 3,980                 |
| Female                                     |  | 954               | 965               | 1,253                | 1,285                | 1,457                | 1,873                | 2,408                | 3,096                 | 3,980                 |
| <b>Combined monthly pension</b>            |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                                       |  | 954               | 965               | 1,253                | 1,558                | 1,921                | 2,662                | 4,182                | 5,568                 | 7,012                 |
| Female                                     |  | 954               | 965               | 1,253                | 1,524                | 1,790                | 2,552                | 3,769                | 5,021                 | 6,312                 |
| <b>Monthly gross average</b>               |  | <b>3,980</b>      | <b>4,159</b>      | <b>6,330</b>         | <b>6,559</b>         | <b>7,829</b>         | <b>11,144</b>        | <b>15,855</b>        | <b>22,544</b>         | <b>32,041</b>         |
| <b>Replacement rate for new pensioners</b> |  |                   |                   |                      |                      |                      |                      |                      |                       |                       |
| Male                                       |  | 24.0%             | 23.2%             | 19.8%                | 23.8%                | 24.5%                | 23.9%                | 26.4%                | 24.7%                 | 21.9%                 |
| Female                                     |  | 24.0%             | 23.2%             | 19.8%                | 23.2%                | 22.9%                | 22.9%                | 23.8%                | 22.3%                 | 19.7%                 |

## Annex 1.10 Second tier – Financial statement – Contribution at six percent

| Contribution rate                          |  | 6.0%              |                    |                      |                      |                      |                      |                       |                       |                       |
|--|--|-------------------|--------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
|  |  | 2005              | 2006               | 2017                 | 2018                 | 2023                 | 2033                 | 2043                  | 2053                  | 2063                  |
| <b>Contribution</b>                        |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 35,642,701        | 38,860,200         | 79,522,149           | 82,159,243           | 95,676,947           | 134,792,755          | 201,101,758           | 285,127,395           | 405,231,393           |
| Female                                     |  | 26,085,161        | 28,430,803         | 57,982,494           | 60,172,787           | 72,060,872           | 102,647,966          | 150,882,704           | 212,572,511           | 303,138,468           |
| <b>Total</b>                               |  | <b>61,727,862</b> | <b>67,291,003</b>  | <b>137,504,643</b>   | <b>142,332,029</b>   | <b>167,737,819</b>   | <b>237,440,721</b>   | <b>351,984,462</b>    | <b>497,699,907</b>    | <b>708,369,860</b>    |
| <b>Pension expenditures</b>                |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 0                 | 0                  | 0                    | 2,783,963            | 25,839,408           | 101,273,657          | 190,641,668           | 361,129,735           | 593,015,724           |
| Female                                     |  | 0                 | 0                  | 0                    | 1,371,354            | 12,520,190           | 54,921,055           | 113,027,206           | 218,424,530           | 354,603,753           |
| <b>Total</b>                               |  | <b>0</b>          | <b>0</b>           | <b>0</b>             | <b>4,155,317</b>     | <b>38,359,598</b>    | <b>156,194,712</b>   | <b>303,668,874</b>    | <b>579,554,265</b>    | <b>947,619,476</b>    |
| <b>Reserve</b>                             |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Beginning of the year                      |  | 0                 | 63,960,624         | 1,573,505,807        | 1,794,353,246        | 3,031,194,119        | 6,058,719,055        | 10,508,214,981        | 16,643,966,741        | 23,938,240,183        |
| Annual Surplus or Deficit                  |  | 61,727,862        | 67,291,003         | 137,504,643          | 138,176,712          | 129,378,221          | 81,246,009           | 48,315,588            | -81,854,358           | -239,249,616          |
| Investment income                          |  | 2,232,762         | 6,709,419          | 83,342,796           | 92,633,105           | 140,710,501          | 274,148,700          | 509,885,412           | 748,481,423           | 1,091,174,600         |
| End of the year                            |  | <b>63,960,624</b> | <b>137,961,047</b> | <b>1,794,353,246</b> | <b>2,025,163,063</b> | <b>3,301,282,841</b> | <b>6,414,113,764</b> | <b>11,066,415,981</b> | <b>17,310,593,806</b> | <b>24,790,165,167</b> |
| <b>Reserve in % of the GDP</b>             |  | <b>1.57%</b>      | <b>3.20%</b>       | <b>24.63%</b>        | <b>26.73%</b>        | <b>36.32%</b>        | <b>50.34%</b>        | <b>59.83%</b>         | <b>65.11%</b>         | <b>65.85%</b>         |
| <b>Second pillar Monthly pension</b>       |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 0                 | 0                  | 0                    | 410                  | 697                  | 1,184                | 2,661                 | 3,708                 | 4,549                 |
| Female                                     |  | 0                 | 0                  | 0                    | 359                  | 500                  | 1,018                | 2,041                 | 2,888                 | 3,499                 |
| <b>AOV monthly pension</b>                 |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 954               | 965                | 1,253                | 1,285                | 1,457                | 1,873                | 2,408                 | 3,096                 | 3,980                 |
| Female                                     |  | 954               | 965                | 1,253                | 1,285                | 1,457                | 1,873                | 2,408                 | 3,096                 | 3,980                 |
| <b>Combined monthly pension</b>            |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 954               | 965                | 1,253                | 1,695                | 2,154                | 3,057                | 5,069                 | 6,804                 | 8,529                 |
| Female                                     |  | 954               | 965                | 1,253                | 1,644                | 1,957                | 2,891                | 4,449                 | 5,984                 | 7,479                 |
| <b>Monthly gross average</b>               |  | <b>3,980</b>      | <b>4,159</b>       | <b>6,330</b>         | <b>6,559</b>         | <b>7,829</b>         | <b>11,144</b>        | <b>15,855</b>         | <b>22,544</b>         | <b>32,041</b>         |
| <b>Replacement rate for new pensioners</b> |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 24.0%             | 23.2%              | 19.8%                | 25.8%                | 27.5%                | 27.4%                | 32.0%                 | 30.2%                 | 26.6%                 |
| Female                                     |  | 24.0%             | 23.2%              | 19.8%                | 25.1%                | 25.0%                | 25.9%                | 28.1%                 | 26.5%                 | 23.3%                 |

## Annex 1.11 Second tier – Financial statement – Contribution at eight percent

| Contribution rate                          |  | 8.0%              |                    |                      |                      |                      |                      |                       |                       |                       |
|--|--|-------------------|--------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
|  |  | 2005              | 2006               | 2017                 | 2018                 | 2023                 | 2033                 | 2043                  | 2053                  | 2063                  |
| <b>Contribution</b>                        |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 47,523,602        | 51,813,600         | 106,029,532          | 109,545,657          | 127,569,263          | 179,723,673          | 268,135,677           | 380,169,861           | 540,308,524           |
| Female                                     |  | 34,780,214        | 37,907,738         | 77,309,992           | 80,230,382           | 96,081,163           | 136,863,955          | 201,176,939           | 283,430,015           | 404,184,623           |
| <b>Total</b>                               |  | <b>82,303,816</b> | <b>89,721,338</b>  | <b>183,339,524</b>   | <b>189,776,039</b>   | <b>223,650,425</b>   | <b>316,587,628</b>   | <b>469,312,615</b>    | <b>663,599,876</b>    | <b>944,493,147</b>    |
| <b>Pension expenditures</b>                |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 0                 | 0                  | 0                    | 3,711,950            | 34,452,544           | 135,031,543          | 254,188,891           | 481,506,313           | 790,687,631           |
| Female                                     |  | 0                 | 0                  | 0                    | 1,828,472            | 16,693,587           | 73,228,073           | 150,702,941           | 291,232,706           | 472,805,004           |
| <b>Total</b>                               |  | <b>0</b>          | <b>0</b>           | <b>0</b>             | <b>5,540,422</b>     | <b>51,146,131</b>    | <b>208,259,616</b>   | <b>404,891,832</b>    | <b>772,739,019</b>    | <b>1,263,492,635</b>  |
| <b>Reserve</b>                             |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Beginning of the year                      |  | 0                 | 85,280,832         | 2,098,007,742        | 2,392,470,994        | 4,041,592,159        | 8,078,292,074        | 14,010,953,309        | 22,191,955,655        | 31,917,653,578        |
| Annual Surplus or Deficit                  |  | 82,303,816        | 89,721,338         | 183,339,524          | 184,235,617          | 172,504,294          | 108,328,012          | 64,420,783            | -109,139,144          | -318,999,488          |
| Investment income                          |  | 2,977,016         | 8,945,892          | 111,123,728          | 123,510,806          | 187,614,001          | 365,531,600          | 679,847,216           | 997,975,231           | 1,454,899,467         |
| End of the year                            |  | <b>85,280,832</b> | <b>183,948,062</b> | <b>2,392,470,994</b> | <b>2,700,217,417</b> | <b>4,401,710,455</b> | <b>8,552,151,686</b> | <b>14,755,221,308</b> | <b>23,080,791,742</b> | <b>33,053,553,556</b> |
| <b>Reserve in % of the GDP</b>             |  | <b>2.09%</b>      | <b>4.26%</b>       | <b>32.84%</b>        | <b>35.64%</b>        | <b>48.42%</b>        | <b>67.12%</b>        | <b>79.78%</b>         | <b>86.82%</b>         | <b>87.80%</b>         |
| <b>Second pillar Monthly pension</b>       |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 0                 | 0                  | 0                    | 546                  | 929                  | 1,578                | 3,548                 | 4,944                 | 6,065                 |
| Female                                     |  | 0                 | 0                  | 0                    | 479                  | 666                  | 1,358                | 2,721                 | 3,851                 | 4,665                 |
| <b>AOV monthly pension</b>                 |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 954               | 965                | 1,253                | 1,285                | 1,457                | 1,873                | 2,408                 | 3,096                 | 3,980                 |
| Female                                     |  | 954               | 965                | 1,253                | 1,285                | 1,457                | 1,873                | 2,408                 | 3,096                 | 3,980                 |
| <b>Combined monthly pension</b>            |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 954               | 965                | 1,253                | 1,831                | 2,386                | 3,451                | 5,955                 | 8,040                 | 10,045                |
| Female                                     |  | 954               | 965                | 1,253                | 1,764                | 2,123                | 3,230                | 5,129                 | 6,947                 | 8,645                 |
| <b>Monthly gross average</b>               |  | <b>3,980</b>      | <b>4,159</b>       | <b>6,330</b>         | <b>6,559</b>         | <b>7,829</b>         | <b>11,144</b>        | <b>15,855</b>         | <b>22,544</b>         | <b>32,041</b>         |
| <b>Replacement rate for new pensioners</b> |  |                   |                    |                      |                      |                      |                      |                       |                       |                       |
| Male                                       |  | 24.0%             | 23.2%              | 19.8%                | 27.9%                | 30.5%                | 31.0%                | 37.6%                 | 35.7%                 | 31.4%                 |
| Female                                     |  | 24.0%             | 23.2%              | 19.8%                | 26.9%                | 27.1%                | 29.0%                | 32.4%                 | 30.8%                 | 27.0%                 |

## Annex 2

### Annex 2.1 AOV financial statement<sup>66</sup> - Base scenario (in AFL)

| Year | Total insurable earnings | Revenue      |                     |            | Expenditur   |            |              | Reserve (end of | Expenditure As % of | PAYG cost |
|------|--------------------------|--------------|---------------------|------------|--------------|------------|--------------|-----------------|---------------------|-----------|
|      |                          | Contributio  | Investment earnings | Total      | Benefits     | Admin.     | Total        |                 |                     |           |
| 2003 | 1,175,096,93             | 135,136,14   | -                   | 135,136,14 | 128,737,92   | 1,985,957  | 130,723,88   | 144,000,00      | 3.6%                | 11.1%     |
| 2004 | 1,237,881,34             | 142,356,35   | 10,781,158          | 153,137,51 | 133,498,69   | 1,839,151  | 135,337,84   | 161,799,66      | 3.5%                | 10.9%     |
| 2005 | 1,298,714,64             | 149,352,18   | 11,783,317          | 161,135,50 | 145,146,89   | 1,999,623  | 147,146,51   | 175,788,65      | 3.6%                | 11.3%     |
| 2006 | 1,375,869,85             | 158,225,03   | 12,197,391          | 170,422,42 | 152,755,78   | 2,104,447  | 154,860,22   | 191,350,85      | 3.6%                | 11.3%     |
| 2007 | 1,456,106,35             | 167,452,23   | 13,074,547          | 180,526,77 | 160,733,41   | 2,214,352  | 162,947,76   | 208,929,86      | 3.6%                | 11.2%     |
| 2008 | 1,537,559,10             | 176,819,29   | 13,981,646          | 190,800,94 | 169,185,70   | 2,330,795  | 171,516,50   | 228,214,30      | 3.6%                | 11.2%     |
| 2009 | 1,621,572,59             | 186,480,84   | 14,894,403          | 201,375,25 | 181,041,72   | 2,494,130  | 183,535,85   | 246,053,70      | 3.6%                | 11.3%     |
| 2010 | 1,703,876,78             | 195,945,83   | 15,024,731          | 210,970,56 | 194,395,14   | 2,678,094  | 197,073,23   | 259,951,03      | 3.7%                | 11.6%     |
| 2011 | 1,782,989,21             | 205,043,76   | 15,130,495          | 220,174,25 | 209,147,01   | 2,881,324  | 212,028,33   | 268,096,95      | 3.8%                | 11.9%     |
| 2012 | 1,863,758,44             | 214,332,22   | 14,915,351          | 229,247,57 | 224,727,61   | 3,095,971  | 227,823,58   | 269,520,94      | 3.9%                | 12.2%     |
| 2013 | 1,943,098,57             | 223,456,33   | 14,363,397          | 237,819,73 | 241,254,01   | 3,323,648  | 244,577,66   | 262,763,00      | 4.0%                | 12.6%     |
| 2014 | 2,023,740,94             | 232,730,20   | 13,361,904          | 246,092,11 | 258,034,87   | 3,554,830  | 261,589,70   | 247,265,41      | 4.1%                | 12.9%     |
| 2015 | 2,106,184,83             | 242,211,25   | 12,070,778          | 254,282,03 | 276,214,79   | 3,805,286  | 280,020,08   | 221,527,36      | 4.2%                | 13.3%     |
| 2016 | 2,188,574,71             | 251,686,09   | 10,258,988          | 261,945,08 | 295,425,16   | 4,069,939  | 299,495,10   | 183,977,34      | 4.3%                | 13.7%     |
| 2017 | 2,273,198,97             | 261,417,88   | 7,868,388           | 269,286,27 | 315,657,95   | 4,348,677  | 320,006,63   | 133,256,97      | 4.4%                | 14.1%     |
| 2018 | 2,356,778,72             | 271,029,55   | 4,867,200           | 275,896,75 | 337,935,03   | 4,655,578  | 342,590,61   | 66,563,114      | 4.5%                | 14.5%     |
| 2019 | 2,439,573,35             | 280,550,93   | 1,189,043           | 281,739,97 | 360,816,52   | 4,970,806  | 365,787,33   | 17,484,242      | 4.6%                | 15.0%     |
| 2020 | 2,525,680,55             | 290,453,26   | 3,164,583           | 287,288,68 | 384,916,17   | 5,302,816  | 390,218,99   | 120,414,55      | 4.8%                | 15.5%     |
| 2021 | 2,609,101,34             | 300,046,65   | 8,290,879           | 291,755,77 | 410,826,61   | 5,659,773  | 416,486,38   | 245,145,16      | 4.9%                | 16.0%     |
| 2022 | 2,695,114,94             | 309,938,21   | 14,274,151          | 295,664,06 | 436,958,15   | 6,019,775  | 442,977,92   | 392,459,01      | 5.0%                | 16.4%     |
| 2023 | 2,783,971,68             | 320,156,74   | 21,199,721          | 298,957,02 | 463,381,02   | 6,383,791  | 469,764,82   | 563,266,81      | 5.2%                | 16.9%     |
| 2024 | 2,876,586,09             | 330,807,40   | 29,255,811          | 301,551,59 | 490,021,12   | 6,750,800  | 496,771,92   | 758,487,15      | 5.3%                | 17.3%     |
| 2025 | 2,973,074,91             | 341,903,61   | 38,179,460          | 303,724,15 | 516,292,99   | 7,112,735  | 523,405,73   | 978,168,73      | 5.4%                | 17.6%     |
| 2026 | 3,075,618,57             | 353,696,13   | 48,467,501          | 305,228,63 | 540,698,75   | 7,448,962  | 548,147,71   | 1,221,087,80    | 5.4%                | 17.8%     |
| 2027 | 3,188,083,53             | 366,629,60   | 59,872,971          | 306,756,63 | 563,568,67   | 7,764,031  | 571,332,70   | 1,485,663,87    | 5.5%                | 17.9%     |
| 2028 | 3,296,643,95             | 379,114,05   | 67,243,364          | 311,870,69 | 587,013,50   | 8,087,020  | 595,100,52   | 1,768,893,70    | 5.5%                | 18.1%     |
| 2029 | 3,407,742,12             | 391,890,34   | 80,213,603          | 311,676,74 | 610,082,19   | 8,404,827  | 618,487,01   | 2,075,703,98    | 5.6%                | 18.1%     |
| 2030 | 3,527,860,79             | 405,703,99   | 93,975,925          | 311,728,06 | 633,476,92   | 8,727,125  | 642,204,05   | 2,406,179,96    | 5.6%                | 18.2%     |
| 2031 | 3,649,053,06             | 419,641,10   | 109,987,78          | 309,653,31 | 657,644,16   | 9,060,067  | 666,704,23   | 2,763,230,88    | 5.6%                | 18.3%     |
| 2032 | 3,780,595,72             | 434,768,50   | 127,850,89          | 306,917,61 | 680,270,55   | 9,371,780  | 689,642,33   | 3,145,955,59    | 5.6%                | 18.2%     |
| 2033 | 3,922,633,69             | 451,102,87   | 147,169,26          | 303,933,60 | 700,918,95   | 9,656,244  | 710,575,20   | 3,552,597,19    | 5.6%                | 18.1%     |
| 2034 | 4,076,341,04             | 468,779,22   | 168,238,70          | 300,540,52 | 718,513,94   | 9,898,642  | 728,412,59   | 3,980,469,26    | 5.5%                | 17.9%     |
| 2035 | 4,244,490,01             | 488,116,35   | 190,812,18          | 297,304,16 | 734,748,28   | 10,122,295 | 744,870,58   | 4,428,035,67    | 5.4%                | 17.5%     |
| 2036 | 4,417,385,60             | 507,999,34   | 214,932,69          | 293,066,65 | 750,451,61   | 10,338,633 | 760,790,24   | 4,895,759,26    | 5.4%                | 17.2%     |
| 2037 | 4,601,397,31             | 529,160,69   | 238,746,79          | 290,413,89 | 765,210,14   | 10,541,955 | 775,752,10   | 5,381,097,47    | 5.3%                | 16.9%     |
| 2038 | 4,790,820,12             | 550,944,31   | 263,219,58          | 287,724,73 | 779,673,72   | 10,741,213 | 790,414,94   | 5,883,787,68    | 5.2%                | 16.5%     |
| 2039 | 4,988,437,01             | 573,670,25   | 289,356,27          | 284,313,98 | 794,413,20   | 10,944,272 | 805,357,47   | 6,404,831,17    | 5.1%                | 16.1%     |
| 2040 | 5,189,015,71             | 596,736,80   | 314,673,45          | 282,063,35 | 810,583,01   | 11,167,036 | 821,750,04   | 6,944,517,87    | 5.0%                | 15.8%     |
| 2041 | 5,393,227,41             | 620,221,15   | 341,528,71          | 278,692,44 | 828,207,92   | 11,409,846 | 839,617,76   | 7,505,443,19    | 4.9%                | 15.6%     |
| 2042 | 5,600,136,78             | 644,015,73   | 369,023,92          | 274,991,80 | 847,183,01   | 11,671,258 | 858,854,26   | 8,089,305,66    | 4.8%                | 15.3%     |
| 2043 | 5,811,501,32             | 668,322,65   | 396,679,54          | 271,643,11 | 868,159,04   | 11,960,235 | 880,119,28   | 8,697,781,83    | 4.8%                | 15.1%     |
| 2044 | 6,023,829,63             | 692,740,40   | 425,174,66          | 267,565,74 | 891,082,64   | 12,276,043 | 903,358,69   | 9,333,574,77    | 4.7%                | 15.0%     |
| 2045 | 6,242,803,43             | 717,922,39   | 452,325,69          | 265,596,69 | 915,613,64   | 12,613,996 | 928,227,64   | 9,996,205,72    | 4.7%                | 14.9%     |
| 2046 | 6,465,655,16             | 743,550,34   | 481,964,86          | 261,585,47 | 940,986,20   | 12,963,542 | 953,949,75   | 10,688,569,99   | 4.6%                | 14.8%     |
| 2047 | 6,697,932,50             | 770,262,23   | 509,553,82          | 260,708,41 | 965,886,68   | 13,306,585 | 979,193,27   | 11,407,054,85   | 4.6%                | 14.6%     |
| 2048 | 6,939,207,08             | 798,008,81   | 539,555,54          | 258,453,26 | 990,736,49   | 13,648,929 | 1,004,385,41 | 12,152,987,00   | 4.5%                | 14.5%     |
| 2049 | 7,189,561,78             | 826,799,60   | 569,289,25          | 255,510,34 | 1,019,366,54 | 14,043,352 | 1,033,409,89 | 12,928,886,55   | 4.5%                | 14.4%     |
| 2050 | 7,432,698,05             | 854,760,27   | 599,721,01          | 253,039,26 | 1,050,219,10 | 14,468,394 | 1,064,687,49 | 13,738,534,78   | 4.4%                | 14.3%     |
| 2051 | 7,693,874,76             | 884,795,59   | 631,524,83          | 253,270,76 | 1,079,713,61 | 14,874,727 | 1,094,588,33 | 14,579,852,36   | 4.4%                | 14.2%     |
| 2052 | 7,964,774,24             | 915,949,03   | 666,765,94          | 249,183,09 | 1,111,430,35 | 15,311,674 | 1,126,742,02 | 15,457,411,29   | 4.4%                | 14.1%     |
| 2053 | 8,238,108,23             | 947,382,44   | 701,611,70          | 245,770,74 | 1,145,858,43 | 15,785,974 | 1,161,644,40 | 16,373,284,95   | 4.4%                | 14.1%     |
| 2054 | 8,521,087,48             | 979,925,06   | 741,122,22          | 238,802,84 | 1,180,675,87 | 16,265,638 | 1,196,941,51 | 17,331,423,62   | 4.3%                | 14.0%     |
| 2055 | 8,818,579,93             | 1,014,136,69 | 781,468,18          | 232,668,51 | 1,217,478,03 | 16,772,645 | 1,234,250,67 | 18,333,005,79   | 4.3%                | 14.0%     |
| 2056 | 9,119,393,09             | 1,048,730,20 | 827,678,88          | 221,051,31 | 1,255,863,20 | 17,301,460 | 1,273,164,66 | 19,385,119,14   | 4.3%                | 14.0%     |
| 2057 | 9,440,683,02             | 1,085,678,54 | 875,531,74          | 210,146,79 | 1,295,613,21 | 17,849,078 | 1,313,462,29 | 20,488,434,63   | 4.3%                | 13.9%     |
| 2058 | 9,767,714,31             | 1,123,287,14 | 926,504,41          | 196,782,73 | 1,336,547,31 | 18,413,009 | 1,354,960,32 | 21,646,612,22   | 4.3%                | 13.9%     |
| 2059 | 10,118,954,09            | 1,163,679,72 | 977,908,10          | 185,771,61 | 1,376,378,21 | 18,961,741 | 1,395,339,95 | 22,856,180,57   | 4.3%                | 13.8%     |
| 2060 | 10,487,419,90            | 1,206,053,28 | 1,038,969,70        | 167,083,58 | 1,417,060,20 | 19,522,198 | 1,436,582,40 | 24,125,679,39   | 4.2%                | 13.7%     |
| 2061 | 10,870,846,11            | 1,250,147,30 | 1,101,113,30        | 149,034,00 | 1,457,222,97 | 20,075,503 | 1,477,298,47 | 25,453,943,87   | 4.2%                | 13.6%     |
| 2062 | 11,280,914,45            | 1,297,305,16 | 1,164,916,56        | 132,388,59 | 1,498,886,97 | 20,649,489 | 1,519,536,46 | 26,841,091,73   | 4.2%                | 13.5%     |
| 2063 | 11,696,037,71            | 1,345,044,33 | 1,234,572,45        | 110,471,88 | 1,541,589,15 | 21,237,777 | 1,562,826,93 | 28,293,446,78   | 4.2%                | 13.4%     |

<sup>66</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.2 AWW financial statement<sup>67</sup> - Base scenario (in AFL)

| Year | Total insurable earnings | Revenue Contribution | Investment earnings | Total       | Expenditure |           |            | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|----------------------|---------------------|-------------|-------------|-----------|------------|-----------------------|-------------------------|-----------|
|      |                          |                      |                     |             | Benefits    | Admin.    | Total      |                       |                         |           |
| 2003 | 1,175,096,930            | 23,501,939           | -                   | 23,501,939  | 10,138,009  | 621,944   | 10,759,953 | -                     | 0.3%                    | 0.9%      |
| 2004 | 1,237,881,342            | 24,757,627           | 483,782             | 25,241,409  | 10,634,793  | 652,420   | 11,287,213 | 13,954,196            | 0.3%                    | 0.9%      |
| 2005 | 1,298,714,647            | 25,974,293           | 1,489,093           | 27,463,386  | 11,757,668  | 721,306   | 12,478,974 | 28,938,608            | 0.3%                    | 1.0%      |
| 2006 | 1,375,869,855            | 27,517,397           | 2,475,961           | 29,993,358  | 12,358,431  | 758,162   | 13,116,593 | 45,815,373            | 0.3%                    | 1.0%      |
| 2007 | 1,456,106,358            | 29,122,127           | 3,615,422           | 32,737,549  | 12,668,238  | 777,168   | 13,445,406 | 65,107,516            | 0.3%                    | 0.9%      |
| 2008 | 1,537,559,104            | 30,751,182           | 4,853,187           | 35,604,369  | 13,040,620  | 800,013   | 13,840,633 | 86,871,252            | 0.3%                    | 0.9%      |
| 2009 | 1,621,572,595            | 32,431,452           | 6,207,410           | 38,638,862  | 13,625,933  | 835,920   | 14,461,853 | 111,048,260           | 0.3%                    | 0.9%      |
| 2010 | 1,703,876,784            | 34,077,536           | 7,372,526           | 41,450,062  | 14,096,856  | 864,810   | 14,961,667 | 137,536,655           | 0.3%                    | 0.9%      |
| 2011 | 1,782,989,217            | 35,659,784           | 8,704,673           | 44,364,458  | 14,414,706  | 884,310   | 15,299,015 | 166,602,098           | 0.3%                    | 0.9%      |
| 2012 | 1,863,758,445            | 37,275,169           | 10,111,420          | 47,386,589  | 14,794,979  | 907,638   | 15,702,618 | 198,286,070           | 0.3%                    | 0.8%      |
| 2013 | 1,943,098,574            | 38,861,971           | 11,614,905          | 50,476,877  | 15,152,496  | 929,571   | 16,082,067 | 232,680,879           | 0.3%                    | 0.8%      |
| 2014 | 2,023,740,946            | 40,474,819           | 13,148,319          | 53,623,138  | 15,473,159  | 949,243   | 16,422,402 | 269,881,615           | 0.3%                    | 0.8%      |
| 2015 | 2,106,184,832            | 42,123,697           | 14,909,973          | 57,033,669  | 15,840,256  | 971,764   | 16,812,019 | 310,103,265           | 0.3%                    | 0.8%      |
| 2016 | 2,188,574,715            | 43,771,494           | 16,754,186          | 60,525,680  | 16,178,340  | 992,505   | 17,170,845 | 353,458,101           | 0.2%                    | 0.8%      |
| 2017 | 2,273,198,974            | 45,463,979           | 18,640,792          | 64,104,771  | 16,398,540  | 1,006,013 | 17,404,553 | 400,158,319           | 0.2%                    | 0.8%      |
| 2018 | 2,356,778,722            | 47,135,574           | 20,615,882          | 67,751,457  | 16,640,549  | 1,020,860 | 17,661,409 | 450,248,367           | 0.2%                    | 0.7%      |
| 2019 | 2,439,573,353            | 48,791,467           | 22,639,913          | 71,431,380  | 16,782,007  | 1,029,538 | 17,811,545 | 503,868,202           | 0.2%                    | 0.7%      |
| 2020 | 2,525,680,555            | 50,513,611           | 24,636,849          | 75,150,460  | 16,894,801  | 1,036,458 | 17,931,259 | 561,087,403           | 0.2%                    | 0.7%      |
| 2021 | 2,609,101,345            | 52,182,027           | 26,925,077          | 79,107,104  | 16,980,794  | 1,041,733 | 18,022,527 | 622,171,980           | 0.2%                    | 0.7%      |
| 2022 | 2,695,114,949            | 53,902,299           | 29,376,441          | 83,278,740  | 17,047,349  | 1,045,816 | 18,093,165 | 687,357,554           | 0.2%                    | 0.7%      |
| 2023 | 2,783,971,680            | 55,679,434           | 32,086,309          | 87,765,743  | 17,019,816  | 1,044,127 | 18,063,943 | 757,059,354           | 0.2%                    | 0.6%      |
| 2024 | 2,876,586,098            | 57,531,722           | 35,205,302          | 92,737,024  | 17,039,619  | 1,045,342 | 18,084,961 | 831,711,417           | 0.2%                    | 0.6%      |
| 2025 | 2,973,074,912            | 59,461,498           | 38,356,113          | 97,817,611  | 17,054,631  | 1,046,263 | 18,100,894 | 911,428,134           | 0.2%                    | 0.6%      |
| 2026 | 3,075,618,578            | 61,512,372           | 42,090,031          | 103,602,402 | 16,929,431  | 1,038,582 | 17,968,014 | 997,062,523           | 0.2%                    | 0.6%      |
| 2027 | 3,188,083,532            | 63,761,671           | 46,166,190          | 109,927,860 | 17,151,526  | 1,052,207 | 18,203,733 | 1,088,786,650         | 0.2%                    | 0.6%      |
| 2028 | 3,296,643,959            | 65,932,879           | 46,965,099          | 112,897,978 | 17,377,868  | 1,066,093 | 18,443,961 | 1,183,240,667         | 0.2%                    | 0.6%      |
| 2029 | 3,407,742,128            | 68,154,843           | 51,502,192          | 119,657,035 | 17,587,426  | 1,078,949 | 18,666,374 | 1,284,231,328         | 0.2%                    | 0.5%      |
| 2030 | 3,527,860,792            | 70,557,216           | 56,132,326          | 126,689,542 | 17,939,726  | 1,100,562 | 19,040,287 | 1,391,880,583         | 0.2%                    | 0.5%      |
| 2031 | 3,649,053,063            | 72,981,061           | 61,704,326          | 134,685,387 | 18,142,247  | 1,112,986 | 19,255,233 | 1,507,310,737         | 0.2%                    | 0.5%      |
| 2032 | 3,780,595,727            | 75,611,915           | 67,928,126          | 143,540,040 | 18,301,787  | 1,122,773 | 19,424,560 | 1,631,426,217         | 0.2%                    | 0.5%      |
| 2033 | 3,922,633,697            | 78,452,674           | 74,632,056          | 153,084,730 | 18,644,042  | 1,143,770 | 19,787,812 | 1,764,723,135         | 0.2%                    | 0.5%      |
| 2034 | 4,076,341,047            | 81,526,821           | 82,040,201          | 163,567,022 | 19,132,949  | 1,173,763 | 20,306,713 | 1,907,983,445         | 0.2%                    | 0.5%      |
| 2035 | 4,244,490,012            | 84,889,800           | 90,105,621          | 174,995,421 | 19,725,477  | 1,210,113 | 20,935,591 | 2,062,043,275         | 0.2%                    | 0.5%      |
| 2036 | 4,417,385,608            | 88,347,712           | 98,900,058          | 187,247,770 | 20,365,422  | 1,249,373 | 21,614,795 | 2,227,676,250         | 0.2%                    | 0.5%      |
| 2037 | 4,601,397,311            | 92,027,946           | 107,633,720         | 199,661,666 | 21,108,133  | 1,294,936 | 22,403,070 | 2,404,934,847         | 0.2%                    | 0.5%      |
| 2038 | 4,790,820,122            | 95,816,402           | 116,823,867         | 212,640,269 | 21,903,975  | 1,343,759 | 23,247,735 | 2,594,327,381         | 0.2%                    | 0.5%      |
| 2039 | 4,988,437,019            | 99,768,740           | 126,951,998         | 226,720,738 | 22,783,500  | 1,397,716 | 24,181,216 | 2,796,866,904         | 0.2%                    | 0.5%      |
| 2040 | 5,189,015,718            | 103,780,314          | 136,945,479         | 240,725,793 | 23,617,779  | 1,448,897 | 25,066,676 | 3,012,526,021         | 0.2%                    | 0.5%      |
| 2041 | 5,393,227,412            | 107,864,548          | 147,836,334         | 255,700,882 | 24,500,927  | 1,503,076 | 26,004,003 | 3,242,222,900         | 0.2%                    | 0.5%      |
| 2042 | 5,600,136,786            | 112,002,736          | 159,226,500         | 271,229,236 | 25,383,591  | 1,557,226 | 26,940,817 | 3,486,511,318         | 0.2%                    | 0.5%      |
| 2043 | 5,811,501,320            | 116,230,026          | 170,901,188         | 287,131,215 | 26,209,520  | 1,607,895 | 27,817,414 | 3,745,825,119         | 0.2%                    | 0.5%      |
| 2044 | 6,023,829,631            | 120,476,593          | 183,135,407         | 303,611,999 | 26,952,142  | 1,653,453 | 28,605,595 | 4,020,831,523         | 0.1%                    | 0.5%      |
| 2045 | 6,242,803,437            | 124,856,069          | 194,975,244         | 319,831,313 | 27,629,561  | 1,695,011 | 29,324,572 | 4,311,338,264         | 0.1%                    | 0.5%      |
| 2046 | 6,465,655,160            | 129,313,103          | 208,071,654         | 337,384,757 | 28,291,045  | 1,735,592 | 30,026,636 | 4,618,696,385         | 0.1%                    | 0.5%      |
| 2047 | 6,697,932,508            | 133,958,650          | 220,486,121         | 354,444,771 | 29,037,869  | 1,781,408 | 30,819,276 | 4,942,321,880         | 0.1%                    | 0.5%      |
| 2048 | 6,939,207,083            | 138,784,142          | 234,183,441         | 372,967,582 | 29,809,967  | 1,828,774 | 31,638,741 | 5,283,650,721         | 0.1%                    | 0.5%      |
| 2049 | 7,189,561,789            | 143,791,236          | 247,999,720         | 391,790,956 | 30,548,629  | 1,874,089 | 32,422,718 | 5,643,018,959         | 0.1%                    | 0.5%      |
| 2050 | 7,432,698,050            | 148,653,961          | 262,303,260         | 410,957,221 | 31,141,248  | 1,910,445 | 33,051,693 | 6,020,924,487         | 0.1%                    | 0.4%      |
| 2051 | 7,693,874,763            | 153,877,495          | 277,399,738         | 431,277,234 | 31,896,921  | 1,956,804 | 33,853,725 | 6,418,347,996         | 0.1%                    | 0.4%      |
| 2052 | 7,964,774,240            | 159,295,485          | 294,239,009         | 453,534,494 | 32,648,411  | 2,002,906 | 34,651,317 | 6,837,231,172         | 0.1%                    | 0.4%      |
| 2053 | 8,238,108,233            | 164,762,165          | 311,113,963         | 475,876,128 | 33,308,027  | 2,043,372 | 35,351,399 | 7,277,755,901         | 0.1%                    | 0.4%      |
| 2054 | 8,521,087,481            | 170,421,750          | 330,263,599         | 500,685,348 | 33,991,330  | 2,085,291 | 36,076,621 | 7,742,364,628         | 0.1%                    | 0.4%      |
| 2055 | 8,818,579,933            | 176,371,599          | 350,012,950         | 526,384,549 | 34,739,720  | 2,131,203 | 36,870,923 | 8,231,878,254         | 0.1%                    | 0.4%      |
| 2056 | 9,119,393,090            | 182,387,862          | 372,620,639         | 555,008,501 | 35,429,662  | 2,173,530 | 37,603,192 | 8,749,283,562         | 0.1%                    | 0.4%      |
| 2057 | 9,440,683,024            | 188,813,660          | 396,219,787         | 585,033,447 | 36,180,423  | 2,219,587 | 38,400,010 | 9,295,916,999         | 0.1%                    | 0.4%      |
| 2058 | 9,767,714,314            | 195,354,286          | 421,504,956         | 616,859,242 | 36,905,334  | 2,264,059 | 39,169,393 | 9,873,606,849         | 0.1%                    | 0.4%      |
| 2059 | 10,118,954,094           | 202,379,082          | 447,309,933         | 649,689,015 | 37,719,799  | 2,314,024 | 40,033,824 | 10,483,262,040        | 0.1%                    | 0.4%      |
| 2060 | 10,487,419,908           | 209,748,398          | 477,945,839         | 687,694,238 | 38,606,482  | 2,368,420 | 40,974,902 | 11,129,981,375        | 0.1%                    | 0.4%      |
| 2061 | 10,870,846,115           | 217,416,922          | 509,566,401         | 726,983,323 | 39,585,727  | 2,428,495 | 42,014,222 | 11,814,950,476        | 0.1%                    | 0.4%      |
| 2062 | 11,280,914,452           | 225,618,289          | 542,506,717         | 768,125,006 | 40,627,616  | 2,492,412 | 43,120,028 | 12,539,955,454        | 0.1%                    | 0.4%      |
| 2063 | 11,696,037,718           | 233,920,754          | 578,775,927         | 812,696,681 | 41,627,420  | 2,553,748 | 44,181,168 | 13,308,470,967        | 0.1%                    | 0.4%      |

<sup>67</sup> The reserve presented includes only the AWW. The actual SVb reserve includes both AOV and AWW.

## Annex 2.3 Demographic projection<sup>68</sup> - Base scenario

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND<br>TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|----------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |                |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400         |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839         |
| 2005 | 6,631  | 3,529   | 1,398 | 11,558 | 1,048   | 389    | 371      | 1,808 | 13,366         |
| 2006 | 6,902  | 3,653   | 1,471 | 12,026 | 1,065   | 395    | 376      | 1,837 | 13,863         |
| 2007 | 7,179  | 3,811   | 1,547 | 12,537 | 1,086   | 389    | 391      | 1,866 | 14,403         |
| 2008 | 7,503  | 3,944   | 1,626 | 13,073 | 1,099   | 384    | 405      | 1,888 | 14,961         |
| 2009 | 7,783  | 4,083   | 1,698 | 13,564 | 1,098   | 379    | 417      | 1,894 | 15,458         |
| 2010 | 8,187  | 4,273   | 1,792 | 14,251 | 1,082   | 367    | 421      | 1,871 | 16,122         |
| 2011 | 8,574  | 4,440   | 1,880 | 14,893 | 1,056   | 368    | 430      | 1,855 | 16,748         |
| 2012 | 9,007  | 4,650   | 1,978 | 15,634 | 1,042   | 364    | 435      | 1,841 | 17,475         |
| 2013 | 9,423  | 4,846   | 2,071 | 16,340 | 1,034   | 365    | 433      | 1,832 | 18,172         |
| 2014 | 9,865  | 5,036   | 2,167 | 17,068 | 1,007   | 367    | 437      | 1,810 | 18,878         |
| 2015 | 10,367 | 5,243   | 2,271 | 17,881 | 981     | 374    | 435      | 1,790 | 19,672         |
| 2016 | 10,848 | 5,437   | 2,370 | 18,655 | 963     | 381    | 425      | 1,768 | 20,423         |
| 2017 | 11,352 | 5,667   | 2,476 | 19,494 | 929     | 384    | 424      | 1,736 | 21,231         |
| 2018 | 11,909 | 5,914   | 2,590 | 20,413 | 894     | 385    | 417      | 1,695 | 22,108         |
| 2019 | 12,390 | 6,139   | 2,690 | 21,218 | 862     | 387    | 412      | 1,661 | 22,879         |
| 2020 | 12,988 | 6,386   | 2,808 | 22,183 | 837     | 380    | 404      | 1,621 | 23,804         |
| 2021 | 13,519 | 6,646   | 2,918 | 23,083 | 813     | 377    | 394      | 1,584 | 24,666         |
| 2022 | 14,043 | 6,885   | 3,023 | 23,951 | 787     | 372    | 384      | 1,542 | 25,493         |
| 2023 | 14,541 | 7,116   | 3,124 | 24,781 | 768     | 362    | 376      | 1,506 | 26,287         |
| 2024 | 15,035 | 7,321   | 3,220 | 25,576 | 764     | 354    | 364      | 1,482 | 27,058         |
| 2025 | 15,460 | 7,507   | 3,304 | 26,271 | 745     | 343    | 349      | 1,437 | 27,708         |
| 2026 | 15,768 | 7,643   | 3,366 | 26,777 | 742     | 341    | 340      | 1,424 | 28,200         |
| 2027 | 16,035 | 7,775   | 3,422 | 27,231 | 737     | 341    | 333      | 1,410 | 28,641         |
| 2028 | 16,341 | 7,899   | 3,482 | 27,723 | 740     | 338    | 323      | 1,401 | 29,123         |
| 2029 | 16,542 | 8,001   | 3,526 | 28,069 | 745     | 333    | 320      | 1,398 | 29,467         |
| 2030 | 16,799 | 8,131   | 3,581 | 28,511 | 750     | 327    | 313      | 1,390 | 29,901         |
| 2031 | 17,042 | 8,206   | 3,627 | 28,875 | 755     | 319    | 305      | 1,380 | 30,254         |
| 2032 | 17,201 | 8,263   | 3,661 | 29,124 | 760     | 311    | 302      | 1,374 | 30,498         |
| 2033 | 17,256 | 8,305   | 3,678 | 29,238 | 765     | 311    | 301      | 1,378 | 30,616         |
| 2034 | 17,220 | 8,284   | 3,675 | 29,179 | 770     | 311    | 303      | 1,385 | 30,565         |
| 2035 | 17,214 | 8,268   | 3,677 | 29,159 | 775     | 313    | 306      | 1,394 | 30,553         |
| 2036 | 17,154 | 8,216   | 3,667 | 29,037 | 779     | 317    | 310      | 1,406 | 30,444         |
| 2037 | 17,097 | 8,168   | 3,657 | 28,922 | 783     | 321    | 314      | 1,419 | 30,341         |
| 2038 | 16,987 | 8,119   | 3,640 | 28,747 | 787     | 327    | 320      | 1,435 | 30,181         |
| 2039 | 16,925 | 8,075   | 3,629 | 28,630 | 790     | 333    | 324      | 1,447 | 30,077         |
| 2040 | 16,867 | 8,050   | 3,621 | 28,538 | 793     | 339    | 328      | 1,460 | 29,998         |
| 2041 | 16,828 | 8,044   | 3,617 | 28,489 | 796     | 344    | 331      | 1,471 | 29,960         |
| 2042 | 16,807 | 8,039   | 3,616 | 28,462 | 797     | 348    | 333      | 1,479 | 29,941         |
| 2043 | 16,838 | 8,059   | 3,623 | 28,520 | 798     | 349    | 334      | 1,482 | 30,002         |
| 2044 | 16,881 | 8,075   | 3,632 | 28,587 | 799     | 350    | 334      | 1,483 | 30,070         |
| 2045 | 16,967 | 8,101   | 3,647 | 28,715 | 798     | 349    | 333      | 1,481 | 30,195         |
| 2046 | 17,000 | 8,131   | 3,654 | 28,784 | 797     | 350    | 334      | 1,481 | 30,265         |
| 2047 | 17,037 | 8,141   | 3,660 | 28,838 | 796     | 350    | 334      | 1,479 | 30,317         |
| 2048 | 17,050 | 8,155   | 3,662 | 28,867 | 794     | 353    | 334      | 1,480 | 30,347         |
| 2049 | 17,180 | 8,225   | 3,687 | 29,093 | 791     | 349    | 331      | 1,472 | 30,564         |
| 2050 | 17,230 | 8,268   | 3,697 | 29,195 | 789     | 349    | 331      | 1,469 | 30,664         |
| 2051 | 17,281 | 8,306   | 3,707 | 29,293 | 787     | 349    | 330      | 1,467 | 30,760         |
| 2052 | 17,372 | 8,371   | 3,726 | 29,468 | 785     | 348    | 329      | 1,461 | 30,929         |
| 2053 | 17,481 | 8,432   | 3,747 | 29,661 | 783     | 345    | 326      | 1,454 | 31,115         |
| 2054 | 17,549 | 8,489   | 3,762 | 29,800 | 782     | 344    | 325      | 1,451 | 31,252         |
| 2055 | 17,664 | 8,578   | 3,787 | 30,029 | 781     | 341    | 323      | 1,445 | 31,474         |
| 2056 | 17,749 | 8,638   | 3,805 | 30,193 | 780     | 340    | 322      | 1,441 | 31,634         |
| 2057 | 17,856 | 8,737   | 3,832 | 30,425 | 779     | 337    | 320      | 1,436 | 31,861         |
| 2058 | 17,947 | 8,792   | 3,851 | 30,589 | 780     | 335    | 319      | 1,433 | 32,022         |
| 2059 | 18,019 | 8,842   | 3,867 | 30,728 | 780     | 333    | 318      | 1,431 | 32,160         |
| 2060 | 18,086 | 8,902   | 3,884 | 30,872 | 781     | 332    | 318      | 1,431 | 32,303         |
| 2061 | 18,117 | 8,929   | 3,892 | 30,938 | 782     | 333    | 319      | 1,434 | 32,372         |
| 2062 | 18,207 | 8,984   | 3,912 | 31,103 | 784     | 331    | 318      | 1,433 | 32,536         |
| 2063 | 18,235 | 9,009   | 3,920 | 31,164 | 786     | 333    | 320      | 1,438 | 32,602         |

<sup>68</sup> Number of pensions.

## Annex 2.4 AOV financial statement<sup>69</sup> – Wage indexation (in AFL)

| Year | Total insurable earnings | Revenue       |                     |                | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|---------------|---------------------|----------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                          | Contribution  | Investment earnings | Total          | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 1,175,096,930            | 135,136,147   | -                   | 135,136,147    | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512    | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 1,298,714,647            | 149,352,184   | 11,783,317          | 161,135,502    | 145,146,890   | 1,999,623  | 147,146,513   | 175,788,654           | 3.6%                    | 11.3%     |
| 2006 | 1,375,869,855            | 158,225,033   | 12,022,911          | 170,247,945    | 157,847,957   | 2,174,600  | 160,022,557   | 186,014,042           | 3.7%                    | 11.6%     |
| 2007 | 1,456,106,358            | 167,452,231   | 12,351,283          | 179,803,514    | 171,505,403   | 2,362,752  | 173,868,155   | 191,949,401           | 3.8%                    | 11.9%     |
| 2008 | 1,537,559,104            | 176,819,297   | 12,295,932          | 189,115,229    | 186,275,400   | 2,566,232  | 188,841,632   | 192,222,998           | 3.9%                    | 12.3%     |
| 2009 | 1,621,572,595            | 186,480,848   | 11,896,562          | 198,377,411    | 201,553,345   | 2,776,709  | 204,330,054   | 186,270,355           | 4.0%                    | 12.6%     |
| 2010 | 1,703,876,784            | 195,945,830   | 10,621,861          | 206,567,691    | 218,741,964   | 3,013,509  | 221,755,474   | 171,082,573           | 4.1%                    | 13.0%     |
| 2011 | 1,782,989,217            | 205,043,760   | 9,042,525           | 214,086,285    | 237,851,479   | 3,276,772  | 241,128,252   | 144,040,606           | 4.3%                    | 13.5%     |
| 2012 | 1,863,758,445            | 214,332,221   | 6,881,109           | 221,213,331    | 258,282,047   | 3,558,235  | 261,840,282   | 103,413,655           | 4.4%                    | 14.0%     |
| 2013 | 1,943,098,574            | 223,456,336   | 4,075,480           | 227,531,816    | 280,204,888   | 3,860,256  | 284,065,145   | 46,880,326            | 4.6%                    | 14.6%     |
| 2014 | 2,023,740,946            | 232,730,209   | 549,582             | 233,279,790    | 302,847,565   | 4,172,194  | 307,019,760   | 26,859,643            | 4.8%                    | 15.2%     |
| 2015 | 2,106,184,832            | 242,211,256   | 3,760,808           | 238,450,448    | 327,584,395   | 4,512,982  | 332,097,377   | 120,506,572           | 4.9%                    | 15.8%     |
| 2016 | 2,188,574,715            | 251,686,092   | 8,989,894           | 242,696,198    | 354,031,053   | 4,877,326  | 358,908,379   | 236,718,753           | 5.1%                    | 16.4%     |
| 2017 | 2,273,198,974            | 261,417,882   | 15,172,580          | 246,245,302    | 382,221,948   | 5,265,699  | 387,487,647   | 377,961,098           | 5.3%                    | 17.0%     |
| 2018 | 2,356,778,722            | 271,029,553   | 22,425,635          | 248,603,918    | 413,452,463   | 5,695,948  | 419,148,411   | 548,505,591           | 5.5%                    | 17.8%     |
| 2019 | 2,439,573,353            | 280,550,936   | 30,797,255          | 249,753,681    | 446,027,205   | 6,144,715  | 452,171,921   | 750,923,831           | 5.7%                    | 18.5%     |
| 2020 | 2,525,680,555            | 290,453,264   | 40,190,674          | 250,262,590    | 480,742,858   | 6,622,977  | 487,365,835   | 988,027,076           | 6.0%                    | 19.3%     |
| 2021 | 2,609,101,345            | 300,046,655   | 51,220,313          | 248,826,342    | 518,404,298   | 7,141,822  | 525,546,120   | 1,264,746,854         | 6.2%                    | 20.1%     |
| 2022 | 2,695,114,949            | 309,938,219   | 63,847,311          | 246,090,908    | 557,064,831   | 7,674,431  | 564,739,262   | 1,583,395,208         | 6.4%                    | 21.0%     |
| 2023 | 2,783,971,680            | 320,156,743   | 78,369,172          | 241,787,571    | 596,834,231   | 8,222,316  | 605,056,547   | 1,946,664,184         | 6.7%                    | 21.7%     |
| 2024 | 2,876,586,098            | 330,807,401   | 95,326,327          | 235,481,075    | 637,639,210   | 8,784,467  | 646,423,677   | 2,357,606,787         | 6.9%                    | 22.5%     |
| 2025 | 2,973,074,912            | 341,903,615   | 113,821,418         | 228,082,196    | 678,728,182   | 9,350,532  | 688,078,713   | 2,817,603,303         | 7.1%                    | 23.1%     |
| 2026 | 3,075,618,578            | 353,696,137   | 135,464,952         | 218,231,184    | 718,109,570   | 9,893,071  | 728,002,641   | 3,327,374,760         | 7.2%                    | 23.7%     |
| 2027 | 3,188,083,532            | 366,629,606   | 159,615,315         | 207,014,291    | 756,161,299   | 10,417,293 | 766,578,592   | 3,886,939,061         | 7.3%                    | 24.0%     |
| 2028 | 3,296,643,959            | 379,114,055   | 173,054,461         | 206,059,595    | 795,674,328   | 10,961,646 | 806,635,974   | 4,487,515,440         | 7.5%                    | 24.5%     |
| 2029 | 3,407,742,128            | 391,890,345   | 200,965,792         | 190,924,552    | 835,397,760   | 11,508,898 | 846,906,657   | 5,143,497,545         | 7.6%                    | 24.9%     |
| 2030 | 3,527,860,792            | 405,703,991   | 230,676,030         | 175,027,961    | 876,296,239   | 12,072,337 | 888,368,576   | 5,856,838,160         | 7.7%                    | 25.2%     |
| 2031 | 3,649,053,063            | 419,641,102   | 265,796,904         | 153,844,198    | 919,019,980   | 12,660,923 | 931,680,903   | 6,634,674,866         | 7.8%                    | 25.5%     |
| 2032 | 3,780,595,727            | 434,768,509   | 305,376,190         | 129,392,318    | 960,347,327   | 13,230,271 | 973,577,598   | 7,478,860,146         | 7.9%                    | 25.8%     |
| 2033 | 3,922,633,697            | 451,102,875   | 348,651,550         | 102,451,325    | 999,598,919   | 13,771,023 | 1,013,369,942 | 8,389,778,763         | 8.0%                    | 25.8%     |
| 2034 | 4,076,341,047            | 468,779,220   | 396,576,090         | 72,203,130     | 1,035,149,755 | 14,260,791 | 1,049,410,546 | 9,366,986,179         | 8.0%                    | 25.7%     |
| 2035 | 4,244,490,012            | 488,116,351   | 448,836,777         | 39,279,574     | 1,069,338,430 | 14,731,793 | 1,084,070,222 | 10,411,776,827        | 7.9%                    | 25.5%     |
| 2036 | 4,417,385,608            | 507,999,345   | 505,754,390         | 2,244,955      | 1,103,332,539 | 15,200,114 | 1,118,532,654 | 11,528,064,526        | 7.9%                    | 25.3%     |
| 2037 | 4,601,397,311            | 529,160,691   | 563,173,807         | -34,013,116    | 1,136,499,547 | 15,657,041 | 1,152,156,588 | 12,714,234,230        | 7.8%                    | 25.0%     |
| 2038 | 4,790,820,122            | 550,944,314   | 623,559,587         | -72,615,273    | 1,169,778,872 | 16,115,515 | 1,185,894,388 | 13,972,743,890        | 7.8%                    | 24.8%     |
| 2039 | 4,988,437,019            | 573,670,257   | 689,465,465         | -115,795,207   | 1,204,030,258 | 16,587,381 | 1,220,617,639 | 15,309,156,737        | 7.7%                    | 24.5%     |
| 2040 | 5,189,015,718            | 596,736,808   | 755,097,033         | -158,360,225   | 1,241,039,739 | 17,097,244 | 1,258,136,983 | 16,725,653,944        | 7.6%                    | 24.2%     |
| 2041 | 5,393,227,412            | 620,221,152   | 826,148,536         | -205,927,384   | 1,280,920,637 | 17,646,665 | 1,298,567,302 | 18,230,148,630        | 7.6%                    | 24.1%     |
| 2042 | 5,600,136,786            | 644,015,730   | 900,546,336         | -256,530,605   | 1,323,585,794 | 18,234,444 | 1,341,820,237 | 19,828,499,473        | 7.5%                    | 24.0%     |
| 2043 | 5,811,501,320            | 668,322,652   | 977,161,140         | -308,838,488   | 1,370,135,156 | 18,875,733 | 1,389,010,889 | 21,526,348,849        | 7.5%                    | 23.9%     |
| 2044 | 6,023,829,631            | 692,740,408   | 1,057,672,792       | -364,932,385   | 1,420,589,674 | 19,570,822 | 1,440,160,497 | 23,331,441,731        | 7.5%                    | 23.9%     |
| 2045 | 6,242,803,437            | 717,922,395   | 1,136,642,458       | -418,720,062   | 1,474,505,738 | 20,313,600 | 1,494,819,338 | 25,244,981,131        | 7.5%                    | 23.9%     |
| 2046 | 6,465,655,160            | 743,550,343   | 1,223,711,162       | -480,160,818   | 1,530,729,342 | 21,088,167 | 1,551,817,509 | 27,276,959,458        | 7.5%                    | 24.0%     |
| 2047 | 6,697,932,508            | 770,262,238   | 1,307,499,268       | -537,237,029   | 1,587,155,077 | 21,865,519 | 1,609,020,595 | 29,423,217,083        | 7.5%                    | 24.0%     |
| 2048 | 6,939,207,083            | 798,008,815   | 1,399,527,150       | -601,518,335   | 1,644,473,424 | 22,655,168 | 1,667,128,592 | 31,691,864,009        | 7.5%                    | 24.0%     |
| 2049 | 7,189,561,789            | 826,799,606   | 1,492,989,130       | -666,189,524   | 1,709,118,118 | 23,545,748 | 1,732,663,866 | 34,090,717,400        | 7.5%                    | 24.1%     |
| 2050 | 7,432,698,050            | 854,760,276   | 1,590,319,523       | -735,559,247   | 1,778,657,084 | 24,503,755 | 1,803,160,839 | 36,629,437,486        | 7.5%                    | 24.3%     |
| 2051 | 7,693,874,763            | 884,795,598   | 1,693,423,758       | -808,628,160   | 1,847,095,197 | 25,446,596 | 1,872,541,793 | 39,310,607,439        | 7.6%                    | 24.3%     |
| 2052 | 7,964,774,240            | 915,949,038   | 1,808,142,140       | -892,193,102   | 1,920,566,968 | 26,458,784 | 1,947,025,751 | 42,149,826,293        | 7.6%                    | 24.4%     |
| 2053 | 8,238,108,233            | 947,382,447   | 1,924,236,321       | -976,853,874   | 2,000,058,634 | 27,553,904 | 2,027,612,538 | 45,154,292,705        | 7.6%                    | 24.6%     |
| 2054 | 8,521,087,481            | 979,925,060   | 2,055,697,167       | -1,075,772,107 | 2,081,638,979 | 28,677,800 | 2,110,316,779 | 48,340,381,591        | 7.7%                    | 24.8%     |
| 2055 | 8,818,579,933            | 1,014,136,692 | 2,192,281,990       | -1,178,145,297 | 2,168,189,413 | 29,870,166 | 2,198,059,579 | 51,716,586,467        | 7.7%                    | 24.9%     |
| 2056 | 9,119,393,090            | 1,048,730,205 | 2,348,345,995       | -1,299,615,789 | 2,259,115,834 | 31,122,818 | 2,290,238,652 | 55,306,440,908        | 7.8%                    | 25.1%     |
| 2057 | 9,440,683,024            | 1,085,678,548 | 2,512,379,502       | -1,426,700,955 | 2,354,129,349 | 32,431,777 | 2,386,561,126 | 59,119,702,989        | 7.8%                    | 25.3%     |
| 2058 | 9,767,714,314            | 1,123,287,146 | 2,688,898,345       | -1,565,611,199 | 2,452,996,146 | 33,793,820 | 2,486,789,965 | 63,172,104,153        | 7.9%                    | 25.5%     |
| 2059 | 10,118,954,094           | 1,163,679,721 | 2,870,464,589       | -1,706,784,868 | 2,551,564,980 | 35,151,758 | 2,586,716,738 | 67,465,605,759        | 7.9%                    | 25.6%     |
| 2060 | 10,487,419,908           | 1,206,053,289 | 3,084,743,822       | -1,878,690,533 | 2,653,459,939 | 36,555,519 | 2,690,015,458 | 72,034,311,750        | 7.9%                    | 25.6%     |
| 2061 | 10,870,846,115           | 1,250,147,303 | 3,307,144,571       | -2,056,997,268 | 2,756,161,340 | 37,970,390 | 2,794,131,730 | 76,885,440,748        | 8.0%                    | 25.7%     |
| 2062 | 11,280,914,452           | 1,297,305,162 | 3,539,765,730       | -2,242,460,568 | 2,863,524,393 | 39,449,482 | 2,902,973,875 | 82,030,875,190        | 8.0%                    | 25.7%     |
| 2063 | 11,696,037,718           | 1,345,044,338 | 3,795,825,861       | -2,450,781,523 | 2,974,768,065 | 40,982,036 | 3,015,750,101 | 87,497,406,814        | 8.0%                    | 25.8%     |

<sup>69</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.5 Demographic projection<sup>70</sup> - Wage indexation

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,631  | 3,529   | 1,398 | 11,558 | 1,048   | 389    | 371      | 1,808 | 13,366      |
| 2006 | 6,902  | 3,653   | 1,471 | 12,026 | 1,065   | 395    | 376      | 1,837 | 13,863      |
| 2007 | 7,179  | 3,811   | 1,547 | 12,537 | 1,086   | 389    | 391      | 1,866 | 14,403      |
| 2008 | 7,503  | 3,944   | 1,626 | 13,073 | 1,099   | 384    | 405      | 1,888 | 14,961      |
| 2009 | 7,783  | 4,083   | 1,698 | 13,564 | 1,098   | 379    | 417      | 1,894 | 15,458      |
| 2010 | 8,187  | 4,273   | 1,792 | 14,251 | 1,082   | 367    | 421      | 1,871 | 16,122      |
| 2011 | 8,574  | 4,440   | 1,880 | 14,893 | 1,056   | 368    | 430      | 1,855 | 16,748      |
| 2012 | 9,007  | 4,650   | 1,978 | 15,634 | 1,042   | 364    | 435      | 1,841 | 17,475      |
| 2013 | 9,423  | 4,846   | 2,071 | 16,340 | 1,034   | 365    | 433      | 1,832 | 18,172      |
| 2014 | 9,865  | 5,036   | 2,167 | 17,068 | 1,007   | 367    | 437      | 1,810 | 18,878      |
| 2015 | 10,367 | 5,243   | 2,271 | 17,881 | 981     | 374    | 435      | 1,790 | 19,672      |
| 2016 | 10,848 | 5,437   | 2,370 | 18,655 | 963     | 381    | 425      | 1,768 | 20,423      |
| 2017 | 11,352 | 5,667   | 2,476 | 19,494 | 929     | 384    | 424      | 1,736 | 21,231      |
| 2018 | 11,909 | 5,914   | 2,590 | 20,413 | 894     | 385    | 417      | 1,695 | 22,108      |
| 2019 | 12,390 | 6,139   | 2,690 | 21,218 | 862     | 387    | 412      | 1,661 | 22,879      |
| 2020 | 12,988 | 6,386   | 2,808 | 22,183 | 837     | 380    | 404      | 1,621 | 23,804      |
| 2021 | 13,519 | 6,646   | 2,918 | 23,083 | 813     | 377    | 394      | 1,584 | 24,666      |
| 2022 | 14,043 | 6,885   | 3,023 | 23,951 | 787     | 372    | 384      | 1,542 | 25,493      |
| 2023 | 14,541 | 7,116   | 3,124 | 24,781 | 768     | 362    | 376      | 1,506 | 26,287      |
| 2024 | 15,035 | 7,321   | 3,220 | 25,576 | 764     | 354    | 364      | 1,482 | 27,058      |
| 2025 | 15,460 | 7,507   | 3,304 | 26,271 | 745     | 343    | 349      | 1,437 | 27,708      |
| 2026 | 15,768 | 7,643   | 3,366 | 26,777 | 742     | 341    | 340      | 1,424 | 28,200      |
| 2027 | 16,035 | 7,775   | 3,422 | 27,231 | 737     | 341    | 333      | 1,410 | 28,641      |
| 2028 | 16,341 | 7,899   | 3,482 | 27,723 | 740     | 338    | 323      | 1,401 | 29,123      |
| 2029 | 16,542 | 8,001   | 3,526 | 28,069 | 745     | 333    | 320      | 1,398 | 29,467      |
| 2030 | 16,799 | 8,131   | 3,581 | 28,511 | 750     | 327    | 313      | 1,390 | 29,901      |
| 2031 | 17,042 | 8,206   | 3,627 | 28,875 | 755     | 319    | 305      | 1,380 | 30,254      |
| 2032 | 17,201 | 8,263   | 3,661 | 29,124 | 760     | 311    | 302      | 1,374 | 30,498      |
| 2033 | 17,256 | 8,305   | 3,678 | 29,238 | 765     | 311    | 301      | 1,378 | 30,616      |
| 2034 | 17,220 | 8,284   | 3,675 | 29,179 | 770     | 311    | 303      | 1,385 | 30,565      |
| 2035 | 17,214 | 8,268   | 3,677 | 29,159 | 775     | 313    | 306      | 1,394 | 30,553      |
| 2036 | 17,154 | 8,216   | 3,667 | 29,037 | 779     | 317    | 310      | 1,406 | 30,444      |
| 2037 | 17,097 | 8,168   | 3,657 | 28,922 | 783     | 321    | 314      | 1,419 | 30,341      |
| 2038 | 16,987 | 8,119   | 3,640 | 28,747 | 787     | 327    | 320      | 1,435 | 30,181      |
| 2039 | 16,925 | 8,075   | 3,629 | 28,630 | 790     | 333    | 324      | 1,447 | 30,077      |
| 2040 | 16,867 | 8,050   | 3,621 | 28,538 | 793     | 339    | 328      | 1,460 | 29,998      |
| 2041 | 16,828 | 8,044   | 3,617 | 28,489 | 796     | 344    | 331      | 1,471 | 29,960      |
| 2042 | 16,807 | 8,039   | 3,616 | 28,462 | 797     | 348    | 333      | 1,479 | 29,941      |
| 2043 | 16,838 | 8,059   | 3,623 | 28,520 | 798     | 349    | 334      | 1,482 | 30,002      |
| 2044 | 16,881 | 8,075   | 3,632 | 28,587 | 799     | 350    | 334      | 1,483 | 30,070      |
| 2045 | 16,967 | 8,101   | 3,647 | 28,715 | 798     | 349    | 333      | 1,481 | 30,195      |
| 2046 | 17,000 | 8,131   | 3,654 | 28,784 | 797     | 350    | 334      | 1,481 | 30,265      |
| 2047 | 17,037 | 8,141   | 3,660 | 28,838 | 796     | 350    | 334      | 1,479 | 30,317      |
| 2048 | 17,050 | 8,155   | 3,662 | 28,867 | 794     | 353    | 334      | 1,480 | 30,347      |
| 2049 | 17,180 | 8,225   | 3,687 | 29,093 | 791     | 349    | 331      | 1,472 | 30,564      |
| 2050 | 17,230 | 8,268   | 3,697 | 29,195 | 789     | 349    | 331      | 1,469 | 30,664      |
| 2051 | 17,281 | 8,306   | 3,707 | 29,293 | 787     | 349    | 330      | 1,467 | 30,760      |
| 2052 | 17,372 | 8,371   | 3,726 | 29,468 | 785     | 348    | 329      | 1,461 | 30,929      |
| 2053 | 17,481 | 8,432   | 3,747 | 29,661 | 783     | 345    | 326      | 1,454 | 31,115      |
| 2054 | 17,549 | 8,489   | 3,762 | 29,800 | 782     | 344    | 325      | 1,451 | 31,252      |
| 2055 | 17,664 | 8,578   | 3,787 | 30,029 | 781     | 341    | 323      | 1,445 | 31,474      |
| 2056 | 17,749 | 8,638   | 3,805 | 30,193 | 780     | 340    | 322      | 1,441 | 31,634      |
| 2057 | 17,856 | 8,737   | 3,832 | 30,425 | 779     | 337    | 320      | 1,436 | 31,861      |
| 2058 | 17,947 | 8,792   | 3,851 | 30,589 | 780     | 335    | 319      | 1,433 | 32,022      |
| 2059 | 18,019 | 8,842   | 3,867 | 30,728 | 780     | 333    | 318      | 1,431 | 32,160      |
| 2060 | 18,086 | 8,902   | 3,884 | 30,872 | 781     | 332    | 318      | 1,431 | 32,303      |
| 2061 | 18,117 | 8,929   | 3,892 | 30,938 | 782     | 333    | 319      | 1,434 | 32,372      |
| 2062 | 18,207 | 8,984   | 3,912 | 31,103 | 784     | 331    | 318      | 1,433 | 32,536      |
| 2063 | 18,235 | 9,009   | 3,920 | 31,164 | 786     | 333    | 320      | 1,438 | 32,602      |

<sup>70</sup> Number of pensions.



## Annex 2.6 AOV financial statement<sup>71</sup> - Retirement at age 62 (in AFL)

| Year | Total insurable earnings | Revenue       |                     |             | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|---------------|---------------------|-------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                          | Contribution  | Investment earnings | Total       | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 1,175,096,930            | 135,136,147   | -                   | 135,136,147 | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512 | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 1,316,327,162            | 151,377,624   | 12,064,174          | 163,441,798 | 139,349,537   | 1,919,756  | 141,269,293   | 183,972,170           | 3.5%                    | 10.7%     |
| 2006 | 1,396,140,470            | 160,556,154   | 13,437,767          | 173,993,921 | 135,272,450   | 1,863,587  | 137,136,038   | 220,830,053           | 3.2%                    | 9.8%      |
| 2007 | 1,478,784,861            | 170,060,259   | 15,954,754          | 186,015,013 | 136,908,934   | 1,886,133  | 138,795,067   | 268,049,999           | 3.0%                    | 9.4%      |
| 2008 | 1,562,621,943            | 179,701,523   | 18,802,547          | 198,504,071 | 144,323,252   | 1,988,276  | 146,311,529   | 320,242,542           | 3.0%                    | 9.4%      |
| 2009 | 1,648,991,752            | 189,634,051   | 21,804,528          | 211,438,579 | 155,045,230   | 2,135,988  | 157,181,218   | 374,499,903           | 3.1%                    | 9.5%      |
| 2010 | 1,732,681,138            | 199,258,331   | 23,838,212          | 223,096,543 | 166,497,382   | 2,293,759  | 168,791,142   | 428,805,305           | 3.1%                    | 9.7%      |
| 2011 | 1,816,587,773            | 208,907,594   | 26,119,085          | 235,026,679 | 178,059,488   | 2,453,045  | 180,512,533   | 483,319,451           | 3.2%                    | 9.9%      |
| 2012 | 1,901,280,709            | 218,647,282   | 28,275,632          | 246,922,914 | 191,044,920   | 2,631,940  | 193,676,860   | 536,565,505           | 3.3%                    | 10.2%     |
| 2013 | 1,984,318,529            | 228,196,631   | 30,290,751          | 258,487,382 | 205,393,034   | 2,829,607  | 208,222,641   | 586,830,246           | 3.4%                    | 10.5%     |
| 2014 | 2,068,632,708            | 237,892,761   | 31,932,263          | 269,825,025 | 220,491,594   | 3,037,613  | 223,529,207   | 633,126,063           | 3.5%                    | 10.8%     |
| 2015 | 2,153,521,296            | 247,654,949   | 33,631,446          | 281,286,395 | 236,679,261   | 3,260,623  | 239,939,884   | 674,472,575           | 3.6%                    | 11.1%     |
| 2016 | 2,240,750,611            | 257,686,320   | 34,984,519          | 292,670,839 | 253,230,250   | 3,488,639  | 256,718,888   | 710,424,526           | 3.7%                    | 11.5%     |
| 2017 | 2,329,484,606            | 267,890,730   | 35,880,401          | 303,771,131 | 271,054,384   | 3,734,194  | 274,788,578   | 739,407,078           | 3.8%                    | 11.8%     |
| 2018 | 2,418,189,213            | 278,091,760   | 36,370,153          | 314,461,913 | 289,833,076   | 3,992,899  | 293,825,976   | 760,043,016           | 3.9%                    | 12.2%     |
| 2019 | 2,508,620,927            | 288,491,407   | 36,351,156          | 324,842,563 | 309,603,869   | 4,265,273  | 313,869,142   | 771,016,436           | 4.0%                    | 12.5%     |
| 2020 | 2,598,492,443            | 298,826,631   | 35,661,721          | 334,488,352 | 331,413,136   | 4,565,729  | 335,978,866   | 769,525,923           | 4.1%                    | 12.9%     |
| 2021 | 2,688,338,051            | 309,158,876   | 34,709,534          | 343,868,410 | 353,753,059   | 4,873,496  | 358,626,555   | 754,767,778           | 4.2%                    | 13.3%     |
| 2022 | 2,781,863,030            | 319,914,248   | 33,231,420          | 353,145,668 | 377,265,225   | 5,197,413  | 382,462,637   | 725,450,808           | 4.4%                    | 13.7%     |
| 2023 | 2,874,606,006            | 330,579,691   | 31,229,515          | 361,809,206 | 402,586,165   | 5,546,248  | 408,132,413   | 679,127,602           | 4.5%                    | 14.2%     |
| 2024 | 2,971,289,231            | 341,698,262   | 28,720,056          | 370,418,317 | 428,055,801   | 5,897,131  | 433,952,933   | 615,592,986           | 4.6%                    | 14.6%     |
| 2025 | 3,071,765,765            | 353,253,063   | 25,332,276          | 378,585,339 | 453,740,093   | 6,250,972  | 459,991,065   | 534,187,260           | 4.7%                    | 15.0%     |
| 2026 | 3,176,752,767            | 365,326,568   | 21,402,586          | 386,729,154 | 479,615,440   | 6,607,445  | 486,222,886   | 434,693,529           | 4.8%                    | 15.3%     |
| 2027 | 3,287,144,564            | 378,021,625   | 16,681,465          | 394,703,090 | 505,107,168   | 6,958,633  | 512,065,802   | 317,330,817           | 4.9%                    | 15.6%     |
| 2028 | 3,394,167,886            | 390,329,307   | 10,357,383          | 400,686,690 | 528,620,708   | 7,282,569  | 535,903,277   | 182,114,230           | 5.0%                    | 15.8%     |
| 2029 | 3,509,997,548            | 403,649,718   | 4,508,227           | 408,157,945 | 550,470,643   | 7,583,585  | 558,054,228   | 32,217,947            | 5.0%                    | 15.9%     |
| 2030 | 3,631,329,358            | 417,602,876   | 2,078,568           | 415,524,309 | 572,855,590   | 7,891,973  | 580,747,562   | 133,005,307           | 5.0%                    | 16.0%     |
| 2031 | 3,757,245,160            | 432,083,193   | 9,463,812           | 422,619,382 | 594,805,365   | 8,194,365  | 602,999,730   | 313,385,655           | 5.1%                    | 16.0%     |
| 2032 | 3,893,804,095            | 447,787,471   | 17,758,605          | 430,028,866 | 617,088,966   | 8,501,356  | 625,590,322   | 508,947,111           | 5.1%                    | 16.1%     |
| 2033 | 4,033,937,948            | 463,902,864   | 26,989,303          | 436,913,561 | 640,155,782   | 8,819,137  | 648,974,919   | 721,008,469           | 5.1%                    | 16.1%     |
| 2034 | 4,184,507,262            | 481,218,335   | 37,234,858          | 443,983,477 | 661,557,518   | 9,113,979  | 670,671,497   | 947,696,489           | 5.1%                    | 16.0%     |
| 2035 | 4,345,857,780            | 499,773,645   | 48,399,272          | 451,374,373 | 680,831,164   | 9,379,503  | 690,210,668   | 1,186,532,784         | 5.0%                    | 15.9%     |
| 2036 | 4,518,669,262            | 519,646,965   | 60,371,792          | 459,275,173 | 696,877,159   | 9,600,562  | 706,477,721   | 1,433,735,332         | 5.0%                    | 15.6%     |
| 2037 | 4,704,232,612            | 540,986,750   | 72,459,045          | 468,527,705 | 711,480,620   | 9,801,747  | 721,282,368   | 1,686,489,994         | 4.9%                    | 15.3%     |
| 2038 | 4,894,962,314            | 562,920,666   | 84,802,174          | 478,118,492 | 725,497,804   | 9,994,856  | 735,492,660   | 1,943,864,162         | 4.8%                    | 15.0%     |
| 2039 | 5,095,730,668            | 586,009,027   | 97,649,312          | 488,359,714 | 738,503,174   | 10,174,025 | 748,677,199   | 2,204,181,647         | 4.7%                    | 14.7%     |
| 2040 | 5,302,143,403            | 609,746,491   | 110,067,174         | 499,679,318 | 751,193,646   | 10,348,856 | 761,542,502   | 2,466,044,831         | 4.6%                    | 14.4%     |
| 2041 | 5,515,930,905            | 634,332,054   | 122,772,753         | 511,559,301 | 764,141,541   | 10,527,233 | 774,668,774   | 2,729,154,304         | 4.5%                    | 14.0%     |
| 2042 | 5,732,945,046            | 659,288,680   | 135,427,766         | 523,860,914 | 778,535,058   | 10,725,526 | 789,260,583   | 2,994,553,973         | 4.4%                    | 13.8%     |
| 2043 | 5,953,966,028            | 684,706,093   | 147,855,934         | 536,850,159 | 794,408,372   | 10,944,205 | 805,352,577   | 3,263,056,392         | 4.4%                    | 13.5%     |
| 2044 | 6,178,971,766            | 710,581,753   | 160,302,520         | 550,279,233 | 811,688,445   | 11,182,265 | 822,870,710   | 3,535,647,869         | 4.3%                    | 13.3%     |
| 2045 | 6,409,744,784            | 737,120,650   | 171,956,948         | 565,163,702 | 831,160,365   | 11,450,521 | 842,610,886   | 3,813,095,053         | 4.2%                    | 13.1%     |
| 2046 | 6,643,515,379            | 764,004,269   | 184,325,680         | 579,678,589 | 852,789,744   | 11,748,499 | 864,538,244   | 4,097,954,708         | 4.2%                    | 13.0%     |
| 2047 | 6,883,209,873            | 791,569,135   | 195,746,646         | 595,822,490 | 876,133,019   | 12,070,089 | 888,203,107   | 4,390,335,326         | 4.1%                    | 12.9%     |
| 2048 | 7,127,651,851            | 819,679,963   | 207,980,820         | 611,699,143 | 900,396,542   | 12,404,356 | 912,800,899   | 4,691,437,082         | 4.1%                    | 12.8%     |
| 2049 | 7,382,576,728            | 848,996,324   | 219,953,080         | 629,043,244 | 924,270,738   | 12,733,260 | 937,003,998   | 4,999,397,837         | 4.1%                    | 12.7%     |
| 2050 | 7,646,165,667            | 879,309,052   | 231,920,317         | 647,388,735 | 948,195,326   | 13,062,859 | 961,258,185   | 5,313,267,286         | 4.0%                    | 12.6%     |
| 2051 | 7,918,529,044            | 910,630,840   | 244,188,403         | 666,442,437 | 976,158,433   | 13,448,094 | 989,606,526   | 5,636,431,376         | 4.0%                    | 12.5%     |
| 2052 | 8,188,883,127            | 941,721,560   | 257,702,912         | 684,018,647 | 1,006,564,941 | 13,866,991 | 1,020,431,932 | 5,972,844,660         | 4.0%                    | 12.5%     |
| 2053 | 8,475,623,411            | 974,696,692   | 270,939,114         | 703,757,578 | 1,035,674,299 | 14,268,017 | 1,049,942,316 | 6,319,029,398         | 3.9%                    | 12.4%     |
| 2054 | 8,772,820,371            | 1,008,874,343 | 285,786,144         | 723,088,199 | 1,067,173,811 | 14,701,972 | 1,081,875,782 | 6,677,816,982         | 3.9%                    | 12.3%     |
| 2055 | 9,075,081,568            | 1,043,634,380 | 300,840,580         | 742,793,800 | 1,101,536,172 | 15,175,366 | 1,116,711,538 | 7,051,734,720         | 3.9%                    | 12.3%     |
| 2056 | 9,388,729,199            | 1,079,703,858 | 318,052,617         | 761,651,241 | 1,136,338,258 | 15,654,819 | 1,151,993,077 | 7,442,076,556         | 3.9%                    | 12.3%     |
| 2057 | 9,718,604,845            | 1,117,639,557 | 335,773,998         | 781,865,559 | 1,173,230,794 | 16,163,071 | 1,189,393,864 | 7,849,604,861         | 3.9%                    | 12.2%     |
| 2058 | 10,065,927,621           | 1,156,431,676 | 354,592,944         | 801,838,732 | 1,211,730,731 | 16,693,467 | 1,228,424,198 | 8,276,190,327         | 3.9%                    | 12.2%     |
| 2059 | 10,414,116,768           | 1,197,623,428 | 373,499,553         | 824,123,875 | 1,251,586,061 | 17,242,536 | 1,268,828,597 | 8,720,895,049         | 3.9%                    | 12.2%     |
| 2060 | 10,781,670,868           | 1,239,892,150 | 396,033,579         | 843,858,571 | 1,292,573,926 | 17,807,207 | 1,310,381,133 | 9,187,417,611         | 3.9%                    | 12.2%     |
| 2061 | 11,172,921,026           | 1,284,885,918 | 418,853,820         | 866,032,098 | 1,332,266,062 | 18,354,028 | 1,350,620,090 | 9,672,005,602         | 3.9%                    | 12.1%     |
| 2062 | 11,583,610,172           | 1,332,115,170 | 442,083,844         | 890,031,326 | 1,372,708,914 | 18,911,191 | 1,391,620,105 | 10,173,594,381        | 3.8%                    | 12.0%     |
| 2063 | 12,011,419,445           | 1,381,313,236 | 467,216,506         | 914,096,730 | 1,412,426,858 | 19,458,367 | 1,431,885,225 | 10,691,382,876        | 3.8%                    | 11.9%     |

<sup>71</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.7 Demographic projection<sup>72</sup> - Retirement at age 62

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,083  | 3,266   | 1,291 | 10,639 | 1,048   | 389    | 371      | 1,808 | 12,447      |
| 2006 | 5,802  | 3,139   | 1,256 | 10,197 | 1,065   | 395    | 376      | 1,837 | 12,035      |
| 2007 | 6,069  | 3,268   | 1,326 | 10,663 | 1,086   | 389    | 391      | 1,866 | 12,529      |
| 2008 | 6,345  | 3,384   | 1,394 | 11,124 | 1,099   | 384    | 405      | 1,888 | 13,011      |
| 2009 | 6,624  | 3,531   | 1,466 | 11,621 | 1,098   | 379    | 417      | 1,894 | 13,515      |
| 2010 | 6,943  | 3,655   | 1,539 | 12,137 | 1,082   | 367    | 421      | 1,871 | 14,008      |
| 2011 | 7,218  | 3,784   | 1,606 | 12,607 | 1,056   | 368    | 430      | 1,855 | 14,462      |
| 2012 | 7,613  | 3,963   | 1,694 | 13,270 | 1,042   | 364    | 435      | 1,841 | 15,111      |
| 2013 | 7,989  | 4,120   | 1,776 | 13,885 | 1,034   | 365    | 433      | 1,832 | 15,717      |
| 2014 | 8,407  | 4,318   | 1,869 | 14,594 | 1,007   | 367    | 437      | 1,810 | 16,405      |
| 2015 | 8,808  | 4,503   | 1,955 | 15,266 | 981     | 374    | 435      | 1,790 | 17,056      |
| 2016 | 9,227  | 4,679   | 2,043 | 15,949 | 963     | 381    | 425      | 1,768 | 17,717      |
| 2017 | 9,701  | 4,869   | 2,139 | 16,710 | 929     | 384    | 424      | 1,736 | 18,446      |
| 2018 | 10,154 | 5,046   | 2,230 | 17,430 | 894     | 385    | 417      | 1,695 | 19,126      |
| 2019 | 10,627 | 5,259   | 2,327 | 18,213 | 862     | 387    | 412      | 1,661 | 19,874      |
| 2020 | 11,151 | 5,488   | 2,432 | 19,072 | 837     | 380    | 404      | 1,621 | 20,693      |
| 2021 | 11,598 | 5,695   | 2,523 | 19,816 | 813     | 377    | 394      | 1,584 | 21,400      |
| 2022 | 12,160 | 5,924   | 2,632 | 20,716 | 787     | 372    | 384      | 1,542 | 22,258      |
| 2023 | 12,653 | 6,166   | 2,733 | 21,552 | 768     | 362    | 376      | 1,506 | 23,058      |
| 2024 | 13,139 | 6,386   | 2,829 | 22,355 | 764     | 354    | 364      | 1,482 | 23,836      |
| 2025 | 13,598 | 6,599   | 2,921 | 23,118 | 745     | 343    | 349      | 1,437 | 24,556      |
| 2026 | 14,054 | 6,787   | 3,010 | 23,851 | 742     | 341    | 340      | 1,424 | 25,274      |
| 2027 | 14,441 | 6,959   | 3,087 | 24,487 | 737     | 341    | 333      | 1,410 | 25,897      |
| 2028 | 14,713 | 7,080   | 3,142 | 24,935 | 740     | 338    | 323      | 1,401 | 26,336      |
| 2029 | 14,944 | 7,197   | 3,192 | 25,334 | 745     | 333    | 320      | 1,398 | 26,732      |
| 2030 | 15,216 | 7,307   | 3,247 | 25,769 | 750     | 327    | 313      | 1,390 | 27,159      |
| 2031 | 15,383 | 7,395   | 3,285 | 26,063 | 755     | 319    | 305      | 1,380 | 27,443      |
| 2032 | 15,607 | 7,513   | 3,334 | 26,455 | 760     | 311    | 302      | 1,374 | 27,829      |
| 2033 | 15,819 | 7,576   | 3,376 | 26,770 | 765     | 311    | 301      | 1,378 | 28,148      |
| 2034 | 15,948 | 7,620   | 3,404 | 26,973 | 770     | 311    | 303      | 1,385 | 28,358      |
| 2035 | 15,975 | 7,650   | 3,417 | 27,042 | 775     | 313    | 306      | 1,394 | 28,436      |
| 2036 | 15,913 | 7,619   | 3,410 | 26,942 | 779     | 317    | 310      | 1,406 | 28,348      |
| 2037 | 15,883 | 7,593   | 3,407 | 26,882 | 783     | 321    | 314      | 1,419 | 28,301      |
| 2038 | 15,800 | 7,531   | 3,392 | 26,723 | 787     | 327    | 320      | 1,435 | 28,158      |
| 2039 | 15,722 | 7,473   | 3,378 | 26,573 | 790     | 333    | 324      | 1,447 | 28,020      |
| 2040 | 15,594 | 7,416   | 3,357 | 26,367 | 793     | 339    | 328      | 1,460 | 27,826      |
| 2041 | 15,513 | 7,365   | 3,342 | 26,219 | 796     | 344    | 331      | 1,471 | 27,690      |
| 2042 | 15,437 | 7,332   | 3,329 | 26,098 | 797     | 348    | 333      | 1,479 | 27,576      |
| 2043 | 15,380 | 7,319   | 3,321 | 26,020 | 798     | 349    | 334      | 1,482 | 27,502      |
| 2044 | 15,343 | 7,308   | 3,315 | 25,967 | 799     | 350    | 334      | 1,483 | 27,450      |
| 2045 | 15,365 | 7,323   | 3,320 | 26,007 | 798     | 349    | 333      | 1,481 | 27,488      |
| 2046 | 15,400 | 7,335   | 3,325 | 26,061 | 797     | 350    | 334      | 1,481 | 27,541      |
| 2047 | 15,479 | 7,359   | 3,338 | 26,176 | 796     | 350    | 334      | 1,479 | 27,655      |
| 2048 | 15,506 | 7,388   | 3,344 | 26,238 | 794     | 353    | 334      | 1,480 | 27,718      |
| 2049 | 15,541 | 7,398   | 3,349 | 26,288 | 791     | 349    | 331      | 1,472 | 27,760      |
| 2050 | 15,553 | 7,414   | 3,350 | 26,318 | 789     | 349    | 331      | 1,469 | 27,787      |
| 2051 | 15,685 | 7,487   | 3,376 | 26,547 | 787     | 349    | 330      | 1,467 | 28,014      |
| 2052 | 15,739 | 7,533   | 3,387 | 26,659 | 785     | 348    | 329      | 1,461 | 28,120      |
| 2053 | 15,795 | 7,576   | 3,398 | 26,770 | 783     | 345    | 326      | 1,454 | 28,224      |
| 2054 | 15,893 | 7,646   | 3,419 | 26,958 | 782     | 344    | 325      | 1,451 | 28,410      |
| 2055 | 16,011 | 7,713   | 3,442 | 27,165 | 781     | 341    | 323      | 1,445 | 28,610      |
| 2056 | 16,087 | 7,775   | 3,459 | 27,322 | 780     | 340    | 322      | 1,441 | 28,763      |
| 2057 | 16,212 | 7,869   | 3,487 | 27,568 | 779     | 337    | 320      | 1,436 | 29,004      |
| 2058 | 16,306 | 7,934   | 3,508 | 27,747 | 780     | 335    | 319      | 1,433 | 29,180      |
| 2059 | 16,421 | 8,036   | 3,536 | 27,994 | 780     | 333    | 318      | 1,431 | 29,426      |
| 2060 | 16,520 | 8,094   | 3,557 | 28,172 | 781     | 332    | 318      | 1,431 | 29,603      |
| 2061 | 16,599 | 8,146   | 3,576 | 28,321 | 782     | 333    | 319      | 1,434 | 29,756      |
| 2062 | 16,672 | 8,208   | 3,594 | 28,474 | 784     | 331    | 318      | 1,433 | 29,908      |
| 2063 | 16,708 | 8,235   | 3,604 | 28,547 | 786     | 333    | 320      | 1,438 | 29,985      |

<sup>72</sup> Number of pensions.

## Annex 2.8 AOV financial statement<sup>73</sup> – Retirement at age 65 (in AFL)

| Year | Total insurable earnings | Revenue       |                     |               | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|---------------|---------------------|---------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                          | Contribution  | Investment earnings | Total         | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 1,175,096,930            | 135,136,147   | -                   | 135,136,147   | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512   | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 1,321,527,695            | 151,975,685   | 12,085,429          | 164,061,114   | 139,349,537   | 1,919,756  | 141,269,293   | 184,591,486           | 3.5%                    | 10.7%     |
| 2006 | 1,404,339,272            | 161,499,016   | 13,512,207          | 175,011,223   | 135,272,450   | 1,863,587  | 137,136,038   | 222,466,671           | 3.2%                    | 9.8%      |
| 2007 | 1,490,579,984            | 171,416,698   | 16,221,510          | 187,638,208   | 133,608,692   | 1,840,667  | 135,449,358   | 274,655,520           | 3.0%                    | 9.1%      |
| 2008 | 1,579,086,093            | 181,594,901   | 19,616,841          | 201,211,741   | 134,733,839   | 1,856,167  | 136,590,006   | 339,277,256           | 2.8%                    | 8.6%      |
| 2009 | 1,670,203,853            | 192,073,443   | 23,644,378          | 215,717,821   | 138,741,735   | 1,911,382  | 140,653,117   | 414,341,960           | 2.8%                    | 8.4%      |
| 2010 | 1,758,871,528            | 202,270,226   | 27,097,467          | 229,367,693   | 142,608,184   | 1,964,649  | 144,572,832   | 499,136,820           | 2.7%                    | 8.2%      |
| 2011 | 1,847,821,635            | 212,499,488   | 31,309,095          | 243,808,583   | 146,265,689   | 2,015,036  | 148,280,725   | 594,664,678           | 2.6%                    | 8.0%      |
| 2012 | 1,934,882,484            | 222,511,486   | 35,812,495          | 258,323,981   | 153,314,357   | 2,112,143  | 155,426,500   | 697,562,159           | 2.6%                    | 8.0%      |
| 2013 | 2,022,195,789            | 232,552,516   | 40,479,083          | 273,031,599   | 164,111,132   | 2,260,885  | 166,372,017   | 804,221,741           | 2.7%                    | 8.2%      |
| 2014 | 2,110,302,608            | 242,684,800   | 44,974,433          | 287,659,233   | 174,876,235   | 2,409,191  | 177,285,426   | 914,595,548           | 2.8%                    | 8.4%      |
| 2015 | 2,200,621,265            | 253,071,445   | 49,943,550          | 303,014,995   | 187,143,276   | 2,578,188  | 189,721,464   | 1,027,889,079         | 2.8%                    | 8.6%      |
| 2016 | 2,291,263,424            | 263,495,294   | 54,811,303          | 318,306,597   | 200,820,353   | 2,766,611  | 203,586,964   | 1,142,608,712         | 2.9%                    | 8.9%      |
| 2017 | 2,384,180,602            | 274,180,769   | 59,388,588          | 333,569,357   | 215,252,587   | 2,965,438  | 218,218,024   | 1,257,960,045         | 3.0%                    | 9.2%      |
| 2018 | 2,477,388,898            | 284,899,723   | 63,789,417          | 348,689,140   | 230,600,173   | 3,176,874  | 233,777,047   | 1,372,872,137         | 3.1%                    | 9.4%      |
| 2019 | 2,572,392,558            | 295,825,144   | 67,874,418          | 363,699,562   | 246,166,018   | 3,391,318  | 249,557,336   | 1,487,014,363         | 3.2%                    | 9.7%      |
| 2020 | 2,668,417,215            | 306,867,980   | 71,400,215          | 378,268,195   | 262,945,986   | 3,622,488  | 266,568,474   | 1,598,714,084         | 3.3%                    | 10.0%     |
| 2021 | 2,765,221,160            | 318,000,433   | 75,249,439          | 393,249,872   | 280,577,673   | 3,865,392  | 284,443,065   | 1,707,520,891         | 3.4%                    | 10.3%     |
| 2022 | 2,864,395,833            | 329,405,521   | 78,986,144          | 408,391,664   | 299,091,330   | 4,120,446  | 303,211,776   | 1,812,700,779         | 3.5%                    | 10.6%     |
| 2023 | 2,964,797,577            | 340,951,721   | 82,769,838          | 423,721,559   | 319,592,419   | 4,402,880  | 323,995,299   | 1,912,427,039         | 3.6%                    | 10.9%     |
| 2024 | 3,067,738,471            | 352,789,924   | 86,869,403          | 439,659,327   | 340,510,755   | 4,691,063  | 345,201,818   | 2,006,884,548         | 3.7%                    | 11.3%     |
| 2025 | 3,175,065,521            | 365,132,535   | 90,277,246          | 455,409,781   | 362,524,516   | 4,994,337  | 367,518,853   | 2,094,775,476         | 3.8%                    | 11.6%     |
| 2026 | 3,284,735,308            | 377,744,560   | 94,194,764          | 471,939,324   | 386,317,891   | 5,322,127  | 391,640,018   | 2,175,074,783         | 3.9%                    | 11.9%     |
| 2027 | 3,399,576,474            | 390,951,294   | 97,928,411          | 488,879,705   | 410,189,225   | 5,650,992  | 415,840,217   | 2,248,114,271         | 4.0%                    | 12.2%     |
| 2028 | 3,509,606,618            | 403,604,761   | 94,159,502          | 497,764,263   | 434,225,815   | 5,982,133  | 440,207,948   | 2,305,670,586         | 4.1%                    | 12.5%     |
| 2029 | 3,624,888,869            | 416,862,220   | 97,313,779          | 514,175,999   | 458,370,998   | 6,314,770  | 464,685,768   | 2,355,160,816         | 4.2%                    | 12.8%     |
| 2030 | 3,745,872,136            | 430,775,296   | 99,711,289          | 530,486,584   | 481,993,573   | 6,640,208  | 488,633,781   | 2,397,013,619         | 4.2%                    | 13.0%     |
| 2031 | 3,874,407,890            | 445,556,907   | 102,877,468         | 548,434,375   | 503,449,007   | 6,935,790  | 510,384,796   | 2,435,063,198         | 4.3%                    | 13.2%     |
| 2032 | 4,008,892,727            | 461,022,664   | 106,234,704         | 567,257,367   | 523,119,416   | 7,206,780  | 530,326,196   | 2,471,994,370         | 4.3%                    | 13.2%     |
| 2033 | 4,155,066,153            | 477,832,608   | 109,487,204         | 587,319,812   | 543,330,333   | 7,485,217  | 550,815,550   | 2,508,498,632         | 4.3%                    | 13.3%     |
| 2034 | 4,308,428,077            | 495,469,229   | 112,948,922         | 608,418,151   | 563,039,776   | 7,756,745  | 570,796,521   | 2,546,120,262         | 4.3%                    | 13.2%     |
| 2035 | 4,472,367,571            | 514,322,271   | 116,520,406         | 630,842,677   | 583,006,795   | 8,031,821  | 591,038,617   | 2,585,924,322         | 4.3%                    | 13.2%     |
| 2036 | 4,642,360,925            | 533,871,506   | 120,250,009         | 654,121,515   | 603,731,479   | 8,317,336  | 612,048,815   | 2,627,997,022         | 4.3%                    | 13.2%     |
| 2037 | 4,822,045,051            | 554,535,181   | 123,240,819         | 677,776,000   | 622,660,939   | 8,578,119  | 631,239,058   | 2,674,533,964         | 4.3%                    | 13.1%     |
| 2038 | 5,011,573,507            | 576,330,953   | 126,313,986         | 702,644,940   | 639,287,083   | 8,807,169  | 648,094,253   | 2,729,084,651         | 4.2%                    | 12.9%     |
| 2039 | 5,210,864,364            | 599,249,402   | 130,167,508         | 729,416,910   | 652,497,437   | 9,089,162  | 661,486,599   | 2,797,014,962         | 4.2%                    | 12.7%     |
| 2040 | 5,421,074,352            | 623,423,550   | 133,883,134         | 757,306,685   | 664,197,604   | 9,150,350  | 673,347,954   | 2,880,973,692         | 4.1%                    | 12.4%     |
| 2041 | 5,636,305,009            | 648,175,076   | 138,636,259         | 786,811,335   | 675,286,955   | 9,303,123  | 684,590,079   | 2,983,194,949         | 4.0%                    | 12.1%     |
| 2042 | 5,859,996,956            | 673,899,650   | 144,131,404         | 818,031,054   | 685,305,525   | 9,441,145  | 694,746,670   | 3,106,479,332         | 3.9%                    | 11.9%     |
| 2043 | 6,088,990,102            | 700,233,862   | 150,285,952         | 850,519,813   | 694,950,055   | 9,574,013  | 704,524,068   | 3,252,475,078         | 3.8%                    | 11.6%     |
| 2044 | 6,325,428,164            | 727,424,239   | 157,417,930         | 884,842,169   | 704,866,765   | 9,710,631  | 714,577,396   | 3,422,739,851         | 3.7%                    | 11.3%     |
| 2045 | 6,566,952,260            | 755,199,510   | 164,730,889         | 919,930,399   | 716,454,148   | 9,870,265  | 726,324,413   | 3,616,345,837         | 3.6%                    | 11.1%     |
| 2046 | 6,814,440,678            | 783,660,678   | 173,599,464         | 957,260,142   | 729,797,862   | 10,054,096 | 739,851,957   | 3,833,754,022         | 3.6%                    | 10.9%     |
| 2047 | 7,066,520,992            | 812,649,914   | 182,361,474         | 995,011,388   | 744,772,768   | 10,260,398 | 755,033,166   | 4,073,732,244         | 3.5%                    | 10.7%     |
| 2048 | 7,325,180,876            | 842,395,801   | 192,596,234         | 1,034,992,035 | 762,162,511   | 10,499,969 | 772,662,480   | 4,336,061,799         | 3.5%                    | 10.5%     |
| 2049 | 7,588,791,445            | 872,711,016   | 203,260,816         | 1,075,971,832 | 781,941,740   | 10,772,458 | 792,714,198   | 4,619,319,433         | 3.4%                    | 10.4%     |
| 2050 | 7,859,558,514            | 903,849,229   | 214,592,833         | 1,118,442,063 | 803,685,667   | 11,072,014 | 814,757,681   | 4,923,003,815         | 3.4%                    | 10.4%     |
| 2051 | 8,136,441,098            | 935,690,726   | 226,806,900         | 1,162,497,626 | 826,554,756   | 11,387,072 | 837,941,828   | 5,247,559,613         | 3.4%                    | 10.3%     |
| 2052 | 8,424,254,644            | 968,789,284   | 240,700,519         | 1,209,489,803 | 849,194,343   | 11,698,967 | 860,893,310   | 5,596,156,106         | 3.4%                    | 10.2%     |
| 2053 | 8,721,865,697            | 1,003,014,555 | 254,931,195         | 1,257,945,750 | 872,081,098   | 12,014,267 | 884,095,365   | 5,970,006,491         | 3.3%                    | 10.1%     |
| 2054 | 9,029,914,094            | 1,038,440,121 | 271,284,286         | 1,309,724,406 | 899,378,392   | 12,390,330 | 911,768,722   | 6,367,962,175         | 3.3%                    | 10.1%     |
| 2055 | 9,340,047,659            | 1,074,105,481 | 288,261,458         | 1,362,366,939 | 929,334,900   | 12,803,027 | 942,137,927   | 6,788,191,187         | 3.3%                    | 10.1%     |
| 2056 | 9,667,215,981            | 1,111,729,838 | 307,740,567         | 1,419,470,404 | 957,994,089   | 13,197,852 | 971,191,941   | 7,236,469,651         | 3.3%                    | 10.0%     |
| 2057 | 10,007,358,640           | 1,150,846,244 | 328,234,390         | 1,479,080,634 | 989,221,306   | 13,628,055 | 1,002,849,361 | 7,712,700,923         | 3.3%                    | 10.0%     |
| 2058 | 10,357,973,728           | 1,191,166,979 | 350,251,253         | 1,541,418,232 | 1,023,464,707 | 14,099,811 | 1,037,564,518 | 8,216,554,637         | 3.3%                    | 10.0%     |
| 2059 | 10,723,310,230           | 1,233,180,676 | 372,803,796         | 1,605,984,473 | 1,058,110,885 | 14,577,116 | 1,072,688,001 | 8,749,851,108         | 3.3%                    | 10.0%     |
| 2060 | 11,106,673,947           | 1,277,267,504 | 399,510,153         | 1,676,777,657 | 1,094,812,062 | 15,082,731 | 1,109,894,794 | 9,316,733,971         | 3.3%                    | 10.0%     |
| 2061 | 11,502,429,999           | 1,322,779,450 | 427,163,341         | 1,749,942,791 | 1,133,042,022 | 15,609,408 | 1,148,651,430 | 9,918,025,333         | 3.3%                    | 10.0%     |
| 2062 | 11,920,056,238           | 1,370,806,467 | 456,058,400         | 1,826,864,868 | 1,172,484,984 | 16,152,796 | 1,188,637,780 | 10,556,252,420        | 3.3%                    | 10.0%     |
| 2063 | 12,351,973,471           | 1,420,476,949 | 487,925,142         | 1,908,402,092 | 1,212,866,972 | 16,709,120 | 1,229,576,093 | 11,235,078,419        | 3.3%                    | 10.0%     |

<sup>73</sup>The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.9 Demographic projection<sup>74</sup> - Retirement at age 65

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,083  | 3,266   | 1,291 | 10,639 | 1,048   | 389    | 371      | 1,808 | 12,447      |
| 2006 | 5,802  | 3,139   | 1,256 | 10,197 | 1,065   | 395    | 376      | 1,837 | 12,035      |
| 2007 | 5,768  | 3,118   | 1,266 | 10,153 | 1,086   | 389    | 391      | 1,866 | 12,019      |
| 2008 | 5,765  | 3,113   | 1,281 | 10,159 | 1,099   | 384    | 405      | 1,888 | 12,046      |
| 2009 | 5,756  | 3,102   | 1,293 | 10,151 | 1,098   | 379    | 417      | 1,894 | 12,045      |
| 2010 | 5,752  | 3,084   | 1,303 | 10,139 | 1,082   | 367    | 421      | 1,871 | 12,010      |
| 2011 | 5,743  | 3,060   | 1,310 | 10,113 | 1,056   | 368    | 430      | 1,855 | 11,968      |
| 2012 | 6,008  | 3,188   | 1,373 | 10,569 | 1,042   | 364    | 435      | 1,841 | 12,410      |
| 2013 | 6,310  | 3,294   | 1,436 | 11,040 | 1,034   | 365    | 433      | 1,832 | 12,871      |
| 2014 | 6,563  | 3,405   | 1,493 | 11,461 | 1,007   | 367    | 437      | 1,810 | 13,272      |
| 2015 | 6,931  | 3,562   | 1,571 | 12,064 | 981     | 374    | 435      | 1,790 | 13,854      |
| 2016 | 7,270  | 3,697   | 1,641 | 12,608 | 963     | 381    | 425      | 1,768 | 14,376      |
| 2017 | 7,646  | 3,868   | 1,720 | 13,234 | 929     | 384    | 424      | 1,736 | 14,970      |
| 2018 | 7,998  | 4,023   | 1,792 | 13,814 | 894     | 385    | 417      | 1,695 | 15,509      |
| 2019 | 8,368  | 4,170   | 1,866 | 14,404 | 862     | 387    | 412      | 1,661 | 16,065      |
| 2020 | 8,788  | 4,330   | 1,947 | 15,065 | 837     | 380    | 404      | 1,621 | 16,686      |
| 2021 | 9,184  | 4,476   | 2,022 | 15,682 | 813     | 377    | 394      | 1,584 | 17,266      |
| 2022 | 9,596  | 4,657   | 2,103 | 16,356 | 787     | 372    | 384      | 1,542 | 17,899      |
| 2023 | 10,056 | 4,854   | 2,193 | 17,102 | 768     | 362    | 376      | 1,506 | 18,608      |
| 2024 | 10,438 | 5,028   | 2,269 | 17,734 | 764     | 354    | 364      | 1,482 | 19,216      |
| 2025 | 10,931 | 5,223   | 2,362 | 18,516 | 745     | 343    | 349      | 1,437 | 19,953      |
| 2026 | 11,355 | 5,432   | 2,448 | 19,235 | 742     | 341    | 340      | 1,424 | 20,659      |
| 2027 | 11,773 | 5,621   | 2,530 | 19,924 | 737     | 341    | 333      | 1,410 | 21,335      |
| 2028 | 12,165 | 5,804   | 2,609 | 20,578 | 740     | 338    | 323      | 1,401 | 21,978      |
| 2029 | 12,552 | 5,962   | 2,685 | 21,200 | 745     | 333    | 320      | 1,398 | 22,598      |
| 2030 | 12,873 | 6,105   | 2,750 | 21,728 | 750     | 327    | 313      | 1,390 | 23,118      |
| 2031 | 13,083 | 6,199   | 2,795 | 22,077 | 755     | 319    | 305      | 1,380 | 23,457      |
| 2032 | 13,254 | 6,292   | 2,835 | 22,381 | 760     | 311    | 302      | 1,374 | 23,754      |
| 2033 | 13,467 | 6,378   | 2,879 | 22,725 | 765     | 311    | 301      | 1,378 | 24,102      |
| 2034 | 13,581 | 6,444   | 2,908 | 22,933 | 770     | 311    | 303      | 1,385 | 24,318      |
| 2035 | 13,751 | 6,538   | 2,948 | 23,237 | 775     | 313    | 306      | 1,394 | 24,631      |
| 2036 | 13,912 | 6,579   | 2,981 | 23,471 | 779     | 317    | 310      | 1,406 | 24,877      |
| 2037 | 13,994 | 6,603   | 3,000 | 23,597 | 783     | 321    | 314      | 1,419 | 25,016      |
| 2038 | 13,978 | 6,614   | 3,004 | 23,596 | 787     | 327    | 320      | 1,435 | 25,031      |
| 2039 | 13,879 | 6,567   | 2,989 | 23,435 | 790     | 333    | 324      | 1,447 | 24,882      |
| 2040 | 13,813 | 6,526   | 2,979 | 23,318 | 793     | 339    | 328      | 1,460 | 24,778      |
| 2041 | 13,700 | 6,452   | 2,958 | 23,109 | 796     | 344    | 331      | 1,471 | 24,580      |
| 2042 | 13,593 | 6,383   | 2,937 | 22,912 | 797     | 348    | 333      | 1,479 | 24,391      |
| 2043 | 13,437 | 6,315   | 2,909 | 22,661 | 798     | 349    | 334      | 1,482 | 24,144      |
| 2044 | 13,332 | 6,255   | 2,888 | 22,474 | 799     | 350    | 334      | 1,483 | 23,957      |
| 2045 | 13,239 | 6,215   | 2,870 | 22,324 | 798     | 349    | 333      | 1,481 | 23,804      |
| 2046 | 13,170 | 6,197   | 2,858 | 22,224 | 797     | 350    | 334      | 1,481 | 23,705      |
| 2047 | 13,125 | 6,182   | 2,849 | 22,156 | 796     | 350    | 334      | 1,479 | 23,636      |
| 2048 | 13,138 | 6,195   | 2,850 | 22,183 | 794     | 353    | 334      | 1,480 | 23,663      |
| 2049 | 13,169 | 6,207   | 2,854 | 22,231 | 791     | 349    | 331      | 1,472 | 23,703      |
| 2050 | 13,245 | 6,233   | 2,866 | 22,343 | 789     | 349    | 331      | 1,469 | 23,812      |
| 2051 | 13,274 | 6,265   | 2,872 | 22,411 | 787     | 349    | 330      | 1,467 | 23,877      |
| 2052 | 13,315 | 6,281   | 2,877 | 22,473 | 785     | 348    | 329      | 1,461 | 23,934      |
| 2053 | 13,336 | 6,304   | 2,881 | 22,521 | 783     | 345    | 326      | 1,454 | 23,976      |
| 2054 | 13,476 | 6,383   | 2,909 | 22,768 | 782     | 344    | 325      | 1,451 | 24,220      |
| 2055 | 13,543 | 6,437   | 2,923 | 22,903 | 781     | 341    | 323      | 1,445 | 24,348      |
| 2056 | 13,612 | 6,488   | 2,938 | 23,039 | 780     | 340    | 322      | 1,441 | 24,480      |
| 2057 | 13,724 | 6,566   | 2,962 | 23,252 | 779     | 337    | 320      | 1,436 | 24,688      |
| 2058 | 13,855 | 6,640   | 2,989 | 23,483 | 780     | 335    | 319      | 1,433 | 24,916      |
| 2059 | 13,946 | 6,709   | 3,010 | 23,664 | 780     | 333    | 318      | 1,431 | 25,096      |
| 2060 | 14,080 | 6,807   | 3,041 | 23,928 | 781     | 332    | 318      | 1,431 | 25,359      |
| 2061 | 14,186 | 6,876   | 3,065 | 24,126 | 782     | 333    | 319      | 1,434 | 25,560      |
| 2062 | 14,310 | 6,980   | 3,096 | 24,385 | 784     | 331    | 318      | 1,433 | 25,818      |
| 2063 | 14,416 | 7,038   | 3,119 | 24,573 | 786     | 333    | 320      | 1,438 | 26,011      |

<sup>74</sup> Number of pensions.

## Annex 2.10 AOV financial statement<sup>75</sup> - Contribution ceiling at 60,000 AFL (in AFL)

| Total<br>insurable<br>earnings | Revenue       |                        |             | Expenditure   |            |               | Reserve<br>(end of year) | Expenditure<br>As % of GDP | PAYG<br>cost |
|--------------------------------|---------------|------------------------|-------------|---------------|------------|---------------|--------------------------|----------------------------|--------------|
|                                | Contribution  | Investment<br>earnings | Total       | Benefits      | Admin.     | Total         |                          |                            |              |
| 1,175,096,930                  | 135,136,147   | -                      | 135,136,147 | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000              | 3.6%                       | 11.1%        |
| 1,237,881,342                  | 142,356,354   | 10,781,158             | 153,137,512 | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665              | 3.5%                       | 10.9%        |
| 1,374,080,935                  | 158,019,308   | 12,091,343             | 170,110,650 | 145,146,890   | 1,999,623  | 147,146,513   | 184,763,802              | 3.6%                       | 10.7%        |
| 1,456,031,531                  | 167,443,626   | 13,125,917             | 180,569,543 | 152,755,780   | 2,104,447  | 154,860,228   | 210,473,118              | 3.6%                       | 10.6%        |
| 1,541,236,053                  | 177,242,146   | 14,691,402             | 191,933,548 | 160,733,413   | 2,214,352  | 162,947,764   | 239,458,901              | 3.6%                       | 10.6%        |
| 1,627,653,556                  | 187,180,159   | 16,336,382             | 203,516,541 | 169,185,708   | 2,330,795  | 171,516,503   | 271,458,940              | 3.6%                       | 10.5%        |
| 1,716,751,376                  | 197,426,408   | 18,048,304             | 215,474,712 | 181,041,723   | 2,494,130  | 183,535,853   | 303,397,799              | 3.6%                       | 10.7%        |
| 1,803,912,652                  | 207,449,955   | 18,881,048             | 226,331,003 | 194,395,140   | 2,678,094  | 197,073,234   | 332,655,568              | 3.7%                       | 10.9%        |
| 1,887,625,550                  | 217,076,938   | 19,768,876             | 236,845,814 | 209,147,012   | 2,881,324  | 212,028,335   | 357,473,047              | 3.8%                       | 11.2%        |
| 1,973,067,438                  | 226,902,755   | 20,367,831             | 247,270,586 | 224,727,611   | 3,095,971  | 227,823,581   | 376,920,052              | 3.9%                       | 11.5%        |
| 2,056,913,087                  | 236,545,005   | 20,674,976             | 257,219,981 | 241,254,017   | 3,323,648  | 244,577,665   | 389,562,367              | 4.0%                       | 11.9%        |
| 2,142,091,881                  | 246,340,566   | 20,540,421             | 266,880,987 | 258,034,877   | 3,554,830  | 261,589,707   | 394,853,647              | 4.1%                       | 12.2%        |
| 2,229,121,866                  | 256,349,015   | 20,232,196             | 276,581,211 | 276,214,794   | 3,805,286  | 280,020,081   | 391,414,777              | 4.2%                       | 12.6%        |
| 2,316,017,512                  | 266,342,014   | 19,439,748             | 285,781,762 | 295,425,166   | 4,069,939  | 299,495,105   | 377,701,434              | 4.3%                       | 12.9%        |
| 2,405,215,022                  | 276,599,728   | 18,080,137             | 294,679,864 | 315,657,958   | 4,348,677  | 320,006,635   | 352,374,664              | 4.4%                       | 13.3%        |
| 2,493,195,401                  | 286,717,471   | 16,144,908             | 302,862,379 | 337,935,039   | 4,655,578  | 342,590,617   | 312,646,425              | 4.5%                       | 13.7%        |
| 2,580,282,424                  | 296,732,479   | 13,544,858             | 310,277,337 | 360,816,528   | 4,970,806  | 365,787,335   | 257,136,427              | 4.6%                       | 14.2%        |
| 2,670,826,232                  | 307,145,017   | 10,238,139             | 317,383,156 | 384,916,175   | 5,302,816  | 390,218,992   | 184,300,591              | 4.8%                       | 14.6%        |
| 2,758,523,874                  | 317,230,246   | 6,300,086              | 323,530,332 | 410,826,613   | 5,659,773  | 416,486,386   | 91,344,537               | 4.9%                       | 15.1%        |
| 2,848,905,143                  | 327,624,091   | 1,575,380              | 329,199,472 | 436,958,150   | 6,019,775  | 442,977,925   | 22,433,916               | 5.0%                       | 15.5%        |
| 2,942,360,598                  | 338,371,469   | 3,972,431              | 334,399,038 | 463,381,029   | 6,383,791  | 469,764,820   | 157,799,698              | 5.2%                       | 16.0%        |
| 3,039,833,347                  | 349,580,835   | 10,453,254             | 339,127,581 | 490,021,124   | 6,750,800  | 496,771,924   | 315,444,041              | 5.3%                       | 16.3%        |
| 3,141,516,622                  | 361,274,412   | 17,806,838             | 343,467,573 | 516,292,998   | 7,112,735  | 523,405,733   | 495,382,201              | 5.4%                       | 16.7%        |
| 3,249,636,895                  | 373,708,243   | 26,240,389             | 347,467,854 | 540,698,751   | 7,448,962  | 548,147,713   | 696,062,061              | 5.4%                       | 16.9%        |
| 3,368,284,666                  | 387,352,737   | 35,636,255             | 351,716,481 | 563,568,672   | 7,764,031  | 571,332,703   | 915,678,282              | 5.5%                       | 17.0%        |
| 3,482,855,949                  | 400,528,434   | 42,728,891             | 357,799,543 | 587,013,502   | 8,087,020  | 595,100,522   | 1,152,979,261            | 5.5%                       | 17.1%        |
| 3,600,205,960                  | 414,023,685   | 53,481,599             | 360,542,087 | 610,082,190   | 8,404,827  | 618,487,017   | 1,410,924,192            | 5.6%                       | 17.2%        |
| 3,727,147,753                  | 428,621,992   | 64,998,646             | 363,623,345 | 633,476,925   | 8,727,125  | 642,204,050   | 1,689,504,896            | 5.6%                       | 17.2%        |
| 3,855,326,464                  | 443,362,543   | 78,301,241             | 365,061,303 | 657,644,165   | 9,060,067  | 666,704,232   | 1,991,147,826            | 5.6%                       | 17.3%        |
| 3,994,735,092                  | 459,394,536   | 93,147,295             | 366,247,240 | 680,270,550   | 9,371,780  | 689,642,330   | 2,314,542,916            | 5.6%                       | 17.3%        |
| 4,145,368,688                  | 476,717,399   | 109,230,225            | 367,487,174 | 700,918,959   | 9,656,244  | 710,575,203   | 2,657,630,944            | 5.6%                       | 17.1%        |
| 4,308,425,218                  | 495,468,900   | 126,731,091            | 368,737,809 | 718,513,949   | 9,898,642  | 728,412,592   | 3,017,305,727            | 5.5%                       | 16.9%        |
| 4,486,920,928                  | 515,995,907   | 145,427,385            | 370,568,522 | 734,748,289   | 10,122,295 | 744,870,585   | 3,391,607,790            | 5.4%                       | 16.6%        |
| 4,670,487,136                  | 537,106,021   | 165,326,835            | 371,779,186 | 750,451,611   | 10,338,633 | 760,790,244   | 3,780,618,849            | 5.4%                       | 16.3%        |
| 4,865,847,110                  | 559,572,418   | 184,971,451            | 374,600,967 | 765,210,148   | 10,541,955 | 775,752,102   | 4,181,769,984            | 5.3%                       | 15.9%        |
| 5,066,848,049                  | 582,687,526   | 205,065,342            | 377,622,183 | 779,673,728   | 10,741,213 | 790,414,940   | 4,594,562,741            | 5.2%                       | 15.6%        |
| 5,276,339,993                  | 606,779,099   | 226,374,911            | 380,404,188 | 794,413,205   | 10,944,272 | 805,357,477   | 5,019,516,030            | 5.1%                       | 15.3%        |
| 5,488,875,218                  | 631,220,650   | 246,950,502            | 384,270,148 | 810,583,013   | 11,167,036 | 821,750,049   | 5,456,995,932            | 5.0%                       | 15.0%        |
| 5,705,065,444                  | 656,082,526   | 268,639,334            | 387,443,192 | 828,207,920   | 11,409,846 | 839,617,766   | 5,909,170,507            | 4.9%                       | 14.7%        |
| 5,923,952,450                  | 681,254,532   | 290,741,675            | 390,512,857 | 847,183,010   | 11,671,258 | 858,854,268   | 6,377,511,917            | 4.8%                       | 14.5%        |
| 6,147,467,281                  | 706,958,737   | 312,885,296            | 394,073,441 | 868,159,045   | 11,960,235 | 880,119,280   | 6,863,557,756            | 4.8%                       | 14.3%        |
| 6,371,923,143                  | 732,771,161   | 335,616,743            | 397,154,419 | 891,082,648   | 12,276,043 | 903,358,691   | 7,369,762,029            | 4.7%                       | 14.2%        |
| 6,603,440,000                  | 759,395,600   | 357,220,721            | 402,174,879 | 915,613,646   | 12,613,996 | 928,227,641   | 7,895,814,791            | 4.7%                       | 14.1%        |
| 6,839,037,192                  | 786,489,277   | 380,724,927            | 405,764,351 | 940,986,208   | 12,963,542 | 953,949,750   | 8,444,000,191            | 4.6%                       | 13.9%        |
| 7,084,400,571                  | 814,706,066   | 402,535,673            | 412,170,393 | 965,886,686   | 13,306,585 | 979,193,271   | 9,011,023,069            | 4.6%                       | 13.8%        |
| 7,339,268,177                  | 844,015,840   | 426,161,265            | 417,854,576 | 990,736,490   | 13,648,929 | 1,004,385,419 | 9,597,553,912            | 4.5%                       | 13.7%        |
| 7,603,632,143                  | 874,417,696   | 449,487,815            | 424,929,881 | 1,019,366,540 | 14,043,352 | 1,033,409,892 | 10,206,033,923           | 4.5%                       | 13.6%        |
| 7,860,252,701                  | 903,929,061   | 473,305,633            | 430,623,428 | 1,050,219,104 | 14,468,394 | 1,064,687,498 | 10,840,097,993           | 4.4%                       | 13.5%        |
| 8,135,931,000                  | 935,632,065   | 498,142,868            | 437,489,198 | 1,079,713,611 | 14,874,727 | 1,094,588,337 | 11,497,197,133           | 4.4%                       | 13.5%        |
| 8,421,857,689                  | 968,513,634   | 525,610,400            | 442,903,234 | 1,111,430,354 | 15,311,674 | 1,126,742,028 | 12,181,035,927           | 4.4%                       | 13.4%        |
| 8,710,257,822                  | 1,001,679,649 | 552,699,070            | 448,980,580 | 1,145,858,431 | 15,785,974 | 1,161,644,405 | 12,893,699,952           | 4.4%                       | 13.3%        |
| 9,008,890,755                  | 1,036,022,437 | 583,399,999            | 452,622,437 | 1,180,675,876 | 16,265,638 | 1,196,941,515 | 13,638,018,830           | 4.3%                       | 13.3%        |
| 9,322,789,270                  | 1,072,120,766 | 614,688,329            | 457,432,437 | 1,217,478,030 | 16,772,645 | 1,234,250,675 | 14,414,837,067           | 4.3%                       | 13.2%        |
| 9,640,218,919                  | 1,108,625,176 | 650,520,901            | 458,104,275 | 1,255,863,206 | 17,301,460 | 1,273,164,666 | 15,229,897,458           | 4.3%                       | 13.2%        |
| 9,979,568,252                  | 1,147,650,349 | 687,568,636            | 460,081,713 | 1,295,613,219 | 17,849,078 | 1,313,462,297 | 16,083,278,042           | 4.3%                       | 13.2%        |
| 10,324,983,228                 | 1,187,373,071 | 726,982,063            | 460,391,008 | 1,336,547,311 | 18,413,009 | 1,354,960,320 | 16,977,847,353           | 4.3%                       | 13.1%        |
| 10,696,416,269                 | 1,230,087,871 | 766,626,414            | 463,461,456 | 1,376,378,215 | 18,961,741 | 1,395,339,956 | 17,909,725,853           | 4.3%                       | 13.0%        |
| 11,086,163,762                 | 1,274,908,833 | 813,695,348            | 461,213,484 | 1,417,060,208 | 19,522,198 | 1,436,582,406 | 18,885,094,775           | 4.2%                       | 13.0%        |
| 11,491,801,977                 | 1,321,557,227 | 861,433,563            | 460,123,664 | 1,457,222,973 | 20,075,503 | 1,477,298,476 | 19,902,269,586           | 4.2%                       | 12.9%        |
| 11,925,903,186                 | 1,371,478,866 | 910,261,401            | 461,217,465 | 1,498,886,976 | 20,649,489 | 1,519,536,464 | 20,960,588,585           | 4.2%                       | 12.7%        |
| 12,365,415,718                 | 1,422,022,808 | 963,432,266            | 458,590,542 | 1,541,589,154 | 21,237,777 | 1,562,826,931 | 22,064,824,974           | 4.2%                       | 12.6%        |

<sup>75</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.11 Demographic projection<sup>76</sup> - Contribution ceiling at 60,000 AFL

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,631  | 3,529   | 1,398 | 11,558 | 1,048   | 389    | 371      | 1,808 | 13,366      |
| 2006 | 6,902  | 3,653   | 1,471 | 12,026 | 1,065   | 395    | 376      | 1,837 | 13,863      |
| 2007 | 7,179  | 3,811   | 1,547 | 12,537 | 1,086   | 389    | 391      | 1,866 | 14,403      |
| 2008 | 7,503  | 3,944   | 1,626 | 13,073 | 1,099   | 384    | 405      | 1,888 | 14,961      |
| 2009 | 7,783  | 4,083   | 1,698 | 13,564 | 1,098   | 379    | 417      | 1,894 | 15,458      |
| 2010 | 8,187  | 4,273   | 1,792 | 14,251 | 1,082   | 367    | 421      | 1,871 | 16,122      |
| 2011 | 8,574  | 4,440   | 1,880 | 14,893 | 1,056   | 368    | 430      | 1,855 | 16,748      |
| 2012 | 9,007  | 4,650   | 1,978 | 15,634 | 1,042   | 364    | 435      | 1,841 | 17,475      |
| 2013 | 9,423  | 4,846   | 2,071 | 16,340 | 1,034   | 365    | 433      | 1,832 | 18,172      |
| 2014 | 9,865  | 5,036   | 2,167 | 17,068 | 1,007   | 367    | 437      | 1,810 | 18,878      |
| 2015 | 10,367 | 5,243   | 2,271 | 17,881 | 981     | 374    | 435      | 1,790 | 19,672      |
| 2016 | 10,848 | 5,437   | 2,370 | 18,655 | 963     | 381    | 425      | 1,768 | 20,423      |
| 2017 | 11,352 | 5,667   | 2,476 | 19,494 | 929     | 384    | 424      | 1,736 | 21,231      |
| 2018 | 11,909 | 5,914   | 2,590 | 20,413 | 894     | 385    | 417      | 1,695 | 22,108      |
| 2019 | 12,390 | 6,139   | 2,690 | 21,218 | 862     | 387    | 412      | 1,661 | 22,879      |
| 2020 | 12,988 | 6,386   | 2,808 | 22,183 | 837     | 380    | 404      | 1,621 | 23,804      |
| 2021 | 13,519 | 6,646   | 2,918 | 23,083 | 813     | 377    | 394      | 1,584 | 24,666      |
| 2022 | 14,043 | 6,885   | 3,023 | 23,951 | 787     | 372    | 384      | 1,542 | 25,493      |
| 2023 | 14,541 | 7,116   | 3,124 | 24,781 | 768     | 362    | 376      | 1,506 | 26,287      |
| 2024 | 15,035 | 7,321   | 3,220 | 25,576 | 764     | 354    | 364      | 1,482 | 27,058      |
| 2025 | 15,460 | 7,507   | 3,304 | 26,271 | 745     | 343    | 349      | 1,437 | 27,708      |
| 2026 | 15,768 | 7,643   | 3,366 | 26,777 | 742     | 341    | 340      | 1,424 | 28,200      |
| 2027 | 16,035 | 7,775   | 3,422 | 27,231 | 737     | 341    | 333      | 1,410 | 28,641      |
| 2028 | 16,341 | 7,899   | 3,482 | 27,723 | 740     | 338    | 323      | 1,401 | 29,123      |
| 2029 | 16,542 | 8,001   | 3,526 | 28,069 | 745     | 333    | 320      | 1,398 | 29,467      |
| 2030 | 16,799 | 8,131   | 3,581 | 28,511 | 750     | 327    | 313      | 1,390 | 29,901      |
| 2031 | 17,042 | 8,206   | 3,627 | 28,875 | 755     | 319    | 305      | 1,380 | 30,254      |
| 2032 | 17,201 | 8,263   | 3,661 | 29,124 | 760     | 311    | 302      | 1,374 | 30,498      |
| 2033 | 17,256 | 8,305   | 3,678 | 29,238 | 765     | 311    | 301      | 1,378 | 30,616      |
| 2034 | 17,220 | 8,284   | 3,675 | 29,179 | 770     | 311    | 303      | 1,385 | 30,565      |
| 2035 | 17,214 | 8,268   | 3,677 | 29,159 | 775     | 313    | 306      | 1,394 | 30,553      |
| 2036 | 17,154 | 8,216   | 3,667 | 29,037 | 779     | 317    | 310      | 1,406 | 30,444      |
| 2037 | 17,097 | 8,168   | 3,657 | 28,922 | 783     | 321    | 314      | 1,419 | 30,341      |
| 2038 | 16,987 | 8,119   | 3,640 | 28,747 | 787     | 327    | 320      | 1,435 | 30,181      |
| 2039 | 16,925 | 8,075   | 3,629 | 28,630 | 790     | 333    | 324      | 1,447 | 30,077      |
| 2040 | 16,867 | 8,050   | 3,621 | 28,538 | 793     | 339    | 328      | 1,460 | 29,998      |
| 2041 | 16,828 | 8,044   | 3,617 | 28,489 | 796     | 344    | 331      | 1,471 | 29,960      |
| 2042 | 16,807 | 8,039   | 3,616 | 28,462 | 797     | 348    | 333      | 1,479 | 29,941      |
| 2043 | 16,838 | 8,059   | 3,623 | 28,520 | 798     | 349    | 334      | 1,482 | 30,002      |
| 2044 | 16,881 | 8,075   | 3,632 | 28,587 | 799     | 350    | 334      | 1,483 | 30,070      |
| 2045 | 16,967 | 8,101   | 3,647 | 28,715 | 798     | 349    | 333      | 1,481 | 30,195      |
| 2046 | 17,000 | 8,131   | 3,654 | 28,784 | 797     | 350    | 334      | 1,481 | 30,265      |
| 2047 | 17,037 | 8,141   | 3,660 | 28,838 | 796     | 350    | 334      | 1,479 | 30,317      |
| 2048 | 17,050 | 8,155   | 3,662 | 28,867 | 794     | 353    | 334      | 1,480 | 30,347      |
| 2049 | 17,180 | 8,225   | 3,687 | 29,093 | 791     | 349    | 331      | 1,472 | 30,564      |
| 2050 | 17,230 | 8,268   | 3,697 | 29,195 | 789     | 349    | 331      | 1,469 | 30,664      |
| 2051 | 17,281 | 8,306   | 3,707 | 29,293 | 787     | 349    | 330      | 1,467 | 30,760      |
| 2052 | 17,372 | 8,371   | 3,726 | 29,468 | 785     | 348    | 329      | 1,461 | 30,929      |
| 2053 | 17,481 | 8,432   | 3,747 | 29,661 | 783     | 345    | 326      | 1,454 | 31,115      |
| 2054 | 17,549 | 8,489   | 3,762 | 29,800 | 782     | 344    | 325      | 1,451 | 31,252      |
| 2055 | 17,664 | 8,578   | 3,787 | 30,029 | 781     | 341    | 323      | 1,445 | 31,474      |
| 2056 | 17,749 | 8,638   | 3,805 | 30,193 | 780     | 340    | 322      | 1,441 | 31,634      |
| 2057 | 17,856 | 8,737   | 3,832 | 30,425 | 779     | 337    | 320      | 1,436 | 31,861      |
| 2058 | 17,947 | 8,792   | 3,851 | 30,589 | 780     | 335    | 319      | 1,433 | 32,022      |
| 2059 | 18,019 | 8,842   | 3,867 | 30,728 | 780     | 333    | 318      | 1,431 | 32,160      |
| 2060 | 18,086 | 8,902   | 3,884 | 30,872 | 781     | 332    | 318      | 1,431 | 32,303      |
| 2061 | 18,117 | 8,929   | 3,892 | 30,938 | 782     | 333    | 319      | 1,434 | 32,372      |
| 2062 | 18,207 | 8,984   | 3,912 | 31,103 | 784     | 331    | 318      | 1,433 | 32,536      |
| 2063 | 18,235 | 9,009   | 3,920 | 31,164 | 786     | 333    | 320      | 1,438 | 32,602      |

<sup>76</sup> Number of pensions.

## Annex 2.12 AOV financial statement<sup>77</sup> - Contribution ceiling at 75,000 AFL (in AFL)

| Year | Contribution rate | Total insurable earnings | Revenue       |                     |             | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|-------------------|--------------------------|---------------|---------------------|-------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                   |                          | Contribution  | Investment earnings | Total       | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 11.5%             | 1,175,096,930            | 135,136,147   | -                   | 135,136,147 | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 11.5%             | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512 | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 11.5%             | 1,438,834,552            | 165,465,973   | 12,355,994          | 177,821,967 | 145,146,890   | 1,999,623  | 147,146,513   | 192,475,119           | 3.6%                    | 10.2%     |
| 2006 | 11.5%             | 1,525,005,965            | 175,375,686   | 13,924,084          | 189,299,770 | 152,755,780   | 2,104,447  | 154,860,228   | 226,914,662           | 3.6%                    | 10.2%     |
| 2007 | 11.5%             | 1,614,583,819            | 185,677,139   | 16,082,174          | 201,759,313 | 160,733,413   | 2,214,352  | 162,947,764   | 265,726,211           | 3.6%                    | 10.1%     |
| 2008 | 11.5%             | 1,705,362,553            | 196,116,694   | 18,363,123          | 214,479,817 | 169,185,708   | 2,330,795  | 171,516,503   | 308,689,525           | 3.6%                    | 10.1%     |
| 2009 | 11.5%             | 1,798,920,352            | 206,875,840   | 20,764,422          | 227,640,263 | 181,041,723   | 2,494,130  | 183,535,853   | 352,793,935           | 3.6%                    | 10.2%     |
| 2010 | 11.5%             | 1,890,321,720            | 217,386,998   | 22,203,701          | 239,590,698 | 194,395,140   | 2,678,094  | 197,073,234   | 395,311,399           | 3.7%                    | 10.4%     |
| 2011 | 11.5%             | 1,978,046,990            | 227,475,404   | 23,766,999          | 251,242,403 | 209,147,012   | 2,881,324  | 212,028,335   | 434,525,467           | 3.8%                    | 10.7%     |
| 2012 | 11.5%             | 2,067,557,069            | 237,769,063   | 25,069,310          | 262,838,373 | 224,727,611   | 3,095,971  | 227,823,581   | 469,540,258           | 3.9%                    | 11.0%     |
| 2013 | 11.5%             | 2,155,315,663            | 247,861,301   | 26,118,820          | 273,980,121 | 241,254,017   | 3,323,648  | 244,577,665   | 498,942,714           | 4.0%                    | 11.3%     |
| 2014 | 11.5%             | 2,244,421,851            | 258,108,513   | 26,733,516          | 284,842,029 | 258,034,877   | 3,554,830  | 261,589,707   | 522,195,037           | 4.1%                    | 11.7%     |
| 2015 | 11.5%             | 2,335,399,572            | 268,570,951   | 27,274,609          | 295,845,560 | 276,214,794   | 3,805,286  | 280,020,081   | 580,020,516           | 4.2%                    | 12.0%     |
| 2016 | 11.5%             | 2,426,146,842            | 279,006,887   | 27,362,807          | 306,369,693 | 295,425,166   | 4,069,939  | 299,495,105   | 544,895,105           | 4.3%                    | 12.3%     |
| 2017 | 11.5%             | 2,519,228,955            | 289,711,330   | 26,893,614          | 316,604,944 | 315,657,958   | 4,348,677  | 320,006,635   | 541,493,414           | 4.4%                    | 12.7%     |
| 2018 | 11.5%             | 2,610,911,702            | 300,254,846   | 25,878,541          | 326,133,387 | 337,935,039   | 4,655,578  | 342,590,617   | 525,036,183           | 4.5%                    | 13.1%     |
| 2019 | 11.5%             | 2,701,579,052            | 310,681,591   | 24,208,518          | 334,890,109 | 360,816,528   | 4,970,806  | 365,787,335   | 494,138,958           | 4.6%                    | 13.5%     |
| 2020 | 11.5%             | 2,795,797,343            | 321,516,694   | 21,804,140          | 343,320,834 | 384,916,175   | 5,302,816  | 390,218,992   | 447,240,800           | 4.8%                    | 14.0%     |
| 2021 | 11.5%             | 2,887,021,229            | 332,007,441   | 18,889,537          | 350,896,978 | 410,826,613   | 5,659,773  | 416,486,386   | 381,651,392           | 4.9%                    | 14.4%     |
| 2022 | 11.5%             | 2,980,985,968            | 342,813,386   | 15,248,010          | 358,061,396 | 436,958,150   | 6,019,775  | 442,977,925   | 296,734,864           | 5.0%                    | 14.9%     |
| 2023 | 11.5%             | 3,078,230,727            | 353,996,534   | 10,885,200          | 364,881,733 | 463,381,029   | 6,383,791  | 469,764,820   | 191,851,777           | 5.2%                    | 15.3%     |
| 2024 | 11.5%             | 3,179,725,432            | 365,668,425   | 5,758,712           | 371,427,137 | 490,021,124   | 6,750,800  | 496,771,924   | 66,506,990            | 5.3%                    | 15.6%     |
| 2025 | 11.5%             | 3,285,738,802            | 377,859,962   | - 245,978           | 377,613,984 | 516,292,998   | 7,112,735  | 523,405,733   | - 79,284,759          | 5.4%                    | 15.9%     |
| 2026 | 11.5%             | 3,398,521,927            | 390,830,022   | - 7,086,401         | 383,743,620 | 540,698,751   | 7,448,962  | 548,147,713   | - 243,688,852         | 5.4%                    | 16.1%     |
| 2027 | 11.5%             | 3,522,348,926            | 405,070,126   | - 14,756,484        | 390,313,643 | 563,568,672   | 7,764,031  | 571,332,703   | - 424,707,912         | 5.5%                    | 16.2%     |
| 2028 | 11.5%             | 3,641,970,600            | 418,826,619   | - 21,615,863        | 397,210,756 | 587,013,502   | 8,087,020  | 595,100,522   | - 622,597,678         | 5.5%                    | 16.3%     |
| 2029 | 11.5%             | 3,764,604,479            | 432,929,515   | - 30,465,150        | 402,464,366 | 610,082,190   | 8,404,827  | 618,487,017   | - 838,620,330         | 5.6%                    | 16.4%     |
| 2030 | 11.5%             | 3,897,338,028            | 448,193,873   | - 40,055,679        | 408,138,194 | 633,476,925   | 8,727,125  | 642,204,050   | - 1,072,686,186       | 5.6%                    | 16.5%     |
| 2031 | 11.5%             | 4,031,489,971            | 463,621,347   | - 51,033,060        | 412,588,287 | 657,644,165   | 9,060,067  | 666,704,232   | - 1,326,802,131       | 5.6%                    | 16.5%     |
| 2032 | 11.5%             | 4,177,697,428            | 480,435,204   | - 63,289,540        | 417,145,664 | 680,270,550   | 9,371,780  | 689,642,330   | - 1,599,298,797       | 5.6%                    | 16.5%     |
| 2033 | 11.5%             | 4,335,801,476            | 498,617,170   | - 76,595,206        | 422,021,964 | 700,918,959   | 9,656,244  | 710,575,203   | - 1,887,852,036       | 5.6%                    | 16.4%     |
| 2034 | 11.5%             | 4,507,012,439            | 518,306,430   | - 91,032,227        | 427,274,204 | 718,513,949   | 9,898,642  | 728,412,592   | - 2,188,990,424       | 5.5%                    | 16.2%     |
| 2035 | 11.5%             | 4,694,562,838            | 539,874,726   | - 106,398,948       | 433,475,778 | 734,748,289   | 10,122,295 | 744,870,585   | - 2,500,385,230       | 5.4%                    | 15.9%     |
| 2036 | 11.5%             | 4,887,488,344            | 562,061,160   | - 122,672,563       | 439,388,597 | 750,451,611   | 10,338,633 | 760,790,244   | - 2,821,786,878       | 5.4%                    | 15.6%     |
| 2037 | 11.5%             | 5,092,802,115            | 585,672,243   | - 138,734,913       | 446,937,330 | 765,210,148   | 10,541,955 | 775,752,102   | - 3,150,601,650       | 5.3%                    | 15.2%     |
| 2038 | 11.5%             | 5,303,942,603            | 609,953,399   | - 155,065,607       | 454,887,793 | 779,673,728   | 10,741,213 | 790,414,940   | - 3,486,128,798       | 5.2%                    | 14.9%     |
| 2039 | 11.5%             | 5,523,792,464            | 635,236,133   | - 172,225,780       | 463,010,353 | 794,413,205   | 10,944,272 | 805,357,477   | - 3,828,475,922       | 5.1%                    | 14.6%     |
| 2040 | 11.5%             | 5,746,736,369            | 660,874,682   | - 188,724,796       | 472,149,886 | 810,583,013   | 11,167,036 | 821,750,049   | - 4,178,076,085       | 5.0%                    | 14.3%     |
| 2041 | 11.5%             | 5,973,317,128            | 686,931,470   | - 205,971,175       | 480,960,294 | 828,207,920   | 11,409,846 | 839,617,766   | - 4,536,733,557       | 4.9%                    | 14.1%     |
| 2042 | 11.5%             | 6,202,566,173            | 713,295,110   | - 223,435,908       | 489,859,202 | 847,183,010   | 11,671,258 | 858,854,268   | - 4,905,728,623       | 4.8%                    | 13.8%     |
| 2043 | 11.5%             | 6,436,572,075            | 740,205,789   | - 240,839,161       | 499,366,628 | 868,159,045   | 11,960,235 | 880,119,280   | - 5,286,481,276       | 4.8%                    | 13.7%     |
| 2044 | 11.5%             | 6,671,488,460            | 767,221,173   | - 258,613,579       | 508,607,594 | 891,082,648   | 12,276,043 | 903,358,691   | - 5,681,232,373       | 4.7%                    | 13.5%     |
| 2045 | 11.5%             | 6,913,834,693            | 795,090,990   | - 275,446,511       | 519,644,478 | 915,613,646   | 12,613,996 | 928,227,641   | - 6,089,815,536       | 4.7%                    | 13.4%     |
| 2046 | 11.5%             | 7,160,426,711            | 823,449,072   | - 293,673,893       | 529,775,179 | 940,986,208   | 12,963,542 | 953,949,750   | - 6,513,990,107       | 4.6%                    | 13.3%     |
| 2047 | 11.5%             | 7,417,013,749            | 852,956,581   | - 310,514,494       | 542,442,087 | 965,886,686   | 13,306,585 | 979,193,271   | - 6,950,741,291       | 4.6%                    | 13.2%     |
| 2048 | 11.5%             | 7,683,518,845            | 883,604,667   | - 328,655,978       | 554,948,690 | 990,736,490   | 13,648,929 | 1,004,385,419 | - 7,400,178,020       | 4.5%                    | 13.1%     |
| 2049 | 11.5%             | 7,959,846,720            | 915,382,373   | - 346,472,051       | 568,910,322 | 1,019,366,540 | 14,043,352 | 1,033,409,892 | - 7,864,677,591       | 4.5%                    | 13.0%     |
| 2050 | 11.5%             | 8,227,961,137            | 946,215,531   | - 364,602,039       | 581,613,491 | 1,050,219,104 | 14,468,394 | 1,064,687,498 | - 8,347,751,598       | 4.4%                    | 12.9%     |
| 2051 | 11.5%             | 8,515,978,329            | 979,337,508   | - 383,448,799       | 595,888,709 | 1,079,713,611 | 14,874,727 | 1,094,588,337 | - 8,846,451,226       | 4.4%                    | 12.9%     |
| 2052 | 11.5%             | 8,814,668,600            | 1,013,686,889 | - 404,232,687       | 609,454,202 | 1,111,430,354 | 15,311,674 | 1,126,742,028 | - 9,363,739,052       | 4.4%                    | 12.8%     |
| 2053 | 11.5%             | 9,115,834,848            | 1,048,321,008 | - 424,652,814       | 623,668,194 | 1,145,858,431 | 15,785,974 | 1,161,644,405 | - 9,901,715,263       | 4.4%                    | 12.7%     |
| 2054 | 11.5%             | 9,427,722,828            | 1,084,188,125 | - 447,781,257       | 636,406,869 | 1,180,675,876 | 16,265,638 | 1,196,941,515 | - 10,462,249,909      | 4.3%                    | 12.7%     |
| 2055 | 11.5%             | 9,755,485,247            | 1,121,880,803 | - 471,285,068       | 650,595,735 | 1,217,478,030 | 16,772,645 | 1,234,250,675 | - 11,045,904,849      | 4.3%                    | 12.7%     |
| 2056 | 11.5%             | 10,086,977,184           | 1,160,002,376 | - 498,199,065       | 661,803,312 | 1,255,863,206 | 17,301,460 | 1,273,164,666 | - 11,657,266,203      | 4.3%                    | 12.6%     |
| 2057 | 11.5%             | 10,441,678,374           | 1,200,793,013 | - 525,962,348       | 674,830,665 | 1,295,613,219 | 17,849,078 | 1,313,462,297 | - 12,295,897,835      | 4.3%                    | 12.6%     |
| 2058 | 11.5%             | 10,802,745,020           | 1,242,315,677 | - 555,444,067       | 686,871,610 | 1,336,547,311 | 18,413,009 | 1,354,960,320 | - 12,963,986,545      | 4.3%                    | 12.5%     |
| 2059 | 11.5%             | 11,191,460,499           | 1,287,017,957 | - 584,985,564       | 702,032,393 | 1,376,378,215 | 18,961,741 | 1,395,339,956 | - 13,657,294,107      | 4.3%                    | 12.5%     |
| 2060 | 11.5%             | 11,599,449,439           | 1,333,936,686 | - 620,032,321       | 713,904,364 | 1,417,060,208 | 19,522,198 | 1,436,582,406 | - 14,379,972,149      | 4.2%                    | 12.4%     |
| 2061 | 11.5%             | 12,024,161,356           | 1,382,778,556 | - 655,394,152       | 727,384,404 | 1,457,222,973 | 20,075,503 | 1,477,298,476 | - 15,129,886,221      | 4.2%                    | 12.3%     |
| 2062 | 11.5%             | 12,478,965,278           | 1,435,081,007 | - 691,355,895       | 743,725,112 | 1,498,886,976 | 20,649,489 | 1,519,536,464 | - 15,905,697,574      | 4.2%                    | 12.2%     |
| 2063 | 11.5%             | 12,939,531,149           | 1,488,046,082 | - 730,363,018       | 757,683,065 | 1,541,589,154 | 21,237,777 | 1,562,826,931 | - 16,710,841,440      | 4.2%                    | 12.1%     |

<sup>77</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.13 Demographic projection<sup>78</sup> - Contribution ceiling at 75,000 AFL

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,631  | 3,529   | 1,398 | 11,558 | 1,048   | 389    | 371      | 1,808 | 13,366      |
| 2006 | 6,902  | 3,653   | 1,471 | 12,026 | 1,065   | 395    | 376      | 1,837 | 13,863      |
| 2007 | 7,179  | 3,811   | 1,547 | 12,537 | 1,086   | 389    | 391      | 1,866 | 14,403      |
| 2008 | 7,503  | 3,944   | 1,626 | 13,073 | 1,099   | 384    | 405      | 1,888 | 14,961      |
| 2009 | 7,783  | 4,083   | 1,698 | 13,564 | 1,098   | 379    | 417      | 1,894 | 15,458      |
| 2010 | 8,187  | 4,273   | 1,792 | 14,251 | 1,082   | 367    | 421      | 1,871 | 16,122      |
| 2011 | 8,574  | 4,440   | 1,880 | 14,893 | 1,056   | 368    | 430      | 1,855 | 16,748      |
| 2012 | 9,007  | 4,650   | 1,978 | 15,634 | 1,042   | 364    | 435      | 1,841 | 17,475      |
| 2013 | 9,423  | 4,846   | 2,071 | 16,340 | 1,034   | 365    | 433      | 1,832 | 18,172      |
| 2014 | 9,865  | 5,036   | 2,167 | 17,068 | 1,007   | 367    | 437      | 1,810 | 18,878      |
| 2015 | 10,367 | 5,243   | 2,271 | 17,881 | 981     | 374    | 435      | 1,790 | 19,672      |
| 2016 | 10,848 | 5,437   | 2,370 | 18,655 | 963     | 381    | 425      | 1,768 | 20,423      |
| 2017 | 11,352 | 5,667   | 2,476 | 19,494 | 929     | 384    | 424      | 1,736 | 21,231      |
| 2018 | 11,909 | 5,914   | 2,590 | 20,413 | 894     | 385    | 417      | 1,695 | 22,108      |
| 2019 | 12,390 | 6,139   | 2,690 | 21,218 | 862     | 387    | 412      | 1,661 | 22,879      |
| 2020 | 12,988 | 6,386   | 2,808 | 22,183 | 837     | 380    | 404      | 1,621 | 23,804      |
| 2021 | 13,519 | 6,646   | 2,918 | 23,083 | 813     | 377    | 394      | 1,584 | 24,666      |
| 2022 | 14,043 | 6,885   | 3,023 | 23,951 | 787     | 372    | 384      | 1,542 | 25,493      |
| 2023 | 14,541 | 7,116   | 3,124 | 24,781 | 768     | 362    | 376      | 1,506 | 26,287      |
| 2024 | 15,035 | 7,321   | 3,220 | 25,576 | 764     | 354    | 364      | 1,482 | 27,058      |
| 2025 | 15,460 | 7,507   | 3,304 | 26,271 | 745     | 343    | 349      | 1,437 | 27,708      |
| 2026 | 15,768 | 7,643   | 3,366 | 26,777 | 742     | 341    | 340      | 1,424 | 28,200      |
| 2027 | 16,035 | 7,775   | 3,422 | 27,231 | 737     | 341    | 333      | 1,410 | 28,641      |
| 2028 | 16,341 | 7,899   | 3,482 | 27,723 | 740     | 338    | 323      | 1,401 | 29,123      |
| 2029 | 16,542 | 8,001   | 3,526 | 28,069 | 745     | 333    | 320      | 1,398 | 29,467      |
| 2030 | 16,799 | 8,131   | 3,581 | 28,511 | 750     | 327    | 313      | 1,390 | 29,901      |
| 2031 | 17,042 | 8,206   | 3,627 | 28,875 | 755     | 319    | 305      | 1,380 | 30,254      |
| 2032 | 17,201 | 8,263   | 3,661 | 29,124 | 760     | 311    | 302      | 1,374 | 30,498      |
| 2033 | 17,256 | 8,305   | 3,678 | 29,238 | 765     | 311    | 301      | 1,378 | 30,616      |
| 2034 | 17,220 | 8,284   | 3,675 | 29,179 | 770     | 311    | 303      | 1,385 | 30,565      |
| 2035 | 17,214 | 8,268   | 3,677 | 29,159 | 775     | 313    | 306      | 1,394 | 30,553      |
| 2036 | 17,154 | 8,216   | 3,667 | 29,037 | 779     | 317    | 310      | 1,406 | 30,444      |
| 2037 | 17,097 | 8,168   | 3,657 | 28,922 | 783     | 321    | 314      | 1,419 | 30,341      |
| 2038 | 16,987 | 8,119   | 3,640 | 28,747 | 787     | 327    | 320      | 1,435 | 30,181      |
| 2039 | 16,925 | 8,075   | 3,629 | 28,630 | 790     | 333    | 324      | 1,447 | 30,077      |
| 2040 | 16,867 | 8,050   | 3,621 | 28,538 | 793     | 339    | 328      | 1,460 | 29,998      |
| 2041 | 16,828 | 8,044   | 3,617 | 28,489 | 796     | 344    | 331      | 1,471 | 29,960      |
| 2042 | 16,807 | 8,039   | 3,616 | 28,462 | 797     | 348    | 333      | 1,479 | 29,941      |
| 2043 | 16,838 | 8,059   | 3,623 | 28,520 | 798     | 349    | 334      | 1,482 | 30,002      |
| 2044 | 16,881 | 8,075   | 3,632 | 28,587 | 799     | 350    | 334      | 1,483 | 30,070      |
| 2045 | 16,967 | 8,101   | 3,647 | 28,715 | 798     | 349    | 333      | 1,481 | 30,195      |
| 2046 | 17,000 | 8,131   | 3,654 | 28,784 | 797     | 350    | 334      | 1,481 | 30,265      |
| 2047 | 17,037 | 8,141   | 3,660 | 28,838 | 796     | 350    | 334      | 1,479 | 30,317      |
| 2048 | 17,050 | 8,155   | 3,662 | 28,867 | 794     | 353    | 334      | 1,480 | 30,347      |
| 2049 | 17,180 | 8,225   | 3,687 | 29,093 | 791     | 349    | 331      | 1,472 | 30,564      |
| 2050 | 17,230 | 8,268   | 3,697 | 29,195 | 789     | 349    | 331      | 1,469 | 30,664      |
| 2051 | 17,281 | 8,306   | 3,707 | 29,293 | 787     | 349    | 330      | 1,467 | 30,760      |
| 2052 | 17,372 | 8,371   | 3,726 | 29,468 | 785     | 348    | 329      | 1,461 | 30,929      |
| 2053 | 17,481 | 8,432   | 3,747 | 29,661 | 783     | 345    | 326      | 1,454 | 31,115      |
| 2054 | 17,549 | 8,489   | 3,762 | 29,800 | 782     | 344    | 325      | 1,451 | 31,252      |
| 2055 | 17,664 | 8,578   | 3,787 | 30,029 | 781     | 341    | 323      | 1,445 | 31,474      |
| 2056 | 17,749 | 8,638   | 3,805 | 30,193 | 780     | 340    | 322      | 1,441 | 31,634      |
| 2057 | 17,856 | 8,737   | 3,832 | 30,425 | 779     | 337    | 320      | 1,436 | 31,861      |
| 2058 | 17,947 | 8,792   | 3,851 | 30,589 | 780     | 335    | 319      | 1,433 | 32,022      |
| 2059 | 18,019 | 8,842   | 3,867 | 30,728 | 780     | 333    | 318      | 1,431 | 32,160      |
| 2060 | 18,086 | 8,902   | 3,884 | 30,872 | 781     | 332    | 318      | 1,431 | 32,303      |
| 2061 | 18,117 | 8,929   | 3,892 | 30,938 | 782     | 333    | 319      | 1,434 | 32,372      |
| 2062 | 18,207 | 8,984   | 3,912 | 31,103 | 784     | 331    | 318      | 1,433 | 32,536      |
| 2063 | 18,235 | 9,009   | 3,920 | 31,164 | 786     | 333    | 320      | 1,438 | 32,602      |

<sup>78</sup> Number of pensions.



## Annex 2.14 AOV financial statement<sup>79</sup> - Application of contribution rate to gross wages rather than taxable wages (in AFL)

| Year | Contribution rate | Total insurable earnings | Revenue       |                     |             | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|-------------------|--------------------------|---------------|---------------------|-------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                   |                          | Contribution  | Investment earnings | Total       | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 11.5%             | 1,175,096,930            | 135,136,147   | -                   | 135,136,147 | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 11.5%             | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512 | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 11.5%             | 1,337,676,086            | 153,832,750   | 11,942,554          | 165,775,304 | 145,146,890   | 1,999,623  | 147,146,513   | 180,428,456           | 3.6%                    | 11.0%     |
| 2006 | 11.5%             | 1,417,145,951            | 162,971,784   | 12,676,764          | 175,648,549 | 152,755,780   | 2,104,447  | 154,860,228   | 201,216,777           | 3.6%                    | 10.9%     |
| 2007 | 11.5%             | 1,499,789,548            | 172,475,798   | 13,907,834          | 186,383,632 | 160,733,413   | 2,214,352  | 162,947,764   | 224,652,645           | 3.6%                    | 10.9%     |
| 2008 | 11.5%             | 1,583,685,877            | 182,123,876   | 15,193,340          | 197,317,216 | 169,185,708   | 2,330,795  | 171,516,503   | 250,453,358           | 3.6%                    | 10.8%     |
| 2009 | 11.5%             | 1,670,219,773            | 192,075,274   | 16,515,233          | 208,590,507 | 181,041,723   | 2,494,130  | 183,535,853   | 275,508,013           | 3.6%                    | 11.0%     |
| 2010 | 11.5%             | 1,754,993,087            | 201,824,205   | 17,004,572          | 218,828,778 | 194,395,140   | 2,678,094  | 197,073,234   | 297,263,556           | 3.7%                    | 11.2%     |
| 2011 | 11.5%             | 1,836,478,893            | 211,195,073   | 17,510,244          | 228,705,317 | 209,147,012   | 2,881,324  | 212,028,335   | 313,940,538           | 3.8%                    | 11.5%     |
| 2012 | 11.5%             | 1,919,374,198            | 220,762,188   | 17,711,584          | 238,473,772 | 224,727,611   | 3,095,971  | 227,823,581   | 324,590,728           | 3.9%                    | 11.9%     |
| 2013 | 11.5%             | 2,001,391,531            | 230,160,026   | 17,599,503          | 247,759,529 | 241,254,017   | 3,323,648  | 244,577,665   | 327,772,592           | 4.0%                    | 12.2%     |
| 2014 | 11.5%             | 2,084,453,174            | 239,712,115   | 17,042,408          | 256,754,523 | 258,034,877   | 3,554,830  | 261,589,707   | 322,937,408           | 4.1%                    | 12.5%     |
| 2015 | 11.5%             | 2,169,370,377            | 249,477,593   | 16,255,789          | 265,733,383 | 276,214,794   | 3,805,286  | 280,020,081   | 308,650,710           | 4.2%                    | 12.9%     |
| 2016 | 11.5%             | 2,254,231,956            | 259,236,675   | 14,968,041          | 274,204,716 | 295,425,166   | 4,069,939  | 299,495,105   | 283,360,322           | 4.3%                    | 13.3%     |
| 2017 | 11.5%             | 2,341,394,943            | 269,260,418   | 13,108,503          | 282,368,921 | 315,657,958   | 4,348,677  | 320,006,635   | 245,722,608           | 4.4%                    | 13.7%     |
| 2018 | 11.5%             | 2,427,482,083            | 279,160,440   | 10,657,598          | 289,818,038 | 337,935,039   | 4,655,578  | 342,590,617   | 192,950,028           | 4.5%                    | 14.1%     |
| 2019 | 11.5%             | 2,512,760,554            | 288,967,464   | 7,537,457           | 296,504,921 | 360,816,528   | 4,970,806  | 365,787,335   | 123,667,614           | 4.6%                    | 14.6%     |
| 2020 | 11.5%             | 2,601,450,972            | 299,166,862   | 3,727,405           | 302,894,266 | 384,916,175   | 5,302,816  | 390,218,992   | 36,342,889            | 4.8%                    | 15.0%     |
| 2021 | 11.5%             | 2,687,374,386            | 309,048,054   | 780,995             | 308,267,060 | 410,826,613   | 5,659,773  | 416,486,386   | 71,876,437            | 4.9%                    | 15.5%     |
| 2022 | 11.5%             | 2,775,968,397            | 319,236,366   | 6,108,409           | 313,127,957 | 436,958,150   | 6,019,775  | 442,977,925   | 201,726,405           | 5.0%                    | 16.0%     |
| 2023 | 11.5%             | 2,867,490,831            | 329,761,446   | 12,314,918          | 317,446,528 | 463,381,029   | 6,383,791  | 469,764,820   | 354,044,698           | 5.2%                    | 16.4%     |
| 2024 | 11.5%             | 2,962,883,681            | 340,731,623   | 19,548,327          | 321,183,297 | 490,021,124   | 6,750,800  | 496,771,924   | 529,633,325           | 5.3%                    | 16.8%     |
| 2025 | 11.5%             | 3,062,267,159            | 352,160,723   | 27,650,397          | 324,510,326 | 516,292,998   | 7,112,735  | 523,405,733   | 728,528,732           | 5.4%                    | 17.1%     |
| 2026 | 11.5%             | 3,167,887,136            | 364,307,021   | 36,968,405          | 327,338,616 | 540,698,751   | 7,448,962  | 548,147,713   | 949,337,830           | 5.4%                    | 17.3%     |
| 2027 | 11.5%             | 3,283,726,038            | 377,628,494   | 47,322,096          | 330,306,399 | 563,568,672   | 7,764,031  | 571,332,703   | 1,190,364,134         | 5.5%                    | 17.4%     |
| 2028 | 11.5%             | 3,395,543,278            | 390,487,477   | 54,537,007          | 335,950,470 | 587,013,502   | 8,087,020  | 595,100,522   | 1,449,514,186         | 5.5%                    | 17.5%     |
| 2029 | 11.5%             | 3,509,974,392            | 403,647,055   | 66,345,950          | 337,301,105 | 610,082,190   | 8,404,827  | 618,487,017   | 1,730,700,098         | 5.6%                    | 17.6%     |
| 2030 | 11.5%             | 3,633,696,616            | 417,875,111   | 78,931,572          | 338,943,539 | 633,476,925   | 8,727,125  | 642,204,050   | 2,033,960,609         | 5.6%                    | 17.7%     |
| 2031 | 11.5%             | 3,758,524,655            | 432,230,335   | 93,524,964          | 338,705,372 | 657,644,165   | 9,060,067  | 666,704,232   | 2,361,959,469         | 5.6%                    | 17.7%     |
| 2032 | 11.5%             | 3,894,013,599            | 447,811,564   | 109,809,194         | 338,002,370 | 680,270,550   | 9,371,780  | 689,642,330   | 2,713,599,430         | 5.6%                    | 17.7%     |
| 2033 | 11.5%             | 4,040,312,708            | 464,635,961   | 127,435,251         | 337,200,711 | 700,918,959   | 9,656,244  | 710,575,203   | 3,086,973,922         | 5.6%                    | 17.8%     |
| 2034 | 11.5%             | 4,198,631,279            | 482,842,597   | 146,639,562         | 336,203,035 | 718,513,949   | 9,898,642  | 728,412,592   | 3,479,183,478         | 5.5%                    | 17.3%     |
| 2035 | 11.5%             | 4,371,824,713            | 502,759,842   | 167,188,257         | 335,571,585 | 734,748,289   | 10,122,295 | 744,870,585   | 3,888,482,478         | 5.4%                    | 17.0%     |
| 2036 | 11.5%             | 4,549,807,176            | 523,239,325   | 189,106,378         | 334,132,947 | 750,451,611   | 10,338,633 | 760,790,244   | 4,315,139,775         | 5.4%                    | 16.7%     |
| 2037 | 11.5%             | 4,739,439,230            | 545,035,511   | 210,746,670         | 334,288,841 | 765,210,148   | 10,541,955 | 775,752,102   | 4,756,603,036         | 5.3%                    | 16.4%     |
| 2038 | 11.5%             | 4,934,544,726            | 567,472,643   | 232,938,458         | 334,534,186 | 779,673,728   | 10,741,213 | 790,414,940   | 5,212,483,791         | 5.2%                    | 16.0%     |
| 2039 | 11.5%             | 5,138,090,130            | 590,880,365   | 256,562,371         | 334,317,994 | 794,413,205   | 10,944,272 | 805,357,477   | 5,683,523,274         | 5.1%                    | 15.7%     |
| 2040 | 11.5%             | 5,344,686,190            | 614,638,912   | 279,412,632         | 335,226,279 | 810,583,013   | 11,167,036 | 821,750,049   | 6,170,047,043         | 5.0%                    | 15.4%     |
| 2041 | 11.5%             | 5,555,024,234            | 638,827,787   | 303,580,765         | 335,247,022 | 828,207,920   | 11,409,846 | 839,617,766   | 6,674,417,788         | 4.9%                    | 15.1%     |
| 2042 | 11.5%             | 5,768,140,890            | 663,336,202   | 328,271,485         | 335,064,717 | 847,183,010   | 11,671,258 | 858,854,268   | 7,198,207,339         | 4.8%                    | 14.9%     |
| 2043 | 11.5%             | 5,985,846,359            | 688,372,331   | 353,060,772         | 335,311,559 | 868,159,045   | 11,960,235 | 880,119,280   | 7,743,015,059         | 4.8%                    | 14.7%     |
| 2044 | 11.5%             | 6,204,544,520            | 713,522,620   | 378,558,481         | 334,964,139 | 891,082,648   | 12,276,043 | 903,358,691   | 8,311,409,612         | 4.7%                    | 14.6%     |
| 2045 | 11.5%             | 6,430,087,541            | 739,460,067   | 402,824,690         | 336,635,377 | 915,613,646   | 12,613,996 | 928,227,641   | 8,903,001,876         | 4.7%                    | 14.4%     |
| 2046 | 11.5%             | 6,659,624,815            | 765,856,854   | 429,272,866         | 336,583,988 | 940,986,208   | 12,963,542 | 953,949,750   | 9,520,367,639         | 4.6%                    | 14.3%     |
| 2047 | 11.5%             | 6,898,870,483            | 793,370,106   | 453,856,008         | 339,514,098 | 965,886,686   | 13,306,585 | 979,193,271   | 10,160,046,812        | 4.6%                    | 14.2%     |
| 2048 | 11.5%             | 7,147,383,296            | 821,949,079   | 480,539,902         | 341,409,177 | 990,736,490   | 13,648,929 | 1,004,385,419 | 10,823,023,054        | 4.5%                    | 14.1%     |
| 2049 | 11.5%             | 7,405,248,643            | 851,603,594   | 506,938,631         | 344,664,962 | 1,019,366,540 | 14,043,352 | 1,033,409,892 | 11,511,767,983        | 4.5%                    | 14.0%     |
| 2050 | 11.5%             | 7,655,678,991            | 880,403,084   | 533,926,468         | 346,476,616 | 1,050,219,104 | 14,468,394 | 1,064,687,498 | 12,229,978,866        | 4.4%                    | 13.9%     |
| 2051 | 11.5%             | 7,924,691,006            | 911,339,466   | 562,101,307         | 349,238,159 | 1,079,713,611 | 14,874,727 | 1,094,588,337 | 12,975,329,045        | 4.4%                    | 13.8%     |
| 2052 | 11.5%             | 8,203,717,467            | 943,427,509   | 593,291,763         | 350,135,746 | 1,111,430,354 | 15,311,674 | 1,126,742,028 | 13,751,935,327        | 4.4%                    | 13.7%     |
| 2053 | 11.5%             | 8,485,251,480            | 975,803,920   | 624,093,589         | 351,710,331 | 1,145,858,431 | 15,785,974 | 1,161,644,405 | 14,561,869,400        | 4.4%                    | 13.7%     |
| 2054 | 11.5%             | 8,776,720,106            | 1,009,322,812 | 659,010,271         | 350,312,541 | 1,180,675,876 | 16,265,638 | 1,196,941,515 | 15,408,498,374        | 4.3%                    | 13.6%     |
| 2055 | 11.5%             | 9,083,137,331            | 1,044,560,793 | 694,631,109         | 349,929,684 | 1,217,478,030 | 16,772,645 | 1,234,250,675 | 16,292,819,365        | 4.3%                    | 13.6%     |
| 2056 | 11.5%             | 9,392,974,883            | 1,080,192,112 | 735,426,811         | 344,765,300 | 1,255,863,206 | 17,301,460 | 1,273,164,666 | 17,221,218,730        | 4.3%                    | 13.6%     |
| 2057 | 11.5%             | 9,723,903,515            | 1,118,248,904 | 777,640,243         | 340,608,662 | 1,295,613,219 | 17,849,078 | 1,313,462,297 | 18,194,072,366        | 4.3%                    | 13.5%     |
| 2058 | 11.5%             | 10,060,745,744           | 1,156,985,761 | 822,578,952         | 334,406,809 | 1,336,547,311 | 18,413,009 | 1,354,960,320 | 19,214,625,877        | 4.3%                    | 13.5%     |
| 2059 | 11.5%             | 10,422,522,716           | 1,198,590,112 | 867,843,197         | 330,746,915 | 1,376,378,215 | 18,961,741 | 1,395,339,956 | 20,279,218,918        | 4.3%                    | 13.4%     |
| 2060 | 11.5%             | 10,802,042,505           | 1,242,234,888 | 921,601,271         | 320,633,617 | 1,417,060,208 | 19,522,198 | 1,436,582,406 | 21,395,167,706        | 4.2%                    | 13.3%     |
| 2061 | 11.5%             | 11,196,971,499           | 1,287,651,722 | 976,225,832         | 311,425,890 | 1,457,222,973 | 20,075,503 | 1,477,298,476 | 22,561,040,292        | 4.2%                    | 13.2%     |
| 2062 | 11.5%             | 11,619,341,886           | 1,336,224,317 | 1,032,213,104       | 304,011,213 | 1,498,886,976 | 20,649,489 | 1,519,536,464 | 23,776,565,543        | 4.2%                    | 13.1%     |
| 2063 | 11.5%             | 12,046,918,850           | 1,385,395,668 | 1,093,266,935       | 292,128,732 | 1,541,589,154 | 21,237,777 | 1,562,826,931 | 25,047,263,742        | 4.2%                    | 13.0%     |

<sup>79</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.15 Demographic projection<sup>80</sup> - Application of contribution rate to gross wages rather than taxable wages

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,631  | 3,529   | 1,398 | 11,558 | 1,048   | 389    | 371      | 1,808 | 13,366      |
| 2006 | 6,902  | 3,653   | 1,471 | 12,026 | 1,065   | 395    | 376      | 1,837 | 13,863      |
| 2007 | 7,179  | 3,811   | 1,547 | 12,537 | 1,086   | 389    | 391      | 1,866 | 14,403      |
| 2008 | 7,503  | 3,944   | 1,626 | 13,073 | 1,099   | 384    | 405      | 1,888 | 14,961      |
| 2009 | 7,783  | 4,083   | 1,698 | 13,564 | 1,098   | 379    | 417      | 1,894 | 15,458      |
| 2010 | 8,187  | 4,273   | 1,792 | 14,251 | 1,082   | 367    | 421      | 1,871 | 16,122      |
| 2011 | 8,574  | 4,440   | 1,880 | 14,893 | 1,056   | 368    | 430      | 1,855 | 16,748      |
| 2012 | 9,007  | 4,650   | 1,978 | 15,634 | 1,042   | 364    | 435      | 1,841 | 17,475      |
| 2013 | 9,423  | 4,846   | 2,071 | 16,340 | 1,034   | 365    | 433      | 1,832 | 18,172      |
| 2014 | 9,865  | 5,036   | 2,167 | 17,068 | 1,007   | 367    | 437      | 1,810 | 18,878      |
| 2015 | 10,367 | 5,243   | 2,271 | 17,881 | 981     | 374    | 435      | 1,790 | 19,672      |
| 2016 | 10,848 | 5,437   | 2,370 | 18,655 | 963     | 381    | 425      | 1,768 | 20,423      |
| 2017 | 11,352 | 5,667   | 2,476 | 19,494 | 929     | 384    | 424      | 1,736 | 21,231      |
| 2018 | 11,909 | 5,914   | 2,590 | 20,413 | 894     | 385    | 417      | 1,695 | 22,108      |
| 2019 | 12,390 | 6,139   | 2,690 | 21,218 | 862     | 387    | 412      | 1,661 | 22,879      |
| 2020 | 12,988 | 6,386   | 2,808 | 22,183 | 837     | 380    | 404      | 1,621 | 23,804      |
| 2021 | 13,519 | 6,646   | 2,918 | 23,083 | 813     | 377    | 394      | 1,584 | 24,666      |
| 2022 | 14,043 | 6,885   | 3,023 | 23,951 | 787     | 372    | 384      | 1,542 | 25,493      |
| 2023 | 14,541 | 7,116   | 3,124 | 24,781 | 768     | 362    | 376      | 1,506 | 26,287      |
| 2024 | 15,035 | 7,321   | 3,220 | 25,576 | 764     | 354    | 364      | 1,482 | 27,058      |
| 2025 | 15,460 | 7,507   | 3,304 | 26,271 | 745     | 343    | 349      | 1,437 | 27,708      |
| 2026 | 15,768 | 7,643   | 3,366 | 26,777 | 742     | 341    | 340      | 1,424 | 28,200      |
| 2027 | 16,035 | 7,775   | 3,422 | 27,231 | 737     | 341    | 333      | 1,410 | 28,641      |
| 2028 | 16,341 | 7,899   | 3,482 | 27,723 | 740     | 338    | 323      | 1,401 | 29,123      |
| 2029 | 16,542 | 8,001   | 3,526 | 28,069 | 745     | 333    | 320      | 1,398 | 29,467      |
| 2030 | 16,799 | 8,131   | 3,581 | 28,511 | 750     | 327    | 313      | 1,390 | 29,901      |
| 2031 | 17,042 | 8,206   | 3,627 | 28,875 | 755     | 319    | 305      | 1,380 | 30,254      |
| 2032 | 17,201 | 8,263   | 3,661 | 29,124 | 760     | 311    | 302      | 1,374 | 30,498      |
| 2033 | 17,256 | 8,305   | 3,678 | 29,238 | 765     | 311    | 301      | 1,378 | 30,616      |
| 2034 | 17,220 | 8,284   | 3,675 | 29,179 | 770     | 311    | 303      | 1,385 | 30,565      |
| 2035 | 17,214 | 8,268   | 3,677 | 29,159 | 775     | 313    | 306      | 1,394 | 30,553      |
| 2036 | 17,154 | 8,216   | 3,667 | 29,037 | 779     | 317    | 310      | 1,406 | 30,444      |
| 2037 | 17,097 | 8,168   | 3,657 | 28,922 | 783     | 321    | 314      | 1,419 | 30,341      |
| 2038 | 16,987 | 8,119   | 3,640 | 28,747 | 787     | 327    | 320      | 1,435 | 30,181      |
| 2039 | 16,925 | 8,075   | 3,629 | 28,630 | 790     | 333    | 324      | 1,447 | 30,077      |
| 2040 | 16,867 | 8,050   | 3,621 | 28,538 | 793     | 339    | 328      | 1,460 | 29,998      |
| 2041 | 16,828 | 8,044   | 3,617 | 28,489 | 796     | 344    | 331      | 1,471 | 29,960      |
| 2042 | 16,807 | 8,039   | 3,616 | 28,462 | 797     | 348    | 333      | 1,479 | 29,941      |
| 2043 | 16,838 | 8,059   | 3,623 | 28,520 | 798     | 349    | 334      | 1,482 | 30,002      |
| 2044 | 16,881 | 8,075   | 3,632 | 28,587 | 799     | 350    | 334      | 1,483 | 30,070      |
| 2045 | 16,967 | 8,101   | 3,647 | 28,715 | 798     | 349    | 333      | 1,481 | 30,195      |
| 2046 | 17,000 | 8,131   | 3,654 | 28,784 | 797     | 350    | 334      | 1,481 | 30,265      |
| 2047 | 17,037 | 8,141   | 3,660 | 28,838 | 796     | 350    | 334      | 1,479 | 30,317      |
| 2048 | 17,050 | 8,155   | 3,662 | 28,867 | 794     | 353    | 334      | 1,480 | 30,347      |
| 2049 | 17,180 | 8,225   | 3,687 | 29,093 | 791     | 349    | 331      | 1,472 | 30,564      |
| 2050 | 17,230 | 8,268   | 3,697 | 29,195 | 789     | 349    | 331      | 1,469 | 30,664      |
| 2051 | 17,281 | 8,306   | 3,707 | 29,293 | 787     | 349    | 330      | 1,467 | 30,760      |
| 2052 | 17,372 | 8,371   | 3,726 | 29,468 | 785     | 348    | 329      | 1,461 | 30,929      |
| 2053 | 17,481 | 8,432   | 3,747 | 29,661 | 783     | 345    | 326      | 1,454 | 31,115      |
| 2054 | 17,549 | 8,489   | 3,762 | 29,800 | 782     | 344    | 325      | 1,451 | 31,252      |
| 2055 | 17,664 | 8,578   | 3,787 | 30,029 | 781     | 341    | 323      | 1,445 | 31,474      |
| 2056 | 17,749 | 8,638   | 3,805 | 30,193 | 780     | 340    | 322      | 1,441 | 31,634      |
| 2057 | 17,856 | 8,737   | 3,832 | 30,425 | 779     | 337    | 320      | 1,436 | 31,861      |
| 2058 | 17,947 | 8,792   | 3,851 | 30,589 | 780     | 335    | 319      | 1,433 | 32,022      |
| 2059 | 18,019 | 8,842   | 3,867 | 30,728 | 780     | 333    | 318      | 1,431 | 32,160      |
| 2060 | 18,086 | 8,902   | 3,884 | 30,872 | 781     | 332    | 318      | 1,431 | 32,303      |
| 2061 | 18,117 | 8,929   | 3,892 | 30,938 | 782     | 333    | 319      | 1,434 | 32,372      |
| 2062 | 18,207 | 8,984   | 3,912 | 31,103 | 784     | 331    | 318      | 1,433 | 32,536      |
| 2063 | 18,235 | 9,009   | 3,920 | 31,164 | 786     | 333    | 320      | 1,438 | 32,602      |

<sup>80</sup> Number of pensions.

## Annex 2.16 AOV financial statement<sup>81</sup> – Contribution individualization (in AFL)

| Year | Total insurabl earning | Revenu       |                   |            | Expenditur   |           |              | Reserv (end of | Expenditur As % of | PAY - cost |
|------|------------------------|--------------|-------------------|------------|--------------|-----------|--------------|----------------|--------------------|------------|
|      |                        | Contributio  | Investmen earning | Total      | Benefit      | Admin     | Total        |                |                    |            |
| 2003 | 1,175,096.93           | 135,136.14   | -                 | 135,136.14 | 128,737.92   | 1,985.95  | 130,723.88   | 144,000.00     | 3.6%               | 11.1%      |
| 2004 | 1,237,881.34           | 142,356.35   | 10,781.15         | 153,137.51 | 133,498.69   | 1,839.15  | 135,337.84   | 161,799.66     | 3.5%               | 10.9%      |
| 2005 | 1,557,635.76           | 179,128.11   | 12,842.04         | 191,970.16 | 145,146.89   | 1,999.62  | 147,146.51   | 206,623.31     | 3.6%               | 9.4%       |
| 2006 | 1,650,533.62           | 189,811.36   | 15,385.87         | 205,197.24 | 152,755.78   | 2,104.44  | 154,860.22   | 256,960.32     | 3.6%               | 9.4%       |
| 2007 | 1,747,120.08           | 200,918.81   | 18,617.48         | 219,536.29 | 160,733.41   | 2,214.35  | 162,947.76   | 313,548.85     | 3.6%               | 9.3%       |
| 2008 | 1,845,081.56           | 212,184.37   | 22,036.91         | 234,221.29 | 169,185.70   | 2,330.79  | 171,516.50   | 376,253.64     | 3.6%               | 9.3%       |
| 2009 | 1,946,081.39           | 223,799.36   | 25,655.82         | 249,455.18 | 181,041.72   | 2,494.13  | 183,535.85   | 442,172.98     | 3.6%               | 9.4%       |
| 2010 | 2,044,886.00           | 235,161.89   | 28,144.05         | 263,305.94 | 194,395.14   | 2,678.09  | 197,073.23   | 508,405.68     | 3.7%               | 9.6%       |
| 2011 | 2,139,781.57           | 246,074.88   | 30,858.33         | 276,933.21 | 209,147.01   | 2,881.32  | 212,028.33   | 573,310.56     | 3.8%               | 9.9%       |
| 2012 | 2,236,637.11           | 257,213.26   | 33,335.21         | 290,548.48 | 224,727.61   | 3,095.97  | 227,823.58   | 636,035.47     | 3.9%               | 10.2%      |
| 2013 | 2,331,683.17           | 268,143.56   | 35,597.37         | 303,740.94 | 241,254.01   | 3,323.64  | 244,577.66   | 695,198.74     | 4.0%               | 10.5%      |
| 2014 | 2,428,240.46           | 279,247.65   | 37,401.94         | 316,649.59 | 258,034.87   | 3,554.83  | 261,589.70   | 750,258.63     | 4.1%               | 10.8%      |
| 2015 | 2,526,896.24           | 290,593.06   | 39,264.84         | 329,857.91 | 276,214.79   | 3,805.28  | 280,020.08   | 800,096.46     | 4.2%               | 11.1%      |
| 2016 | 2,625,399.72           | 301,920.96   | 40,681.38         | 342,602.34 | 295,425.16   | 4,069.93  | 299,495.10   | 843,203.71     | 4.3%               | 11.4%      |
| 2017 | 2,726,512.57           | 313,548.94   | 41,504.84         | 355,053.79 | 315,657.95   | 4,348.67  | 320,006.63   | 878,250.86     | 4.4%               | 11.7%      |
| 2018 | 2,826,245.69           | 325,018.25   | 41,774.39         | 366,792.65 | 337,935.03   | 4,655.57  | 342,590.61   | 902,452.90     | 4.5%               | 12.1%      |
| 2019 | 2,924,966.12           | 336,371.10   | 41,342.26         | 377,713.37 | 360,816.52   | 4,970.80  | 365,787.33   | 914,378.93     | 4.6%               | 12.5%      |
| 2020 | 3,027,605.11           | 348,174.58   | 40,064.01         | 388,238.60 | 384,916.17   | 5,302.81  | 390,218.99   | 912,398.55     | 4.8%               | 12.9%      |
| 2021 | 3,127,017.73           | 359,607.03   | 38,391.46         | 397,998.50 | 410,826.61   | 5,659.77  | 416,486.38   | 893,910.67     | 4.9%               | 13.3%      |
| 2022 | 3,229,472.46           | 371,389.33   | 35,998.12         | 407,387.45 | 436,958.15   | 6,019.77  | 442,977.92   | 858,320.20     | 5.0%               | 13.7%      |
| 2023 | 3,335,412.04           | 383,572.38   | 32,940.47         | 416,512.86 | 463,381.02   | 6,383.79  | 469,764.82   | 805,068.25     | 5.2%               | 14.1%      |
| 2024 | 3,445,905.57           | 396,279.14   | 29,257.65         | 425,536.79 | 490,021.12   | 6,750.80  | 496,771.92   | 733,833.12     | 5.3%               | 14.4%      |
| 2025 | 3,561,172.07           | 409,534.78   | 24,564.14         | 434,098.93 | 516,292.99   | 7,112.73  | 523,405.73   | 644,526.32     | 5.4%               | 14.7%      |
| 2026 | 3,683,735.45           | 423,629.57   | 19,241.11         | 442,870.69 | 540,698.75   | 7,448.96  | 548,147.71   | 539,249.30     | 5.4%               | 14.9%      |
| 2027 | 3,818,232.63           | 439,096.75   | 13,114.35         | 452,211.10 | 563,568.67   | 7,764.03  | 571,332.70   | 420,127.70     | 5.5%               | 15.0%      |
| 2028 | 3,948,108.77           | 454,032.50   | 5,703.44          | 459,735.95 | 587,013.50   | 8,087.02  | 595,100.52   | 284,763.13     | 5.5%               | 15.1%      |
| 2029 | 4,081,134.83           | 469,330.50   | 1,647.61          | 467,682.89 | 610,082.19   | 8,404.82  | 618,487.01   | 133,959.01     | 5.6%               | 15.2%      |
| 2030 | 4,225,033.98           | 485,878.90   | 9,890.98          | 475,987.92 | 633,476.92   | 8,727.12  | 642,204.05   | 32,257.11      | 5.6%               | 15.2%      |
| 2031 | 4,370,335.28           | 502,588.55   | 19,234.27         | 483,354.28 | 657,644.16   | 9,060.06  | 666,704.23   | 215,607.06     | 5.6%               | 15.3%      |
| 2032 | 4,528,366.63           | 520,762.16   | 29,768.61         | 490,993.54 | 680,270.55   | 9,371.78  | 689,642.33   | 414,255.84     | 5.6%               | 15.2%      |
| 2033 | 4,699,122.42           | 540,399.07   | 41,374.94         | 499,024.13 | 700,918.95   | 9,656.24  | 710,575.20   | 625,806.91     | 5.6%               | 15.1%      |
| 2034 | 4,883,960.65           | 561,655.47   | 54,046.70         | 507,608.77 | 718,513.94   | 9,898.64  | 728,412.59   | 846,610.73     | 5.5%               | 14.9%      |
| 2035 | 5,086,300.48           | 584,924.55   | 67,624.63         | 517,299.91 | 734,748.28   | 10,122.29 | 744,870.58   | 1,074,181.39   | 5.4%               | 14.6%      |
| 2036 | 5,294,388.14           | 608,854.63   | 82,071.72         | 526,782.91 | 750,451.61   | 10,338.63 | 760,790.24   | 1,308,188.73   | 5.4%               | 14.4%      |
| 2037 | 5,515,845.03           | 634,322.17   | 96,593.94         | 537,728.23 | 765,210.14   | 10,541.95 | 775,752.10   | 1,546,212.59   | 5.3%               | 14.1%      |
| 2038 | 5,743,696.42           | 660,525.08   | 111,445.29        | 549,079.79 | 779,673.72   | 10,741.21 | 790,414.94   | 1,787,547.74   | 5.2%               | 13.8%      |
| 2039 | 5,981,173.07           | 687,834.90   | 127,009.62        | 560,825.27 | 794,413.20   | 10,944.27 | 805,357.47   | 2,032,079.94   | 5.1%               | 13.5%      |
| 2040 | 6,222,099.54           | 715,541.44   | 142,177.13        | 573,364.31 | 810,583.01   | 11,167.03 | 821,750.04   | 2,280,465.67   | 5.0%               | 13.2%      |
| 2041 | 6,467,169.26           | 743,724.46   | 157,985.09        | 585,739.36 | 828,207.92   | 11,409.84 | 839,617.76   | 2,534,344.07   | 4.9%               | 13.0%      |
| 2042 | 6,715,296.00           | 772,259.04   | 174,037.97        | 598,221.06 | 847,183.01   | 11,671.25 | 858,854.26   | 2,794,977.27   | 4.8%               | 12.8%      |
| 2043 | 6,968,668.78           | 801,396.91   | 190,111.38        | 611,285.52 | 868,159.04   | 11,960.23 | 880,119.28   | 3,063,811.03   | 4.8%               | 12.6%      |
| 2044 | 7,223,108.29           | 830,657.45   | 206,544.16        | 624,113.28 | 891,082.64   | 12,276.04 | 903,358.69   | 3,343,056.43   | 4.7%               | 12.5%      |
| 2045 | 7,485,552.02           | 860,838.48   | 222,278.09        | 638,560.38 | 915,613.64   | 12,613.99 | 928,227.64   | 3,632,723.69   | 4.7%               | 12.4%      |
| 2046 | 7,752,621.16           | 891,551.43   | 239,178.78        | 652,372.64 | 940,986.20   | 12,963.54 | 953,949.75   | 3,934,300.79   | 4.6%               | 12.3%      |
| 2047 | 8,030,761.09           | 923,537.52   | 254,968.85        | 668,568.67 | 965,886.68   | 13,306.58 | 979,193.27   | 4,244,925.39   | 4.6%               | 12.2%      |
| 2048 | 8,319,674.86           | 956,762.60   | 271,817.92        | 684,944.68 | 990,736.49   | 13,648.92 | 1,004,385.41 | 4,564,366.12   | 4.5%               | 12.1%      |
| 2049 | 8,619,353.55           | 991,225.65   | 288,386.92        | 702,838.73 | 1,019,366.54 | 14,043.35 | 1,033,409.89 | 4,894,937.28   | 4.5%               | 12.0%      |
| 2050 | 8,910,254.43           | 1,024,679.26 | 305,219.33        | 719,459.92 | 1,050,219.10 | 14,468.39 | 1,064,687.49 | 5,240,164.85   | 4.4%               | 11.9%      |
| 2051 | 9,222,758.86           | 1,060,617.26 | 322,647.12        | 737,970.14 | 1,079,713.61 | 14,874.72 | 1,094,588.33 | 5,596,783.04   | 4.4%               | 11.9%      |
| 2052 | 9,546,880.70           | 1,097,891.28 | 341,688.61        | 756,202.66 | 1,111,430.35 | 15,311.67 | 1,126,742.02 | 5,967,322.40   | 4.4%               | 11.8%      |
| 2053 | 9,873,806.39           | 1,135,487.73 | 360,415.47        | 775,072.26 | 1,145,858.43 | 15,785.97 | 1,161,644.40 | 6,353,894.55   | 4.4%               | 11.8%      |
| 2054 | 10,212,331.82          | 1,174,418.16 | 381,439.49        | 792,978.66 | 1,180,675.87 | 16,265.63 | 1,196,941.51 | 6,757,857.40   | 4.3%               | 11.7%      |
| 2055 | 10,568,162.06          | 1,215,338.63 | 402,779.59        | 812,559.04 | 1,217,478.03 | 16,772.64 | 1,234,250.67 | 7,179,549.03   | 4.3%               | 11.7%      |
| 2056 | 10,927,995.14          | 1,256,719.44 | 427,037.40        | 829,682.03 | 1,255,863.20 | 17,301.46 | 1,273,164.66 | 7,623,031.66   | 4.3%               | 11.7%      |
| 2057 | 11,312,676.02          | 1,300,957.74 | 452,029.85        | 848,927.89 | 1,295,613.21 | 17,849.07 | 1,313,462.29 | 8,087,566.06   | 4.3%               | 11.6%      |
| 2058 | 11,704,232.81          | 1,345,986.77 | 478,502.20        | 867,484.57 | 1,336,547.31 | 18,413.00 | 1,354,960.32 | 8,575,041.81   | 4.3%               | 11.6%      |
| 2059 | 12,125,283.26          | 1,394,407.57 | 505,015.61        | 889,391.96 | 1,376,378.21 | 18,961.74 | 1,395,339.95 | 9,080,989.80   | 4.3%               | 11.5%      |
| 2060 | 12,567,094.67          | 1,445,215.88 | 536,256.63        | 908,959.24 | 1,417,060.20 | 19,522.19 | 1,436,582.40 | 9,608,612.96   | 4.2%               | 11.4%      |
| 2061 | 13,026,919.54          | 1,498,095.74 | 567,736.65        | 930,359.08 | 1,457,222.97 | 20,075.50 | 1,477,298.47 | 10,155,552.34  | 4.2%               | 11.3%      |
| 2062 | 13,519,009.60          | 1,554,686.10 | 599,683.29        | 955,002.80 | 1,498,886.97 | 20,649.48 | 1,519,536.46 | 10,720,086.00  | 4.2%               | 11.2%      |
| 2063 | 14,017,233.85          | 1,611,981.89 | 634,213.30        | 977,768.59 | 1,541,589.15 | 21,237.77 | 1,562,826.93 | 11,305,144.34  | 4.2%               | 11.1%      |

<sup>81</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.17 Demographic projection<sup>82</sup> – Contribution individualization

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 6,630  | 3,528   | 1,398 | 11,557 | 1,048   | 389    | 371      | 1,808 | 13,365      |
| 2006 | 6,906  | 3,653   | 1,471 | 12,031 | 1,065   | 395    | 376      | 1,837 | 13,868      |
| 2007 | 7,195  | 3,811   | 1,547 | 12,554 | 1,086   | 389    | 391      | 1,866 | 14,420      |
| 2008 | 7,536  | 3,946   | 1,626 | 13,108 | 1,099   | 384    | 405      | 1,888 | 14,996      |
| 2009 | 7,839  | 4,087   | 1,698 | 13,624 | 1,098   | 379    | 417      | 1,894 | 15,519      |
| 2010 | 8,272  | 4,279   | 1,793 | 14,344 | 1,082   | 367    | 421      | 1,871 | 16,215      |
| 2011 | 8,694  | 4,449   | 1,881 | 15,025 | 1,056   | 368    | 430      | 1,855 | 16,880      |
| 2012 | 9,169  | 4,662   | 1,980 | 15,812 | 1,042   | 364    | 435      | 1,841 | 17,653      |
| 2013 | 9,635  | 4,863   | 2,075 | 16,572 | 1,034   | 365    | 433      | 1,832 | 18,404      |
| 2014 | 10,132 | 5,058   | 2,171 | 17,361 | 1,007   | 367    | 437      | 1,810 | 19,171      |
| 2015 | 10,696 | 5,271   | 2,276 | 18,243 | 981     | 374    | 435      | 1,790 | 20,033      |
| 2016 | 11,246 | 5,470   | 2,377 | 19,093 | 963     | 381    | 425      | 1,768 | 20,861      |
| 2017 | 11,825 | 5,706   | 2,484 | 20,016 | 929     | 384    | 424      | 1,736 | 21,753      |
| 2018 | 12,465 | 5,961   | 2,600 | 21,026 | 894     | 385    | 417      | 1,695 | 22,722      |
| 2019 | 13,035 | 6,194   | 2,703 | 21,932 | 862     | 387    | 412      | 1,661 | 23,593      |
| 2020 | 13,729 | 6,450   | 2,823 | 23,002 | 837     | 380    | 404      | 1,621 | 24,623      |
| 2021 | 14,361 | 6,719   | 2,935 | 24,015 | 813     | 377    | 394      | 1,584 | 25,599      |
| 2022 | 14,992 | 6,968   | 3,044 | 25,003 | 787     | 372    | 384      | 1,542 | 26,545      |
| 2023 | 15,601 | 7,209   | 3,147 | 25,958 | 768     | 362    | 376      | 1,506 | 27,464      |
| 2024 | 16,210 | 7,425   | 3,247 | 26,881 | 764     | 354    | 364      | 1,482 | 28,363      |
| 2025 | 16,752 | 7,623   | 3,334 | 27,709 | 745     | 343    | 349      | 1,437 | 29,146      |
| 2026 | 17,180 | 7,770   | 3,400 | 28,349 | 742     | 341    | 340      | 1,424 | 29,773      |
| 2027 | 17,566 | 7,913   | 3,459 | 28,937 | 737     | 341    | 333      | 1,410 | 30,348      |
| 2028 | 17,989 | 8,048   | 3,523 | 29,561 | 740     | 338    | 323      | 1,401 | 30,962      |
| 2029 | 18,306 | 8,161   | 3,570 | 30,037 | 745     | 333    | 320      | 1,398 | 31,435      |
| 2030 | 18,674 | 8,302   | 3,629 | 30,605 | 750     | 327    | 313      | 1,390 | 31,994      |
| 2031 | 19,024 | 8,386   | 3,679 | 31,090 | 755     | 319    | 305      | 1,380 | 32,469      |
| 2032 | 19,286 | 8,452   | 3,716 | 31,455 | 760     | 311    | 302      | 1,374 | 32,828      |
| 2033 | 19,438 | 8,503   | 3,736 | 31,678 | 765     | 311    | 301      | 1,378 | 33,055      |
| 2034 | 19,492 | 8,491   | 3,737 | 31,719 | 770     | 311    | 303      | 1,385 | 33,105      |
| 2035 | 19,566 | 8,482   | 3,742 | 31,790 | 775     | 313    | 306      | 1,394 | 33,184      |
| 2036 | 19,579 | 8,436   | 3,734 | 31,749 | 779     | 317    | 310      | 1,406 | 33,156      |
| 2037 | 19,585 | 8,394   | 3,727 | 31,705 | 783     | 321    | 314      | 1,419 | 33,124      |
| 2038 | 19,530 | 8,350   | 3,712 | 31,591 | 787     | 327    | 320      | 1,435 | 33,025      |
| 2039 | 19,513 | 8,310   | 3,703 | 31,525 | 790     | 333    | 324      | 1,447 | 32,972      |
| 2040 | 19,491 | 8,287   | 3,696 | 31,474 | 793     | 339    | 328      | 1,460 | 32,934      |
| 2041 | 19,480 | 8,284   | 3,694 | 31,457 | 796     | 344    | 331      | 1,471 | 32,928      |
| 2042 | 19,480 | 8,281   | 3,693 | 31,453 | 797     | 348    | 333      | 1,479 | 32,932      |
| 2043 | 19,524 | 8,301   | 3,701 | 31,527 | 798     | 349    | 334      | 1,482 | 33,009      |
| 2044 | 19,575 | 8,318   | 3,710 | 31,603 | 799     | 350    | 334      | 1,483 | 33,086      |
| 2045 | 19,661 | 8,344   | 3,726 | 31,731 | 798     | 349    | 333      | 1,481 | 33,211      |
| 2046 | 19,690 | 8,373   | 3,733 | 31,796 | 797     | 350    | 334      | 1,481 | 33,277      |
| 2047 | 19,721 | 8,382   | 3,739 | 31,842 | 796     | 350    | 334      | 1,479 | 33,321      |
| 2048 | 19,723 | 8,396   | 3,740 | 31,860 | 794     | 353    | 334      | 1,480 | 33,340      |
| 2049 | 19,841 | 8,465   | 3,765 | 32,072 | 791     | 349    | 331      | 1,472 | 33,544      |
| 2050 | 19,877 | 8,506   | 3,775 | 32,159 | 789     | 349    | 331      | 1,469 | 33,628      |
| 2051 | 19,913 | 8,543   | 3,784 | 32,241 | 787     | 349    | 330      | 1,467 | 33,707      |
| 2052 | 19,989 | 8,607   | 3,803 | 32,398 | 785     | 348    | 329      | 1,461 | 33,860      |
| 2053 | 20,084 | 8,668   | 3,823 | 32,575 | 783     | 345    | 326      | 1,454 | 34,029      |
| 2054 | 20,139 | 8,724   | 3,838 | 32,700 | 782     | 344    | 325      | 1,451 | 34,152      |
| 2055 | 20,242 | 8,812   | 3,862 | 32,916 | 781     | 341    | 323      | 1,445 | 34,361      |
| 2056 | 20,317 | 8,872   | 3,880 | 33,070 | 780     | 340    | 322      | 1,441 | 34,511      |
| 2057 | 20,418 | 8,971   | 3,906 | 33,295 | 779     | 337    | 320      | 1,436 | 34,731      |
| 2058 | 20,505 | 9,026   | 3,925 | 33,455 | 780     | 335    | 319      | 1,433 | 34,888      |
| 2059 | 20,577 | 9,076   | 3,941 | 33,594 | 780     | 333    | 318      | 1,431 | 35,025      |
| 2060 | 20,645 | 9,137   | 3,958 | 33,740 | 781     | 332    | 318      | 1,431 | 35,171      |
| 2061 | 20,682 | 9,165   | 3,966 | 33,813 | 782     | 333    | 319      | 1,434 | 35,248      |
| 2062 | 20,779 | 9,222   | 3,986 | 33,988 | 784     | 331    | 318      | 1,433 | 35,421      |
| 2063 | 20,819 | 9,248   | 3,995 | 34,062 | 786     | 333    | 320      | 1,438 | 35,500      |

<sup>82</sup> Number of pensions.

## Annex 2.18 AOV financial statement<sup>83</sup> – Benefits individualization (in AFL)

| Year | Total insurable earnings | Revenue       |                     |             | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|---------------|---------------------|-------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                          | Contribution  | Investment earnings | Total       | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 1,175,096,930            | 135,136,147   | -                   | 135,136,147 | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512 | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 1,374,080,935            | 158,019,308   | 11,616,040          | 169,635,348 | 158,339,059   | 2,181,366  | 160,520,425   | 170,914,588           | 3.9%                    | 11.7%     |
| 2006 | 1,456,031,531            | 167,443,626   | 11,810,198          | 179,253,824 | 163,371,139   | 2,250,690  | 165,621,829   | 184,546,583           | 3.8%                    | 11.4%     |
| 2007 | 1,541,236,053            | 177,242,146   | 12,690,955          | 189,933,101 | 168,133,487   | 2,316,299  | 170,449,786   | 204,029,897           | 3.7%                    | 11.1%     |
| 2008 | 1,627,653,556            | 187,180,159   | 13,851,605          | 201,031,764 | 173,526,453   | 2,390,596  | 175,917,048   | 229,144,612           | 3.6%                    | 10.8%     |
| 2009 | 1,716,751,376            | 197,426,408   | 15,265,328          | 212,691,736 | 182,239,617   | 2,510,633  | 184,750,250   | 257,086,098           | 3.6%                    | 10.8%     |
| 2010 | 1,803,912,652            | 207,449,955   | 16,075,756          | 223,525,711 | 193,445,327   | 2,665,009  | 196,110,336   | 284,501,473           | 3.7%                    | 10.9%     |
| 2011 | 1,887,625,550            | 217,076,938   | 17,057,421          | 234,134,359 | 204,770,676   | 2,821,033  | 207,591,709   | 311,044,124           | 3.7%                    | 11.0%     |
| 2012 | 1,973,067,438            | 226,902,755   | 17,913,302          | 244,816,057 | 217,916,607   | 3,002,139  | 220,918,745   | 334,941,436           | 3.7%                    | 11.2%     |
| 2013 | 2,056,913,087            | 236,545,005   | 18,630,724          | 255,175,729 | 231,050,746   | 3,183,082  | 234,233,827   | 355,883,337           | 3.8%                    | 11.4%     |
| 2014 | 2,142,091,881            | 246,340,566   | 19,083,275          | 265,423,841 | 244,887,262   | 3,373,701  | 248,260,963   | 373,046,215           | 3.9%                    | 11.6%     |
| 2015 | 2,229,121,866            | 256,349,015   | 19,500,569          | 275,849,583 | 260,323,689   | 3,586,362  | 263,910,050   | 384,985,748           | 3.9%                    | 11.8%     |
| 2016 | 2,316,017,512            | 266,342,014   | 19,606,330          | 285,948,344 | 276,158,097   | 3,804,505  | 279,962,602   | 390,971,491           | 4.0%                    | 12.1%     |
| 2017 | 2,405,215,022            | 276,599,728   | 19,313,793          | 295,913,520 | 293,607,177   | 4,044,893  | 297,652,070   | 389,232,940           | 4.1%                    | 12.4%     |
| 2018 | 2,493,195,401            | 286,717,471   | 18,598,692          | 305,316,164 | 312,966,121   | 4,311,593  | 317,277,714   | 377,271,390           | 4.2%                    | 12.7%     |
| 2019 | 2,580,282,424            | 296,732,479   | 17,394,719          | 314,127,198 | 331,784,289   | 4,570,842  | 336,355,131   | 355,043,457           | 4.3%                    | 13.0%     |
| 2020 | 2,670,826,232            | 307,145,017   | 15,619,396          | 322,764,413 | 353,646,856   | 4,872,033  | 358,518,889   | 319,288,981           | 4.4%                    | 13.4%     |
| 2021 | 2,758,523,874            | 317,230,246   | 13,408,104          | 330,638,349 | 375,721,015   | 5,176,139  | 380,897,153   | 269,030,177           | 4.5%                    | 13.8%     |
| 2022 | 2,848,905,143            | 327,624,091   | 10,620,143          | 338,244,235 | 398,397,183   | 5,488,538  | 403,885,721   | 203,388,691           | 4.6%                    | 14.2%     |
| 2023 | 2,942,360,598            | 338,371,469   | 7,246,076           | 345,617,545 | 421,476,988   | 5,806,498  | 427,283,486   | 121,722,750           | 4.7%                    | 14.5%     |
| 2024 | 3,039,833,347            | 349,580,835   | 3,242,352           | 352,823,187 | 444,980,742   | 6,130,299  | 451,111,040   | 23,434,896            | 4.8%                    | 14.8%     |
| 2025 | 3,141,516,622            | 361,274,412   | 1,462,123           | 359,812,288 | 467,911,100   | 6,446,200  | 474,357,300   | 91,110,115            | 4.9%                    | 15.1%     |
| 2026 | 3,249,636,895            | 373,708,243   | 6,826,864           | 366,881,379 | 488,744,158   | 6,733,208  | 495,477,366   | 219,706,102           | 4.9%                    | 15.2%     |
| 2027 | 3,368,284,666            | 387,352,737   | 12,841,172          | 374,511,565 | 509,550,768   | 7,019,851  | 516,570,619   | 361,765,156           | 4.9%                    | 15.3%     |
| 2028 | 3,482,855,949            | 400,528,434   | 18,172,167          | 382,356,268 | 531,856,002   | 7,327,140  | 539,183,142   | 518,592,030           | 5.0%                    | 15.5%     |
| 2029 | 3,600,205,960            | 414,023,685   | 25,196,910          | 388,826,776 | 552,488,455   | 7,611,384  | 560,099,839   | 689,865,094           | 5.0%                    | 15.6%     |
| 2030 | 3,727,147,753            | 428,621,992   | 32,852,400          | 395,769,591 | 575,658,348   | 7,930,585  | 583,588,933   | 877,684,435           | 5.1%                    | 15.7%     |
| 2031 | 3,855,326,464            | 443,362,543   | 41,690,701          | 401,671,842 | 598,257,963   | 8,241,930  | 606,499,893   | 1,082,512,486         | 5.1%                    | 15.7%     |
| 2032 | 3,994,735,092            | 459,394,536   | 51,591,819          | 407,802,716 | 619,496,242   | 8,534,520  | 628,030,762   | 1,302,740,531         | 5.1%                    | 15.7%     |
| 2033 | 4,145,368,688            | 476,717,399   | 62,351,847          | 414,365,552 | 638,759,178   | 8,799,897  | 647,559,075   | 1,535,934,054         | 5.1%                    | 15.6%     |
| 2034 | 4,308,425,218            | 495,468,900   | 74,009,866          | 421,459,034 | 655,044,620   | 9,024,254  | 664,068,874   | 1,778,543,894         | 5.0%                    | 15.4%     |
| 2035 | 4,486,920,928            | 515,995,907   | 86,430,295          | 429,565,611 | 672,491,476   | 9,264,611  | 681,756,087   | 2,030,734,369         | 5.0%                    | 15.2%     |
| 2036 | 4,670,487,136            | 537,106,021   | 99,610,038          | 437,495,983 | 688,137,357   | 9,480,158  | 697,617,515   | 2,290,855,901         | 4.9%                    | 14.9%     |
| 2037 | 4,865,847,110            | 559,572,418   | 112,631,003         | 446,941,414 | 704,171,729   | 9,701,056  | 713,872,785   | 2,557,787,272         | 4.8%                    | 14.7%     |
| 2038 | 5,066,848,049            | 582,687,526   | 125,883,280         | 456,804,246 | 719,062,399   | 9,906,198  | 728,968,597   | 2,829,951,623         | 4.8%                    | 14.4%     |
| 2039 | 5,276,339,993            | 606,779,099   | 139,824,939         | 466,954,160 | 735,434,978   | 10,131,756 | 745,566,734   | 3,108,564,196         | 4.7%                    | 14.1%     |
| 2040 | 5,488,875,218            | 631,220,650   | 153,262,645         | 477,958,005 | 752,563,014   | 10,367,721 | 762,930,735   | 3,393,536,927         | 4.6%                    | 13.9%     |
| 2041 | 5,705,065,444            | 656,082,526   | 167,329,627         | 488,752,899 | 770,929,127   | 10,620,742 | 781,549,869   | 3,686,333,897         | 4.6%                    | 13.7%     |
| 2042 | 5,923,952,450            | 681,254,532   | 181,586,918         | 499,667,613 | 790,044,542   | 10,884,087 | 800,928,629   | 3,987,594,912         | 4.5%                    | 13.5%     |
| 2043 | 6,147,467,281            | 706,958,737   | 195,814,623         | 511,144,114 | 811,588,453   | 11,180,888 | 822,769,340   | 4,299,220,138         | 4.4%                    | 13.4%     |
| 2044 | 6,371,923,143            | 732,771,161   | 210,359,500         | 522,411,662 | 833,780,140   | 11,486,612 | 845,266,753   | 4,622,075,229         | 4.4%                    | 13.3%     |
| 2045 | 6,603,440,000            | 759,395,600   | 224,142,656         | 535,252,944 | 857,914,017   | 11,819,094 | 869,733,110   | 4,956,555,396         | 4.4%                    | 13.2%     |
| 2046 | 6,839,037,192            | 786,489,277   | 239,034,619         | 547,454,659 | 881,025,749   | 12,137,494 | 893,163,243   | 5,302,263,981         | 4.3%                    | 13.1%     |
| 2047 | 7,084,400,571            | 814,706,066   | 252,732,320         | 561,973,746 | 904,123,199   | 12,455,697 | 916,578,896   | 5,656,869,131         | 4.3%                    | 12.9%     |
| 2048 | 7,339,268,177            | 844,015,840   | 267,416,815         | 576,599,026 | 926,943,353   | 12,770,080 | 939,713,433   | 6,019,983,538         | 4.2%                    | 12.8%     |
| 2049 | 7,603,632,143            | 874,417,696   | 281,823,813         | 592,593,884 | 956,027,548   | 13,170,760 | 969,198,307   | 6,396,587,962         | 4.2%                    | 12.7%     |
| 2050 | 7,860,252,701            | 903,929,061   | 296,438,033         | 607,491,028 | 982,174,932   | 13,530,980 | 995,705,912   | 6,784,802,846         | 4.2%                    | 12.7%     |
| 2051 | 8,135,931,000            | 935,632,065   | 311,507,680         | 624,124,385 | 1,008,843,372 | 13,898,379 | 1,022,741,752 | 7,183,420,212         | 4.1%                    | 12.6%     |
| 2052 | 8,421,857,689            | 968,513,634   | 328,075,417         | 640,438,218 | 1,038,605,715 | 14,308,402 | 1,052,914,117 | 7,595,896,111         | 4.1%                    | 12.5%     |
| 2053 | 8,710,257,822            | 1,001,679,649 | 344,278,353         | 657,401,297 | 1,069,834,033 | 14,738,620 | 1,084,572,653 | 8,023,067,468         | 4.1%                    | 12.5%     |
| 2054 | 9,008,890,755            | 1,036,022,437 | 362,557,818         | 673,464,619 | 1,100,258,605 | 15,157,766 | 1,115,416,370 | 8,465,019,219         | 4.1%                    | 12.4%     |
| 2055 | 9,322,789,270            | 1,072,120,766 | 381,034,371         | 691,086,395 | 1,134,638,465 | 15,631,402 | 1,150,269,867 | 8,924,202,691         | 4.0%                    | 12.3%     |
| 2056 | 9,640,218,919            | 1,108,625,176 | 402,147,568         | 706,477,608 | 1,167,865,445 | 16,089,155 | 1,183,954,599 | 9,401,679,682         | 4.0%                    | 12.3%     |
| 2057 | 9,979,568,252            | 1,147,650,349 | 423,808,600         | 723,841,749 | 1,204,617,256 | 16,595,468 | 1,221,212,723 | 9,899,050,657         | 4.0%                    | 12.2%     |
| 2058 | 10,324,983,228           | 1,187,373,071 | 446,707,410         | 740,665,661 | 1,240,127,787 | 17,084,680 | 1,257,212,467 | 10,415,597,463        | 4.0%                    | 12.2%     |
| 2059 | 10,696,416,269           | 1,230,087,871 | 469,465,957         | 760,621,914 | 1,275,853,160 | 17,576,853 | 1,293,430,013 | 10,948,405,562        | 4.0%                    | 12.1%     |
| 2060 | 11,086,163,762           | 1,274,908,833 | 496,464,136         | 778,444,697 | 1,312,889,153 | 18,087,081 | 1,330,976,234 | 11,500,937,100        | 3.9%                    | 12.0%     |
| 2061 | 11,491,801,977           | 1,321,557,227 | 523,492,304         | 798,064,923 | 1,348,110,510 | 18,572,310 | 1,366,682,819 | 12,069,554,996        | 3.9%                    | 11.9%     |
| 2062 | 11,925,903,186           | 1,371,478,866 | 550,808,528         | 820,670,339 | 1,388,371,976 | 19,126,974 | 1,407,498,950 | 12,656,383,607        | 3.9%                    | 11.8%     |
| 2063 | 12,365,415,718           | 1,422,022,808 | 580,339,507         | 841,683,300 | 1,425,662,372 | 19,640,707 | 1,445,303,079 | 13,260,003,385        | 3.8%                    | 11.7%     |

<sup>83</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.19 Demographic projection<sup>84</sup> – Benefits individualization

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 14,822 | -       | -     | 14,822 | 1,048   | 389    | 371      | 1,808 | 16,630      |
| 2006 | 15,035 | -       | -     | 15,035 | 1,065   | 395    | 376      | 1,837 | 16,872      |
| 2007 | 15,307 | -       | -     | 15,307 | 1,086   | 389    | 391      | 1,866 | 17,173      |
| 2008 | 15,637 | -       | -     | 15,637 | 1,099   | 384    | 405      | 1,888 | 17,524      |
| 2009 | 15,947 | -       | -     | 15,947 | 1,098   | 379    | 417      | 1,894 | 17,841      |
| 2010 | 16,453 | -       | -     | 16,453 | 1,082   | 367    | 421      | 1,871 | 18,324      |
| 2011 | 16,948 | -       | -     | 16,948 | 1,056   | 368    | 430      | 1,855 | 18,803      |
| 2012 | 17,571 | -       | -     | 17,571 | 1,042   | 364    | 435      | 1,841 | 19,413      |
| 2013 | 18,170 | -       | -     | 18,170 | 1,034   | 365    | 433      | 1,832 | 20,002      |
| 2014 | 18,803 | -       | -     | 18,803 | 1,007   | 367    | 437      | 1,810 | 20,614      |
| 2015 | 19,519 | -       | -     | 19,519 | 981     | 374    | 435      | 1,790 | 21,309      |
| 2016 | 20,222 | -       | -     | 20,222 | 963     | 381    | 425      | 1,768 | 21,990      |
| 2017 | 20,999 | -       | -     | 20,999 | 929     | 384    | 424      | 1,736 | 22,735      |
| 2018 | 21,865 | -       | -     | 21,865 | 894     | 385    | 417      | 1,695 | 23,560      |
| 2019 | 22,642 | -       | -     | 22,642 | 862     | 387    | 412      | 1,661 | 24,303      |
| 2020 | 23,578 | -       | -     | 23,578 | 837     | 380    | 404      | 1,621 | 25,200      |
| 2021 | 24,473 | -       | -     | 24,473 | 813     | 377    | 394      | 1,584 | 26,057      |
| 2022 | 25,352 | -       | -     | 25,352 | 787     | 372    | 384      | 1,542 | 26,894      |
| 2023 | 26,202 | -       | -     | 26,202 | 768     | 362    | 376      | 1,506 | 27,709      |
| 2024 | 27,026 | -       | -     | 27,026 | 764     | 354    | 364      | 1,482 | 28,507      |
| 2025 | 27,761 | -       | -     | 27,761 | 745     | 343    | 349      | 1,437 | 29,199      |
| 2026 | 28,324 | -       | -     | 28,324 | 742     | 341    | 340      | 1,424 | 29,747      |
| 2027 | 28,843 | -       | -     | 28,843 | 737     | 341    | 333      | 1,410 | 30,253      |
| 2028 | 29,407 | -       | -     | 29,407 | 740     | 338    | 323      | 1,401 | 30,808      |
| 2029 | 29,836 | -       | -     | 29,836 | 745     | 333    | 320      | 1,398 | 31,234      |
| 2030 | 30,366 | -       | -     | 30,366 | 750     | 327    | 313      | 1,390 | 31,756      |
| 2031 | 30,823 | -       | -     | 30,823 | 755     | 319    | 305      | 1,380 | 32,202      |
| 2032 | 31,170 | -       | -     | 31,170 | 760     | 311    | 302      | 1,374 | 32,544      |
| 2033 | 31,384 | -       | -     | 31,384 | 765     | 311    | 301      | 1,378 | 32,762      |
| 2034 | 31,424 | -       | -     | 31,424 | 770     | 311    | 303      | 1,385 | 32,809      |
| 2035 | 31,499 | -       | -     | 31,499 | 775     | 313    | 306      | 1,394 | 32,893      |
| 2036 | 31,469 | -       | -     | 31,469 | 779     | 317    | 310      | 1,406 | 32,875      |
| 2037 | 31,440 | -       | -     | 31,440 | 783     | 321    | 314      | 1,419 | 32,858      |
| 2038 | 31,343 | -       | -     | 31,343 | 787     | 327    | 320      | 1,435 | 32,778      |
| 2039 | 31,298 | -       | -     | 31,298 | 790     | 333    | 324      | 1,447 | 32,745      |
| 2040 | 31,268 | -       | -     | 31,268 | 793     | 339    | 328      | 1,460 | 32,728      |
| 2041 | 31,274 | -       | -     | 31,274 | 796     | 344    | 331      | 1,471 | 32,744      |
| 2042 | 31,291 | -       | -     | 31,291 | 797     | 348    | 333      | 1,479 | 32,770      |
| 2043 | 31,386 | -       | -     | 31,386 | 798     | 349    | 334      | 1,482 | 32,868      |
| 2044 | 31,482 | -       | -     | 31,482 | 799     | 350    | 334      | 1,483 | 32,965      |
| 2045 | 31,629 | -       | -     | 31,629 | 798     | 349    | 333      | 1,481 | 33,109      |
| 2046 | 31,712 | -       | -     | 31,712 | 797     | 350    | 334      | 1,481 | 33,193      |
| 2047 | 31,774 | -       | -     | 31,774 | 796     | 350    | 334      | 1,479 | 33,253      |
| 2048 | 31,804 | -       | -     | 31,804 | 794     | 353    | 334      | 1,480 | 33,284      |
| 2049 | 32,026 | -       | -     | 32,026 | 791     | 349    | 331      | 1,472 | 33,498      |
| 2050 | 32,122 | -       | -     | 32,122 | 789     | 349    | 331      | 1,469 | 33,591      |
| 2051 | 32,212 | -       | -     | 32,212 | 787     | 349    | 330      | 1,467 | 33,678      |
| 2052 | 32,375 | -       | -     | 32,375 | 785     | 348    | 329      | 1,461 | 33,836      |
| 2053 | 32,556 | -       | -     | 32,556 | 783     | 345    | 326      | 1,454 | 34,011      |
| 2054 | 32,686 | -       | -     | 32,686 | 782     | 344    | 325      | 1,451 | 34,137      |
| 2055 | 32,905 | -       | -     | 32,905 | 781     | 341    | 323      | 1,445 | 34,350      |
| 2056 | 33,061 | -       | -     | 33,061 | 780     | 340    | 322      | 1,441 | 34,502      |
| 2057 | 33,288 | -       | -     | 33,288 | 779     | 337    | 320      | 1,436 | 34,724      |
| 2058 | 33,450 | -       | -     | 33,450 | 780     | 335    | 319      | 1,433 | 34,883      |
| 2059 | 33,590 | -       | -     | 33,590 | 780     | 333    | 318      | 1,431 | 35,022      |
| 2060 | 33,737 | -       | -     | 33,737 | 781     | 332    | 318      | 1,431 | 35,169      |
| 2061 | 33,811 | -       | -     | 33,811 | 782     | 333    | 319      | 1,434 | 35,246      |
| 2062 | 33,986 | -       | -     | 33,986 | 784     | 331    | 318      | 1,433 | 35,420      |
| 2063 | 34,061 | -       | -     | 34,061 | 786     | 333    | 320      | 1,438 | 35,498      |

<sup>84</sup> Number of pensions.

## Annex 2.20 AOV financial statement<sup>85</sup> – Individualization (in AFL)

| Year | Total insurable earnings | Revenue       |                     |               | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|---------------|---------------------|---------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                          | Contribution  | Investment earnings | Total         | Benefits      | Admin.     | Total         |                       |                         |           |
| 2002 | 1,110,662,730            | 127,726,214   | -                   | 127,726,214   | 126,435,000   | 1,752,000  | 128,187,000   | -                     | 3.8%                    | 11.5%     |
| 2003 | 1,175,096,930            | 135,136,147   | -                   | 135,136,147   | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512   | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 1,472,201,770            | 169,303,204   | 12,017,065          | 181,320,268   | 158,339,059   | 2,181,366  | 160,520,425   | 182,599,508           | 3.9%                    | 10.9%     |
| 2006 | 1,559,663,658            | 179,361,321   | 13,016,219          | 192,377,539   | 163,371,139   | 2,250,690  | 165,621,829   | 209,355,218           | 3.8%                    | 10.6%     |
| 2007 | 1,650,618,450            | 189,821,122   | 14,784,554          | 204,605,676   | 168,133,487   | 2,316,299  | 170,449,786   | 243,511,108           | 3.7%                    | 10.3%     |
| 2008 | 1,742,951,957            | 200,439,475   | 16,892,289          | 217,331,764   | 173,526,453   | 2,390,596  | 175,917,048   | 284,925,824           | 3.6%                    | 10.1%     |
| 2009 | 1,838,188,282            | 211,391,652   | 19,328,644          | 230,720,297   | 182,239,617   | 2,510,633  | 184,750,250   | 330,895,870           | 3.6%                    | 10.1%     |
| 2010 | 1,931,486,970            | 222,121,002   | 21,035,258          | 243,156,259   | 193,445,327   | 2,665,009  | 196,110,336   | 377,941,794           | 3.7%                    | 10.2%     |
| 2011 | 2,021,167,535            | 232,434,267   | 23,015,563          | 255,449,830   | 204,770,676   | 2,821,033  | 207,591,709   | 425,799,915           | 3.7%                    | 10.3%     |
| 2012 | 2,112,726,216            | 242,963,515   | 24,911,863          | 267,875,378   | 217,916,607   | 3,002,139  | 220,918,745   | 472,756,547           | 3.7%                    | 10.5%     |
| 2013 | 2,202,664,894            | 253,306,463   | 26,728,846          | 280,035,309   | 231,050,746   | 3,183,082  | 234,233,827   | 518,558,029           | 3.8%                    | 10.6%     |
| 2014 | 2,294,079,774            | 263,819,174   | 28,293,273          | 292,112,447   | 244,887,262   | 3,373,701  | 248,260,963   | 562,409,512           | 3.9%                    | 10.8%     |
| 2015 | 2,387,536,821            | 274,566,734   | 29,974,127          | 304,540,861   | 260,323,689   | 3,586,362  | 263,910,050   | 603,040,323           | 3.9%                    | 11.1%     |
| 2016 | 2,480,932,650            | 285,307,255   | 31,393,998          | 316,701,253   | 276,158,097   | 3,804,505  | 279,962,602   | 639,778,974           | 4.0%                    | 11.3%     |
| 2017 | 2,576,861,332            | 296,339,053   | 32,435,175          | 328,774,228   | 293,607,177   | 4,044,893  | 297,652,070   | 670,901,132           | 4.1%                    | 11.6%     |
| 2018 | 2,671,605,972            | 307,234,687   | 33,104,412          | 340,339,098   | 312,966,121   | 4,311,593  | 317,277,714   | 693,962,517           | 4.2%                    | 11.9%     |
| 2019 | 2,765,460,618            | 318,027,971   | 33,307,061          | 351,335,032   | 331,784,289   | 4,570,842  | 336,355,131   | 708,942,418           | 4.3%                    | 12.2%     |
| 2020 | 2,863,070,340            | 329,253,089   | 32,905,251          | 362,158,340   | 353,646,856   | 4,872,033  | 358,518,889   | 712,581,869           | 4.4%                    | 12.5%     |
| 2021 | 2,957,634,788            | 340,128,001   | 32,257,080          | 372,385,080   | 375,721,015   | 5,176,139  | 380,897,153   | 704,069,796           | 4.5%                    | 12.9%     |
| 2022 | 3,055,138,408            | 351,340,917   | 31,130,949          | 382,471,866   | 398,397,183   | 5,488,538  | 403,885,721   | 682,655,941           | 4.6%                    | 13.2%     |
| 2023 | 3,155,864,952            | 362,924,469   | 29,580,954          | 392,505,423   | 421,476,988   | 5,806,498  | 427,283,486   | 647,877,878           | 4.7%                    | 13.5%     |
| 2024 | 3,260,851,148            | 374,997,882   | 27,665,189          | 402,663,071   | 444,980,742   | 6,130,299  | 451,111,040   | 599,429,908           | 4.8%                    | 13.8%     |
| 2025 | 3,370,229,295            | 387,576,369   | 25,048,965          | 412,625,334   | 467,911,100   | 6,446,200  | 474,357,300   | 537,697,942           | 4.9%                    | 14.1%     |
| 2026 | 3,486,471,125            | 400,944,179   | 22,149,088          | 423,093,268   | 488,744,158   | 6,733,208  | 495,477,366   | 465,313,845           | 4.9%                    | 14.2%     |
| 2027 | 3,613,959,565            | 415,605,350   | 18,808,531          | 434,413,881   | 509,550,768   | 7,019,851  | 516,570,619   | 383,157,106           | 4.9%                    | 14.3%     |
| 2028 | 3,737,021,897            | 429,757,518   | 13,892,102          | 443,649,620   | 531,856,002   | 7,327,140  | 539,183,142   | 287,623,585           | 5.0%                    | 14.4%     |
| 2029 | 3,862,960,972            | 444,240,512   | 9,820,838           | 454,061,350   | 552,488,455   | 7,611,384  | 560,099,839   | 181,585,095           | 5.0%                    | 14.5%     |
| 2030 | 3,999,125,533            | 459,899,436   | 5,159,672           | 465,059,108   | 575,658,348   | 7,930,585  | 583,588,933   | 63,055,271            | 5.1%                    | 14.6%     |
| 2031 | 4,136,507,118            | 475,698,319   | 71,747              | 475,626,571   | 598,257,963   | 8,241,930  | 606,499,893   | 67,818,051            | 5.1%                    | 14.7%     |
| 2032 | 4,285,621,738            | 492,846,500   | 5,959,520           | 498,806,020   | 619,496,242   | 8,534,520  | 628,030,762   | 208,961,833           | 5.1%                    | 14.7%     |
| 2033 | 4,446,633,668            | 511,362,872   | 12,419,442          | 523,782,314   | 638,759,178   | 8,799,897  | 647,559,075   | 357,577,478           | 5.1%                    | 14.6%     |
| 2034 | 4,620,873,816            | 531,400,489   | 19,341,041          | 550,741,530   | 655,044,620   | 9,024,254  | 664,068,874   | 509,586,903           | 5.0%                    | 14.4%     |
| 2035 | 4,811,484,745            | 553,320,746   | 26,622,704          | 580,000,000   | 672,491,476   | 9,264,611  | 681,756,087   | 664,644,949           | 5.0%                    | 14.2%     |
| 2036 | 5,007,476,376            | 575,859,783   | 34,216,737          | 610,076,520   | 688,137,357   | 9,480,158  | 697,617,515   | 820,619,417           | 4.9%                    | 13.9%     |
| 2037 | 5,216,069,045            | 599,847,940   | 41,727,657          | 641,575,597   | 704,171,729   | 9,701,056  | 713,872,785   | 976,371,919           | 4.8%                    | 13.7%     |
| 2038 | 5,430,795,658            | 624,541,501   | 49,202,016          | 673,743,517   | 719,062,399   | 9,906,198  | 728,968,597   | 1,130,001,031         | 4.8%                    | 13.4%     |
| 2039 | 5,654,810,954            | 650,303,260   | 56,781,919          | 707,085,179   | 735,434,978   | 10,131,756 | 745,566,734   | 1,282,046,423         | 4.7%                    | 13.2%     |
| 2040 | 5,882,183,700            | 676,451,126   | 63,976,557          | 740,427,683   | 752,563,014   | 10,367,721 | 762,930,735   | 1,432,502,590         | 4.6%                    | 13.0%     |
| 2041 | 6,113,674,750            | 703,072,596   | 71,244,748          | 774,317,344   | 770,929,127   | 10,620,742 | 781,549,869   | 1,582,224,611         | 4.6%                    | 12.8%     |
| 2042 | 6,348,223,847            | 730,045,742   | 78,407,087          | 808,452,829   | 790,044,542   | 10,884,087 | 800,928,629   | 1,731,514,585         | 4.5%                    | 12.6%     |
| 2043 | 6,587,823,240            | 757,599,673   | 85,383,628          | 842,983,301   | 811,588,453   | 11,180,888 | 822,769,340   | 1,882,067,881         | 4.4%                    | 12.5%     |
| 2044 | 6,828,515,155            | 785,279,243   | 92,345,342          | 877,624,585   | 833,780,140   | 11,486,612 | 845,266,753   | 2,034,400,733         | 4.4%                    | 12.4%     |
| 2045 | 7,076,740,295            | 813,825,134   | 98,830,026          | 912,655,160   | 857,914,017   | 11,819,094 | 869,733,110   | 2,189,138,736         | 4.4%                    | 12.3%     |
| 2046 | 7,329,361,378            | 842,876,558   | 105,648,118         | 948,524,676   | 881,025,749   | 12,137,494 | 893,163,243   | 2,345,073,538         | 4.3%                    | 12.2%     |
| 2047 | 7,592,667,196            | 873,156,728   | 111,739,760         | 984,896,488   | 904,123,199   | 12,455,697 | 916,578,896   | 2,500,235,466         | 4.3%                    | 12.1%     |
| 2048 | 7,866,172,125            | 904,609,794   | 118,026,796         | 1,022,636,590 | 926,943,353   | 12,770,080 | 939,713,433   | 2,653,365,902         | 4.2%                    | 11.9%     |
| 2049 | 8,149,970,142            | 937,246,566   | 123,990,986         | 1,061,237,552 | 956,027,548   | 13,170,760 | 969,198,307   | 2,809,308,629         | 4.2%                    | 11.9%     |
| 2050 | 8,425,585,447            | 968,942,326   | 129,884,095         | 1,098,826,421 | 982,174,932   | 13,530,980 | 995,705,912   | 2,965,956,309         | 4.2%                    | 11.8%     |
| 2051 | 8,721,651,115            | 1,002,989,878 | 135,761,229         | 1,138,751,107 | 1,008,843,372 | 13,898,379 | 1,022,741,752 | 3,121,469,412         | 4.1%                    | 11.7%     |
| 2052 | 9,028,738,349            | 1,038,304,910 | 142,065,833         | 1,180,370,743 | 1,038,605,715 | 14,308,402 | 1,052,914,117 | 3,278,144,452         | 4.1%                    | 11.7%     |
| 2053 | 9,338,585,312            | 1,073,937,311 | 148,019,073         | 1,221,956,384 | 1,069,834,033 | 14,738,620 | 1,084,572,653 | 3,436,798,867         | 4.1%                    | 11.6%     |
| 2054 | 9,659,365,979            | 1,110,827,088 | 154,652,738         | 1,265,479,826 | 1,100,258,605 | 15,157,766 | 1,115,416,370 | 3,596,040,889         | 4.1%                    | 11.5%     |
| 2055 | 9,996,598,577            | 1,149,608,836 | 161,146,946         | 1,310,755,782 | 1,134,638,465 | 15,631,402 | 1,150,269,867 | 3,757,848,864         | 4.0%                    | 11.5%     |
| 2056 | 10,337,595,472           | 1,188,823,479 | 168,526,392         | 1,357,350,871 | 1,167,865,445 | 16,089,155 | 1,183,954,599 | 3,921,506,376         | 4.0%                    | 11.5%     |
| 2057 | 10,701,804,508           | 1,230,707,518 | 175,881,353         | 1,406,588,871 | 1,204,617,256 | 16,595,468 | 1,221,212,723 | 4,087,892,934         | 4.0%                    | 11.4%     |
| 2058 | 11,072,521,852           | 1,273,340,013 | 183,471,454         | 1,456,811,467 | 1,240,127,787 | 17,084,680 | 1,257,212,467 | 4,255,236,843         | 4.0%                    | 11.4%     |
| 2059 | 11,470,681,545           | 1,319,128,378 | 190,651,673         | 1,509,780,051 | 1,275,853,160 | 17,576,853 | 1,293,430,013 | 4,420,190,151         | 4.0%                    | 11.3%     |
| 2060 | 11,888,368,390           | 1,367,162,365 | 199,121,440         | 1,566,283,805 | 1,312,889,153 | 18,087,081 | 1,330,976,234 | 4,583,125,461         | 3.9%                    | 11.2%     |
| 2061 | 12,323,014,094           | 1,417,146,621 | 207,074,311         | 1,624,220,932 | 1,348,110,510 | 18,572,310 | 1,366,682,819 | 4,739,735,970         | 3.9%                    | 11.1%     |
| 2062 | 12,787,860,882           | 1,470,604,001 | 214,563,002         | 1,685,167,003 | 1,388,371,976 | 19,126,974 | 1,407,498,950 | 4,891,193,920         | 3.9%                    | 11.0%     |
| 2063 | 13,258,437,854           | 1,524,720,353 | 222,275,839         | 1,746,996,192 | 1,425,662,372 | 19,640,707 | 1,445,303,079 | 5,034,052,484         | 3.8%                    | 10.9%     |

<sup>85</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.21 Demographic projection<sup>86</sup> – Individualization

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND<br>TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|----------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |                |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400         |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839         |
| 2005 | 14,822 | -       | -     | 14,822 | 1,048   | 389    | 371      | 1,808 | 16,630         |
| 2006 | 15,035 | -       | -     | 15,035 | 1,065   | 395    | 376      | 1,837 | 16,872         |
| 2007 | 15,307 | -       | -     | 15,307 | 1,086   | 389    | 391      | 1,866 | 17,173         |
| 2008 | 15,637 | -       | -     | 15,637 | 1,099   | 384    | 405      | 1,888 | 17,524         |
| 2009 | 15,947 | -       | -     | 15,947 | 1,098   | 379    | 417      | 1,894 | 17,841         |
| 2010 | 16,453 | -       | -     | 16,453 | 1,082   | 367    | 421      | 1,871 | 18,324         |
| 2011 | 16,948 | -       | -     | 16,948 | 1,056   | 368    | 430      | 1,855 | 18,803         |
| 2012 | 17,571 | -       | -     | 17,571 | 1,042   | 364    | 435      | 1,841 | 19,413         |
| 2013 | 18,170 | -       | -     | 18,170 | 1,034   | 365    | 433      | 1,832 | 20,002         |
| 2014 | 18,803 | -       | -     | 18,803 | 1,007   | 367    | 437      | 1,810 | 20,614         |
| 2015 | 19,519 | -       | -     | 19,519 | 981     | 374    | 435      | 1,790 | 21,309         |
| 2016 | 20,222 | -       | -     | 20,222 | 963     | 381    | 425      | 1,768 | 21,990         |
| 2017 | 20,999 | -       | -     | 20,999 | 929     | 384    | 424      | 1,736 | 22,735         |
| 2018 | 21,865 | -       | -     | 21,865 | 894     | 385    | 417      | 1,695 | 23,560         |
| 2019 | 22,642 | -       | -     | 22,642 | 862     | 387    | 412      | 1,661 | 24,303         |
| 2020 | 23,578 | -       | -     | 23,578 | 837     | 380    | 404      | 1,621 | 25,200         |
| 2021 | 24,473 | -       | -     | 24,473 | 813     | 377    | 394      | 1,584 | 26,057         |
| 2022 | 25,352 | -       | -     | 25,352 | 787     | 372    | 384      | 1,542 | 26,894         |
| 2023 | 26,202 | -       | -     | 26,202 | 768     | 362    | 376      | 1,506 | 27,709         |
| 2024 | 27,026 | -       | -     | 27,026 | 764     | 354    | 364      | 1,482 | 28,507         |
| 2025 | 27,761 | -       | -     | 27,761 | 745     | 343    | 349      | 1,437 | 29,199         |
| 2026 | 28,324 | -       | -     | 28,324 | 742     | 341    | 340      | 1,424 | 29,747         |
| 2027 | 28,843 | -       | -     | 28,843 | 737     | 341    | 333      | 1,410 | 30,253         |
| 2028 | 29,407 | -       | -     | 29,407 | 740     | 338    | 323      | 1,401 | 30,808         |
| 2029 | 29,836 | -       | -     | 29,836 | 745     | 333    | 320      | 1,398 | 31,234         |
| 2030 | 30,366 | -       | -     | 30,366 | 750     | 327    | 313      | 1,390 | 31,756         |
| 2031 | 30,823 | -       | -     | 30,823 | 755     | 319    | 305      | 1,380 | 32,202         |
| 2032 | 31,170 | -       | -     | 31,170 | 760     | 311    | 302      | 1,374 | 32,544         |
| 2033 | 31,384 | -       | -     | 31,384 | 765     | 311    | 301      | 1,378 | 32,762         |
| 2034 | 31,424 | -       | -     | 31,424 | 770     | 311    | 303      | 1,385 | 32,809         |
| 2035 | 31,499 | -       | -     | 31,499 | 775     | 313    | 306      | 1,394 | 32,893         |
| 2036 | 31,469 | -       | -     | 31,469 | 779     | 317    | 310      | 1,406 | 32,875         |
| 2037 | 31,440 | -       | -     | 31,440 | 783     | 321    | 314      | 1,419 | 32,858         |
| 2038 | 31,343 | -       | -     | 31,343 | 787     | 327    | 320      | 1,435 | 32,778         |
| 2039 | 31,298 | -       | -     | 31,298 | 790     | 333    | 324      | 1,447 | 32,745         |
| 2040 | 31,268 | -       | -     | 31,268 | 793     | 339    | 328      | 1,460 | 32,728         |
| 2041 | 31,274 | -       | -     | 31,274 | 796     | 344    | 331      | 1,471 | 32,744         |
| 2042 | 31,291 | -       | -     | 31,291 | 797     | 348    | 333      | 1,479 | 32,770         |
| 2043 | 31,386 | -       | -     | 31,386 | 798     | 349    | 334      | 1,482 | 32,868         |
| 2044 | 31,482 | -       | -     | 31,482 | 799     | 350    | 334      | 1,483 | 32,965         |
| 2045 | 31,629 | -       | -     | 31,629 | 798     | 349    | 333      | 1,481 | 33,109         |
| 2046 | 31,712 | -       | -     | 31,712 | 797     | 350    | 334      | 1,481 | 33,193         |
| 2047 | 31,774 | -       | -     | 31,774 | 796     | 350    | 334      | 1,479 | 33,253         |
| 2048 | 31,804 | -       | -     | 31,804 | 794     | 353    | 334      | 1,480 | 33,284         |
| 2049 | 32,026 | -       | -     | 32,026 | 791     | 349    | 331      | 1,472 | 33,498         |
| 2050 | 32,122 | -       | -     | 32,122 | 789     | 349    | 331      | 1,469 | 33,591         |
| 2051 | 32,212 | -       | -     | 32,212 | 787     | 349    | 330      | 1,467 | 33,678         |
| 2052 | 32,375 | -       | -     | 32,375 | 785     | 348    | 329      | 1,461 | 33,836         |
| 2053 | 32,556 | -       | -     | 32,556 | 783     | 345    | 326      | 1,454 | 34,011         |
| 2054 | 32,686 | -       | -     | 32,686 | 782     | 344    | 325      | 1,451 | 34,137         |
| 2055 | 32,905 | -       | -     | 32,905 | 781     | 341    | 323      | 1,445 | 34,350         |
| 2056 | 33,061 | -       | -     | 33,061 | 780     | 340    | 322      | 1,441 | 34,502         |
| 2057 | 33,288 | -       | -     | 33,288 | 779     | 337    | 320      | 1,436 | 34,724         |
| 2058 | 33,450 | -       | -     | 33,450 | 780     | 335    | 319      | 1,433 | 34,883         |
| 2059 | 33,590 | -       | -     | 33,590 | 780     | 333    | 318      | 1,431 | 35,022         |
| 2060 | 33,737 | -       | -     | 33,737 | 781     | 332    | 318      | 1,431 | 35,169         |
| 2061 | 33,811 | -       | -     | 33,811 | 782     | 333    | 319      | 1,434 | 35,246         |
| 2062 | 33,986 | -       | -     | 33,986 | 784     | 331    | 318      | 1,433 | 35,420         |
| 2063 | 34,061 | -       | -     | 34,061 | 786     | 333    | 320      | 1,438 | 35,498         |

<sup>86</sup> Number of pensions.



## Annex 2.22 AOV financial statement<sup>87</sup> – Reform (in AFL)

| Year | Total insurable earnings | Revenue       |                     |               | Expenditure   |            |               | Reserve (end of year) | Expenditure As % of GDP | PAYG cost |
|------|--------------------------|---------------|---------------------|---------------|---------------|------------|---------------|-----------------------|-------------------------|-----------|
|      |                          | Contribution  | Investment earnings | Total         | Benefits      | Admin.     | Total         |                       |                         |           |
| 2003 | 1,175,096,930            | 135,136,147   | -                   | 135,136,147   | 128,737,925   | 1,985,957  | 130,723,882   | 144,000,000           | 3.6%                    | 11.1%     |
| 2004 | 1,237,881,342            | 142,356,354   | 10,781,158          | 153,137,512   | 133,498,696   | 1,839,151  | 135,337,847   | 161,799,665           | 3.5%                    | 10.9%     |
| 2005 | 1,578,845,760            | 181,567,262   | 12,805,975          | 194,373,238   | 148,539,989   | 2,046,368  | 150,586,357   | 205,586,545           | 3.7%                    | 9.5%      |
| 2006 | 1,674,938,235            | 192,617,897   | 15,672,466          | 208,290,363   | 145,040,991   | 1,998,164  | 147,039,155   | 266,837,754           | 3.4%                    | 8.8%      |
| 2007 | 1,774,406,811            | 204,056,783   | 19,742,445          | 223,799,228   | 150,250,426   | 2,069,932  | 152,320,359   | 338,316,623           | 3.3%                    | 8.6%      |
| 2008 | 1,875,245,661            | 215,653,251   | 24,247,808          | 239,901,059   | 155,489,404   | 2,142,107  | 157,631,511   | 420,586,171           | 3.3%                    | 8.4%      |
| 2009 | 1,979,052,988            | 227,591,094   | 29,221,314          | 256,812,407   | 164,387,688   | 2,264,695  | 166,652,383   | 510,746,196           | 3.3%                    | 8.4%      |
| 2010 | 2,079,514,867            | 239,144,210   | 33,154,728          | 272,298,938   | 173,836,317   | 2,394,864  | 176,231,182   | 606,813,952           | 3.3%                    | 8.5%      |
| 2011 | 2,180,182,636            | 250,721,003   | 37,688,160          | 288,409,163   | 183,031,531   | 2,521,543  | 185,553,074   | 709,670,042           | 3.3%                    | 8.5%      |
| 2012 | 2,281,721,232            | 262,397,942   | 42,312,344          | 304,710,286   | 194,803,964   | 2,683,726  | 197,487,690   | 816,892,637           | 3.4%                    | 8.7%      |
| 2013 | 2,381,217,434            | 273,840,005   | 47,052,030          | 320,892,035   | 206,358,276   | 2,842,905  | 209,201,181   | 928,583,491           | 3.4%                    | 8.8%      |
| 2014 | 2,482,177,779            | 285,450,445   | 51,596,818          | 337,047,262   | 219,439,484   | 3,023,119  | 222,462,603   | 1,043,168,151         | 3.5%                    | 9.0%      |
| 2015 | 2,583,739,180            | 297,130,006   | 56,678,514          | 353,808,520   | 232,644,630   | 3,205,040  | 235,849,670   | 1,161,127,000         | 3.5%                    | 9.1%      |
| 2016 | 2,688,019,908            | 309,122,289   | 61,697,774          | 370,820,063   | 246,583,479   | 3,397,069  | 249,980,548   | 1,281,966,515         | 3.6%                    | 9.3%      |
| 2017 | 2,794,037,872            | 321,314,355   | 66,449,225          | 387,763,581   | 262,027,948   | 3,612,252  | 265,640,200   | 1,403,914,896         | 3.6%                    | 9.5%      |
| 2018 | 2,899,947,018            | 333,493,907   | 71,058,880          | 404,552,787   | 277,974,136   | 3,829,524  | 281,803,660   | 1,526,664,023         | 3.7%                    | 9.7%      |
| 2019 | 3,007,836,598            | 345,901,209   | 75,358,493          | 421,259,702   | 295,349,083   | 4,068,891  | 299,417,973   | 1,648,505,751         | 3.8%                    | 10.0%     |
| 2020 | 3,114,983,308            | 358,223,080   | 79,027,436          | 437,250,516   | 314,632,606   | 4,334,551  | 318,967,157   | 1,766,789,110         | 3.9%                    | 10.2%     |
| 2021 | 3,222,073,493            | 370,538,452   | 83,063,168          | 453,601,620   | 333,091,780   | 4,588,855  | 337,680,635   | 1,882,710,095         | 4.0%                    | 10.5%     |
| 2022 | 3,333,542,587            | 383,357,398   | 86,972,206          | 470,329,603   | 354,778,806   | 4,887,627  | 359,666,433   | 1,993,373,264         | 4.1%                    | 10.8%     |
| 2023 | 3,444,142,223            | 396,076,356   | 90,924,435          | 487,000,790   | 376,475,114   | 5,186,528  | 381,661,642   | 2,098,712,413         | 4.2%                    | 11.1%     |
| 2024 | 3,559,477,578            | 409,339,921   | 95,261,256          | 504,601,178   | 398,639,389   | 5,491,875  | 404,131,264   | 2,199,182,327         | 4.3%                    | 11.4%     |
| 2025 | 3,679,464,057            | 423,138,367   | 98,900,178          | 522,038,545   | 421,179,664   | 5,802,402  | 426,982,066   | 2,294,238,806         | 4.4%                    | 11.6%     |
| 2026 | 3,804,919,608            | 437,565,755   | 103,218,650         | 540,784,405   | 444,211,995   | 6,119,708  | 450,331,703   | 2,384,691,508         | 4.5%                    | 11.8%     |
| 2027 | 3,936,921,639            | 452,745,989   | 107,522,491         | 560,268,479   | 466,614,928   | 6,428,343  | 473,043,271   | 2,471,916,716         | 4.5%                    | 12.0%     |
| 2028 | 4,065,065,473            | 467,482,529   | 103,833,066         | 571,315,596   | 486,672,573   | 6,704,668  | 493,377,241   | 2,549,855,070         | 4.6%                    | 12.1%     |
| 2029 | 4,203,809,154            | 483,438,053   | 108,099,378         | 591,537,431   | 506,622,011   | 6,979,503  | 513,601,514   | 2,627,790,987         | 4.6%                    | 12.2%     |
| 2030 | 4,349,229,853            | 500,161,433   | 111,877,475         | 612,038,908   | 528,027,239   | 7,274,393  | 535,301,632   | 2,704,528,263         | 4.7%                    | 12.3%     |
| 2031 | 4,500,319,220            | 517,536,710   | 116,841,562         | 634,378,273   | 547,547,730   | 7,543,318  | 555,091,048   | 2,783,815,488         | 4.7%                    | 12.3%     |
| 2032 | 4,664,280,943            | 536,392,308   | 122,284,407         | 658,676,715   | 569,636,454   | 7,847,624  | 577,484,078   | 2,865,008,125         | 4.7%                    | 12.4%     |
| 2033 | 4,832,704,792            | 555,761,051   | 127,809,608         | 683,570,659   | 591,019,525   | 8,142,209  | 599,161,734   | 2,949,417,051         | 4.7%                    | 12.4%     |
| 2034 | 5,013,883,405            | 576,596,592   | 133,839,781         | 710,436,372   | 610,821,181   | 8,415,008  | 619,236,188   | 3,040,617,235         | 4.7%                    | 12.4%     |
| 2035 | 5,208,077,960            | 598,928,965   | 140,378,111         | 739,307,076   | 628,430,574   | 8,657,604  | 637,088,179   | 3,142,836,132         | 4.7%                    | 12.2%     |
| 2036 | 5,416,031,222            | 622,843,591   | 147,690,794         | 770,534,385   | 642,849,384   | 8,856,246  | 651,705,630   | 3,261,664,887         | 4.6%                    | 12.0%     |
| 2037 | 5,639,299,037            | 648,519,389   | 154,750,528         | 803,269,917   | 658,369,808   | 9,070,063  | 667,439,871   | 3,397,494,933         | 4.5%                    | 11.8%     |
| 2038 | 5,868,727,059            | 674,903,612   | 162,466,484         | 837,370,096   | 671,902,137   | 9,256,492  | 681,158,630   | 3,553,706,399         | 4.5%                    | 11.6%     |
| 2039 | 6,110,068,538            | 702,657,882   | 171,608,182         | 874,266,064   | 685,766,460   | 9,447,481  | 695,212,941   | 3,732,759,602         | 4.4%                    | 11.4%     |
| 2040 | 6,358,026,508            | 731,173,048   | 180,816,528         | 911,989,577   | 698,383,565   | 9,621,315  | 708,004,880   | 3,936,744,219         | 4.3%                    | 11.1%     |
| 2041 | 6,614,610,506            | 760,680,208   | 191,550,906         | 952,231,114   | 712,452,714   | 9,815,139  | 722,267,853   | 4,166,707,480         | 4.2%                    | 10.9%     |
| 2042 | 6,874,948,029            | 790,619,023   | 203,287,654         | 993,906,677   | 727,247,145   | 10,018,955 | 737,266,100   | 4,423,348,057         | 4.1%                    | 10.7%     |
| 2043 | 7,139,915,774            | 821,090,314   | 215,756,263         | 1,036,846,577 | 743,273,199   | 10,239,739 | 753,512,939   | 4,706,681,696         | 4.1%                    | 10.6%     |
| 2044 | 7,409,560,299            | 852,099,434   | 229,301,962         | 1,081,401,397 | 760,137,230   | 10,472,067 | 770,609,298   | 5,017,473,795         | 4.0%                    | 10.4%     |
| 2045 | 7,686,124,909            | 883,904,365   | 242,695,273         | 1,126,599,637 | 779,642,209   | 10,740,779 | 790,382,987   | 5,353,690,445         | 4.0%                    | 10.3%     |
| 2046 | 7,966,246,994            | 916,118,404   | 257,950,291         | 1,174,068,695 | 799,908,486   | 11,019,978 | 810,928,464   | 5,716,830,676         | 3.9%                    | 10.2%     |
| 2047 | 8,253,363,487            | 949,136,801   | 272,624,562         | 1,221,761,363 | 822,316,775   | 11,328,687 | 833,645,461   | 6,104,946,578         | 3.9%                    | 10.1%     |
| 2048 | 8,546,104,986            | 982,802,073   | 289,158,673         | 1,271,960,747 | 843,736,822   | 11,623,781 | 855,360,603   | 6,521,546,721         | 3.8%                    | 10.0%     |
| 2049 | 8,851,282,939            | 1,017,897,538 | 306,175,860         | 1,324,073,398 | 865,345,806   | 11,921,478 | 877,267,285   | 6,968,352,834         | 3.8%                    | 9.9%      |
| 2050 | 9,166,800,441            | 1,054,182,051 | 324,190,362         | 1,378,372,413 | 886,820,940   | 12,217,332 | 899,038,271   | 7,447,686,975         | 3.8%                    | 9.8%      |
| 2051 | 9,492,731,903            | 1,091,664,169 | 343,487,063         | 1,435,151,232 | 914,960,206   | 12,604,993 | 927,565,200   | 7,955,273,008         | 3.7%                    | 9.8%      |
| 2052 | 9,816,253,598            | 1,128,869,164 | 365,171,617         | 1,494,040,781 | 940,280,365   | 12,953,818 | 953,234,183   | 8,496,079,602         | 3.7%                    | 9.7%      |
| 2053 | 10,159,312,859           | 1,168,320,979 | 387,218,070         | 1,555,539,049 | 966,312,808   | 13,312,455 | 979,625,264   | 9,071,993,391         | 3.7%                    | 9.6%      |
| 2054 | 10,514,864,648           | 1,209,209,434 | 412,404,822         | 1,621,614,257 | 995,694,747   | 13,717,237 | 1,009,411,984 | 9,684,195,663         | 3.7%                    | 9.6%      |
| 2055 | 10,876,453,766           | 1,250,792,183 | 438,584,774         | 1,689,376,957 | 1,026,666,066 | 14,143,915 | 1,040,809,981 | 10,332,762,640        | 3.7%                    | 9.6%      |
| 2056 | 11,251,826,237           | 1,293,960,017 | 468,622,006         | 1,762,582,023 | 1,056,942,898 | 14,561,025 | 1,071,503,923 | 11,023,840,740        | 3.6%                    | 9.5%      |
| 2057 | 11,646,737,217           | 1,339,374,780 | 500,189,577         | 1,839,564,356 | 1,091,397,890 | 15,035,696 | 1,106,433,586 | 11,756,971,510        | 3.6%                    | 9.5%      |
| 2058 | 12,050,772,058           | 1,385,838,787 | 534,167,707         | 1,920,006,494 | 1,124,644,119 | 15,493,714 | 1,140,137,833 | 12,536,840,171        | 3.6%                    | 9.5%      |
| 2059 | 12,480,048,571           | 1,435,205,586 | 569,108,086         | 2,004,313,671 | 1,161,583,515 | 16,002,611 | 1,177,586,126 | 13,363,567,716        | 3.6%                    | 9.4%      |
| 2060 | 12,920,667,692           | 1,485,876,785 | 610,539,923         | 2,096,416,707 | 1,197,137,606 | 16,492,424 | 1,213,630,030 | 14,246,354,393        | 3.6%                    | 9.4%      |
| 2061 | 13,390,001,999           | 1,539,850,230 | 653,715,521         | 2,193,565,750 | 1,232,840,100 | 16,984,281 | 1,249,824,382 | 15,190,095,762        | 3.6%                    | 9.3%      |
| 2062 | 13,882,804,190           | 1,596,522,482 | 699,162,450         | 2,295,684,932 | 1,269,862,514 | 17,494,322 | 1,287,356,836 | 16,198,423,857        | 3.5%                    | 9.3%      |
| 2063 | 14,396,244,641           | 1,655,568,134 | 749,617,350         | 2,405,185,483 | 1,304,791,823 | 17,975,528 | 1,322,767,351 | 17,280,841,990        | 3.5%                    | 9.2%      |

<sup>87</sup> The reserve presented includes only the AOV. The actual SVb reserve includes both AOV and AWW.

## Annex 2.23 Demographic projection<sup>88</sup> – Reform

| Year | AOV    |         |       |        | AWW     |        |          |       | GRAND TOTAL |
|------|--------|---------|-------|--------|---------|--------|----------|-------|-------------|
|      | Single | Married | Split | Total  | Orphans | Widows | Invalids | Total |             |
| 2003 | 6,175  | 3,288   | 1,262 | 10,725 | 955     | 396    | 324      | 1,675 | 12,400      |
| 2004 | 6,372  | 3,391   | 1,325 | 11,087 | 1,008   | 396    | 348      | 1,752 | 12,839      |
| 2005 | 13,905 | -       | -     | 13,905 | 1,048   | 389    | 371      | 1,808 | 15,713      |
| 2006 | 13,336 | -       | -     | 13,336 | 1,065   | 395    | 376      | 1,837 | 15,173      |
| 2007 | 13,664 | -       | -     | 13,664 | 1,086   | 389    | 391      | 1,866 | 15,530      |
| 2008 | 13,994 | -       | -     | 13,994 | 1,099   | 384    | 405      | 1,888 | 15,881      |
| 2009 | 14,365 | -       | -     | 14,365 | 1,098   | 379    | 417      | 1,894 | 16,259      |
| 2010 | 14,762 | -       | -     | 14,762 | 1,082   | 367    | 421      | 1,871 | 16,633      |
| 2011 | 15,120 | -       | -     | 15,120 | 1,056   | 368    | 430      | 1,855 | 16,975      |
| 2012 | 15,676 | -       | -     | 15,676 | 1,042   | 364    | 435      | 1,841 | 17,517      |
| 2013 | 16,193 | -       | -     | 16,193 | 1,034   | 365    | 433      | 1,832 | 18,025      |
| 2014 | 16,812 | -       | -     | 16,812 | 1,007   | 367    | 437      | 1,810 | 18,622      |
| 2015 | 17,403 | -       | -     | 17,403 | 981     | 374    | 435      | 1,790 | 19,193      |
| 2016 | 18,012 | -       | -     | 18,012 | 963     | 381    | 425      | 1,768 | 19,780      |
| 2017 | 18,705 | -       | -     | 18,705 | 929     | 384    | 424      | 1,736 | 20,442      |
| 2018 | 19,368 | -       | -     | 19,368 | 894     | 385    | 417      | 1,695 | 21,064      |
| 2019 | 20,102 | -       | -     | 20,102 | 862     | 387    | 412      | 1,661 | 21,763      |
| 2020 | 20,920 | -       | -     | 20,920 | 837     | 380    | 404      | 1,621 | 22,541      |
| 2021 | 21,635 | -       | -     | 21,635 | 813     | 377    | 394      | 1,584 | 23,219      |
| 2022 | 22,514 | -       | -     | 22,514 | 787     | 372    | 384      | 1,542 | 24,057      |
| 2023 | 23,342 | -       | -     | 23,342 | 768     | 362    | 376      | 1,506 | 24,848      |
| 2024 | 24,147 | -       | -     | 24,147 | 764     | 354    | 364      | 1,482 | 25,629      |
| 2025 | 24,925 | -       | -     | 24,925 | 745     | 343    | 349      | 1,437 | 26,362      |
| 2026 | 25,681 | -       | -     | 25,681 | 742     | 341    | 340      | 1,424 | 27,105      |
| 2027 | 26,353 | -       | -     | 26,353 | 737     | 341    | 333      | 1,410 | 27,763      |
| 2028 | 26,847 | -       | -     | 26,847 | 740     | 338    | 323      | 1,401 | 28,247      |
| 2029 | 27,297 | -       | -     | 27,297 | 745     | 333    | 320      | 1,398 | 28,695      |
| 2030 | 27,790 | -       | -     | 27,790 | 750     | 327    | 313      | 1,390 | 29,180      |
| 2031 | 28,146 | -       | -     | 28,146 | 755     | 319    | 305      | 1,380 | 29,526      |
| 2032 | 28,602 | -       | -     | 28,602 | 760     | 311    | 302      | 1,374 | 29,975      |
| 2033 | 28,983 | -       | -     | 28,983 | 765     | 311    | 301      | 1,378 | 30,361      |
| 2034 | 29,253 | -       | -     | 29,253 | 770     | 311    | 303      | 1,385 | 30,638      |
| 2035 | 29,389 | -       | -     | 29,389 | 775     | 313    | 306      | 1,394 | 30,783      |
| 2036 | 29,353 | -       | -     | 29,353 | 779     | 317    | 310      | 1,406 | 30,759      |
| 2037 | 29,352 | -       | -     | 29,352 | 783     | 321    | 314      | 1,419 | 30,771      |
| 2038 | 29,246 | -       | -     | 29,246 | 787     | 327    | 320      | 1,435 | 30,681      |
| 2039 | 29,144 | -       | -     | 29,144 | 790     | 333    | 324      | 1,447 | 30,590      |
| 2040 | 28,977 | -       | -     | 28,977 | 793     | 339    | 328      | 1,460 | 30,436      |
| 2041 | 28,861 | -       | -     | 28,861 | 796     | 344    | 331      | 1,471 | 30,331      |
| 2042 | 28,763 | -       | -     | 28,763 | 797     | 348    | 333      | 1,479 | 30,242      |
| 2043 | 28,702 | -       | -     | 28,702 | 798     | 349    | 334      | 1,482 | 30,185      |
| 2044 | 28,660 | -       | -     | 28,660 | 799     | 350    | 334      | 1,483 | 30,143      |
| 2045 | 28,702 | -       | -     | 28,702 | 798     | 349    | 333      | 1,481 | 30,182      |
| 2046 | 28,753 | -       | -     | 28,753 | 797     | 350    | 334      | 1,481 | 30,233      |
| 2047 | 28,861 | -       | -     | 28,861 | 796     | 350    | 334      | 1,479 | 30,340      |
| 2048 | 28,913 | -       | -     | 28,913 | 794     | 353    | 334      | 1,480 | 30,393      |
| 2049 | 28,951 | -       | -     | 28,951 | 791     | 349    | 331      | 1,472 | 30,423      |
| 2050 | 28,967 | -       | -     | 28,967 | 789     | 349    | 331      | 1,469 | 30,436      |
| 2051 | 29,180 | -       | -     | 29,180 | 787     | 349    | 330      | 1,467 | 30,646      |
| 2052 | 29,276 | -       | -     | 29,276 | 785     | 348    | 329      | 1,461 | 30,737      |
| 2053 | 29,372 | -       | -     | 29,372 | 783     | 345    | 326      | 1,454 | 30,826      |
| 2054 | 29,546 | -       | -     | 29,546 | 782     | 344    | 325      | 1,451 | 30,998      |
| 2055 | 29,741 | -       | -     | 29,741 | 781     | 341    | 323      | 1,445 | 31,186      |
| 2056 | 29,888 | -       | -     | 29,888 | 780     | 340    | 322      | 1,441 | 31,330      |
| 2057 | 30,128 | -       | -     | 30,128 | 779     | 337    | 320      | 1,436 | 31,564      |
| 2058 | 30,304 | -       | -     | 30,304 | 780     | 335    | 319      | 1,433 | 31,737      |
| 2059 | 30,552 | -       | -     | 30,552 | 780     | 333    | 318      | 1,431 | 31,983      |
| 2060 | 30,733 | -       | -     | 30,733 | 781     | 332    | 318      | 1,431 | 32,165      |
| 2061 | 30,892 | -       | -     | 30,892 | 782     | 333    | 319      | 1,434 | 32,326      |
| 2062 | 31,056 | -       | -     | 31,056 | 784     | 331    | 318      | 1,433 | 32,490      |
| 2063 | 31,144 | -       | -     | 31,144 | 786     | 333    | 320      | 1,438 | 32,582      |

<sup>88</sup> Number of pensions.

### Annex 3 Legal minimum wages in countries of the European Union

| Country | Official term  | Method of estimation                           | Scope and exemptions  | Level (January 2003)   | Rates for special groups, etc.  | Adjustment   | Affected workers                                   |
|---------|--|--|---|--|---|--|--|
| Belgium | RMMMG (revenue minimum mensuel moyen garanti)              | General pay agreement (CCT Nos 21, 35, 43, 50) | Private sector. Not applicable to subsidized workers (apprentices), family members in family business and workers with less than 1 month employment | 1209.33€/mth for workers over 21 years of age and at least 1 year employment with the company; tapering off with less employment | Minimum wage is reduced for youth at a rate of 6% per year below 21 (a person aged 20 receives 94%, a person aged 16 70% of the rate of a person aged 21)   | Index santé  | --   |
| France  | SMIC (salaire minimum interprofessionnel de croissance)    | Law. Art. L.141-1 – L.141-7, Code de Travail.  | Economy. Applies to home workers and child minders living with the family. Not for agricultural workers, seamen, and workers paid in-kind.          | 6.83€/h. Minimum monthly payment is calculated taking into account working time reduction.                                       | 80 % of normal rate for youth aged 16-17 years; 90% for youth aged 17-18 years. Only during first 6 months of employment with the company   | Three methods:<br>1) 1 July, annually, according to bipartite committee on pay agreements;<br>2) Order of ministerial council;<br>3) after 2 % price increase from reference value | 13.6 % of all workers in the private sector (2000) |
| Greece  | National minimum wage                                      | National collective agreement                  | Private sector of economy   | White collar workers: 518.30€/mth;<br>Blue collar workers: 23.20€/day  | Varying rates according to civil status and professional experience   | According to national collective agreements  | --   |
| Ireland | National Minimum Wage/ National Minimum Hourly Rate of Pay | By law. National Minimum Wage Act, 2000.       | Whole economy, all workers with few exceptions (e.g. apprentices; family members).  | 6,35€/h  | For persons aged 17 and younger 70% of normal rate. When 18 and over, but first employment: 4,77€/h in first year, in second year 5.37€/h. Apprentices aged 18 and over receive between 75 and 90 % of normal rate. | Government / national minimum wage commission  | 13.5 % of all employed                             |

| Country         | Official term                    | Method of estimation  | Scope and exemptions  | Level (January 2003)  | Rates for special groups, etc.   | Adjustment  | Affected workers  |
|-----------------|----------------------------------|---|---|---|--|---|---|
| Luxembourg      | SSM (salaire social minimu)      | Legislation as of 12 March 1973 (with amendments).  | For all workers; firms in economic difficulties may deviate.  | 7,91€/h and 1368.74€/mth for unskilled workers. 120 per cent of normal rate for skilled workers                       | For persons aged 17 to 18 years: 90per cent of normal rate and 75 per cent when aged 15-17 years. Lower rates for disabled.  | Regular indexation. Adjustment when inflation 2.5 per cent over reference value.  | 16.2 % of all employed.   |
| The Netherlands | Minimum-loon                     | By law: Wet minimumloon and Wet minimum-vakantie-bijslag (annual leave allowance).                    | For all workers except civil servants and workers in private households. Lower rates possible for firms in economic difficulties. | 1.249,20€/mth / 288,30€/week / 57,66€/day for persons aged 23 to 64 years.  | For persons aged 15 to 22, rate varies between 30 per cent and 85 per cent of normal rate. Partially disabled receive partial rate unless they are able to perform 100 per cent. | Adjustment in January and July in line with forecast of increase of collective agreements wages (Centraalplan-bureau). Occasional interference by the government. | 4 % of all workers (3 per cent of male; 6 per cent of female); almost 50 per cent of those receiving the minimum wage are 25 years of age or younger. |
| Spain           | Salario mínimo inter profesional | By decree.  | For all workers.  | 356,60€/mth in industry sector, services sector, trade and agricultural sector. 353,20€/mth in private households.    | Workers aged below 18 and apprentices below 25 years of age receive reduced rate. Disabled workers with reduced work capacity receive rates reduced by up to 50 per cent.        | Annually, together with social partners. Adjustment is based on inflation and on wage development.  | 5 per cent of all workers.  |
| Spain           | Salario mínimo inter profesional | By decree.  | For all workers.  | 15,04€/day / 451,20€/mth / 6.316,80€/year (14 salaries); plus additional payments according to collective agreements. | No special rates for young persons.  | In January, together with trade unions and employer organizations.  | Officially: 200.000 persons; according to trade union estimates: 500.000.   |
| UK              | National Minimum Wage (NMW)      | National Minimum Wage Act, 1998; National Minimum Wage Regulations 1999 and amendments of legislation | For all dependent workers; not for managers, workers aged 17 and younger, certain apprentices, family workers and prisoners.      | 4,20£/h (6.52€/h)   | 3,60€/h (5.59€/h) for workers aged 18 to 21. Applicable also to skilled workers aged 22 and over during first 6 months of employment.  | No regular adjustment. Adjustment by government, taking into account Low Pay Commission – LPC.  | --  |

Source: ILO compilation and German-English translation from Pete Burgess: Mindeststandards für Arbeitseinkommen - ein europäischer Vergleich (*Minimum standards for work related incomes – Europe compared*). In: WSI-Mitteilungen 7/2003.

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## Annex 4 ILO Convention No. 102

### Convention No. 102

The ILO social security Conventions serve as worldwide agreed guidelines for national social policies and when ratified, they prevent the countries from backsliding.

In 2005, the ILO has eight up-to date social security Conventions. The flagship Convention of these eight Conventions is the *Social Security (Minimum Standards) Convention, 1952 (No. 102)*<sup>89</sup> as it is the only Convention, which sets minimum standards for all the nine branches of social security<sup>90</sup> and lays down basic social security principles. The other up-to date Conventions either set higher standards for the different branches of social security or deal with social security rights of migrant workers.

Due to its universality and flexibility, Convention No. 102 is relevant for all ILO member States, irrespective of their legal system or their level of economic development.

Convention No. 102 is built up on the basis that there is no right model for social security, and that social security schemes grow and evolve over time. Each society must determine how best to ensure income security. These choices will reflect their social and cultural values, their history, their institutions and their level of economic development. The Convention therefore does not prescribe certain behaviour of the member States, it rather fixes a set of minimum objectives built on commonly agreed principles, which fix the social floor for all the member States.

The minimum objectives relate to the percentage of the population protected by social security schemes, conditions for entitlement and period of entitlement to a benefit, as well as the level of benefits and, in case of pensions, their regular review and adjustment.

The principles anchored in the Convention are:

- guarantee of defined minimum benefits for beneficiaries who meet the qualifying conditions,
- participation of the protected persons in the administration of the schemes,
- general responsibility of the state for the due provision for the benefits and the proper administration of the institutions,
- collective financing of the benefits by way of insurance contributions or taxation.

The Convention does not prescribe how to reach these objectives but leaves certain flexibility to the member States. They can be reached through:

- universal schemes,
- social insurance schemes with earnings related or flat rate components or both,

<sup>89</sup> Cited in this text as Convention No. 102.

<sup>90</sup> The nine branches of social security are: medical care, sickness benefits, unemployment benefit, old-age benefit, employment injury benefit, family benefit, maternity benefits, invalidity benefit and survivors' benefit.

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- social assistance schemes.

Also the choice of the nature of the administration of the schemes is left to the member States and they can choose between:

- public schemes,
- private schemes.

The relevance of the Convention was re-confirmed at the general discussion on social security during the International Labour Conference of the ILO in 2001 as the world community, represented by governments, employers' and workers' organizations of the ILO member States, decided that ILO activities should be anchored in the relevant social security standards<sup>91</sup>. It was further decided by the ILO Governing Body in 2002 that Convention No. 102 is an up-to-date Convention, whose ratification is encouraged<sup>92</sup>.

### **Convention No. 102 with regard to pension reform in Aruba**

With regard to the old-age pension reform in Aruba, the following minimum objectives and principles of Convention No. 102 should serve as a guideline:

- According to Article 26 (1) of the Convention, the retirement age may be set up to the age of 65 years. However, taking into account demographic changes and the need for financial sustainability of pension schemes, the Convention authorizes that this age may be increased if the government concerned can prove that even though the pensionable age is set at a level higher than 65, the number of residents of that age or over is equal to at least 10 per cent of the total population aged between 15 years and the higher pensionable age (Article 26 (2) of the Convention).
- Furthermore, in case of flat-rate pensions, the pension should amount to at least 40 per cent of the wage of an unskilled worker after 30 years of contributions or employment (see Article 28 (a) in conjunction with Article 29 (1a), Article 66 and the Schedule to Part XI of the Convention). In case of earnings-related pensions, the old-age pension should amount to at least 40 per cent of the former earnings of the beneficiary after 30 years of contributions or employment (see Article 28 (a) in conjunction with Article 29 (1a), Article 65 and the Schedule to Part XI of the Convention).
- The above stipulated replacement rate may also be fulfilled by the application of a multi tier system. In this case, the pensions of the different tiers added together should amount to at least 40 per cent of the former earnings of the beneficiary. As mentioned above, the provisions of the convention may be applied by public or private schemes or by a combination of both. However, it should be noted that private schemes are only in accordance with the requirements of the Convention if they comply with the above-mentioned principles, in particular with the principle of defined benefits, the solidarity principle, the principle of participation of the protected persons in the management of the schemes and the overall responsibility of the state for the due provision of the benefits and proper administration of the scheme. And within this context, it should also be kept in mind that, in pay-as-you-

<sup>91</sup> Resolution and Conclusions concerning Social Security, ILC, 89<sup>th</sup> session, 2001, in *Social Security – A New Consensus* – ILO, Geneva, 2001, p. 5.

<sup>92</sup> GB.283//10/2 (March 2002).

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go defined benefit pension schemes, risk is borne collectively. Statutory pension schemes must guarantee adequate benefit levels and ensure national solidarity through sharing of risk. The requirements of the Convention cannot be met without some sharing of risk. Pure individual savings schemes can therefore not provide the required retirement security.

- For persons who do not fulfill a qualifying period of 30 years of contributions or employment, a reduced pension shall be paid after 15 years of contributions or employment (see Article 29 (2a) of the Convention).
- In case the beneficiary is engaged in any gainful activity, or in receipt of another social security benefit, Article 26 (3) and Article 69 (c) of the Convention authorize the reduction or suspension of the pension.
- According to Article 71 (1) of the Convention, pensions may be financed by social security contributions paid by employees and/or employer, by general taxation or through a combination of these.
- In addition, Articles 65 (10) and 66 (8) of the Convention obliges states to review and adjust pensions in view of any substantial changes in the general level of earnings brought about by changes in the cost-of-living.