# THE INCLUSION OF HOMEMAKERS AND HOUSEHOLD LABOR IN THE ECUADORIAN SOCIAL SECURITY SYSTEM

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# ABSTRACT

This paper intends to examine the feasibility of the inclusion of homemakers and household labor in the Ecuadorian social security system and analyze the sustainability of said project in the short and long terms. The topic focuses on the importance of securing financial support for the benefits of 1.5 million women in Ecuador, one of the most vulnerable groups in society. They are currently unable to receive retirement pensions, disability, welfare or death benefits. In order to conduct the appropriate analysis, we utilize relevant quantitative data of existing actuarial projections of the Ecuadorian Social Security system. We evaluate the current and projected population data, including life expectancy, birth rate, number of retirees, number of women in the work force and immigration data. The results we have been able to gather indicate that the proposed contributions to justify the addition of homemakers to the system will be insufficient and the present actuarial deficit in the Pension Fund will increase.

## KEYWORDS

- Ecuadorian Institute of Social Security (IESS), Social Security benefits for homemakers, Household labor benefits, Contributions, Universalization of social security, Pension benefits

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# 1.  INTRODUCTION

At present, the Ecuadorian Congress is discussing reforms to include homemakers in the national social security system. This paper examines the sustainability of said project in the short and long terms. Since its foundation, one of the main goals of the Ecuadorian Institute of Social Security (IESS) has been to expand its coverage and to increase and improve its benefits. In this sense, the attempt of remunerating unpaid household work, in order to increase the inclusion of marginalized groups in the social security system, appeals to the Institute´s long-term goal of universalizing the nation´s social security services. But, the addition of homemakers to the social security is not a one-sided issue; therefore, this paper will assess the risks of implementing this reform, as well as the benefits that it could provide to thousands of homemakers who at the moment have no financial support from any governmental institution.

In Ecuador, around 10% of the country´s population is made up of homemakers. Even though they represent an important portion of the population, they don´t receive any kind of monetary compensation, and their labor is often ignored by economic and financial policies. This reality is the main reason for the government´s initiative to recognize household labor, and allow it to be part of the nation´s social security system.

We will analyze the current financial statements of the IESS, the sources of financing and funding, and costs vs. benefits of the reform to determine its feasibility.

Assessing the financial future of the IESS with the inclusion of homemakers requires extensive actuarial valuations. In order to consider the long-term consequences, we conduct projections under three different scenarios.

After analyzing the proposed changes, we present a series of conclusions regarding the sustainability of the project, and the future stability of the IESS. We then provide recommendations for its financial and structural feasibility.

# 2.  ECUADOR´S OVERVIEW

## 2.1.  ECUADOR'S ECONOMIC AND DEMOGRAPHIC OVERVIEW

Ecuador is a democratic country located on the northwest coast of South America. It is a relatively small country covering 283,000 square kilometers. It contains various geographic regions, as well as a collection of culturally rich and varied ethnic groups. Its population is approximately 16 million, with an average age of 28, and a population growth rate that shows a decelerating trend, from 2.99% growth in 1990, to 2.05% in 2001, and 1.95% in 2010. Moreover, the National Institute of Statistics and Census (INEC) projects a decrease in birth rates, shifting from 2.79% in 2010, to 2.12% in 2020 and falling to 1.2% in 2050.

Regarding the composition of the population, those within working age total 11.1 million, while the Economically Active Population (PEA) is only 7.1 million, (as of December, 2014). This equates to an inactive population (PEI) of 3.9 million individuals.

As stated by its Central Bank, Ecuador´s GDP growth rate was 4.5% in 2013, reaching approximately $100 billion USD in that year. This significant growth rate places Ecuador as one of the most rapidly growing economies in South America. Its main export is crude oil, reaching $20.6 billion USD in 2013, followed by bananas at $5.5 billion USD. Other exports include shrimp, tuna, fish products, palm oil, gold and processed coffee.

In terms of social indicators, Ecuador has witnessed improvements in many economic and social aspects since the start of Rafael Correa´s presidency. Inequality levels have dropped from a Gini Coefficient of 0.50 in 2006 to 0.44 in 2010. Regarding unemployment, there has been a decline from 7.1% in 2007, to 4.6% in 2012, and to 3.9% in 2014. Poverty levels have also decreased in the last 8 years. In 2008, the national poverty rate was 25.16%, which fell to 21.46% in 2011, and later reached 16.75% in 2014.

## 2.2. POLITICAL CIRCUMSTANCES

Rafael Correa took office in January 2007, as leader of the leftist National Alliance political party. Since then, he has transformed many aspects of the Ecuadorian social, economic and political spheres. His socialist ideals have triggered innovative reforms at the micro and macro levels, which have led to high public expenditure in education, infrastructure, health and social programs. Among the main social reforms witnessed in his presidency is the increase in education spending, in what he calls "The Education Revolution." In the period from 2006 to 2013, the education budget increased from 2.5% to 6% of GDP.

Another main aspect of Correa´s mandate is the increased budget for health services. The health budget went from $561 million USD in 2006 to $1.77 billion USD in 2012. Many social programs have been established under the current administration, such as the eradication of child malnutrition, housing, gender equality, microcredit and water provision programs.

In terms of social security, Correa´s government has changed the administration of the IESS, its policies, benefits, financial methods and its coverage. The following section presents an overview of the IESS, as well as its current financial situation.

## 3.  THE ECUADORIAN SOCIAL SECURITY SYSTEM

The IESS is a pillar of economic and social development in the country. Its mission is to "Administer the provisional resources of the insured in an efficient manner; to generate financial operations with adequate social and economic return and to guarantee new sources of employment." The management of the IESS has always been a challenge and has witnessed various reforms thorough

the years. In order to understand the new reform plans, this section presents a brief history of the Ecuadorian social security system and its current status, as well as a projection of its actuarial future.

## 3.1    BRIEF HISTORY OF THE ECUADORIAN SOCIAL SECURITY SYSTEM

The Ecuadorian social security system began at the start of the 20th century, when the government implemented a system that exclusively sought to enhance the wellbeing of its citizens. In 1928, Executive Order No. 018 launched the first Pension Fund in the country. This Fund began as an independent insurance entity, separate from the government, in order to provide the private sector, public sector and military personnel with retirement pensions, funerary aid and widow's pension benefits.

In 1935, the Social Security Law was passed, which established the General Obligatory Social Security. Soon after, the government funded the Provision National Institute, in order to conduct the operations of the new established social security system. 2 years later, the Private Labor Insurance Fund and the Medical Department of the Social Security Fund began. In 1937, the government created the Insurance Fund of private employees. In that same year, there was a turn in the social security system, with the incorporation of Insurance for illnesses. From this moment on, it gradually expanded its coverage, and has added more benefits and assistance programs. These include Labor Risk Insurance, Secular Clergy Insurance, Rural Farmer Insurance, Artisan Insurance, and Professional Insurance.

In September of 1963, the Pension Fund and the Insurance Fund merged to form the National Social Security Fund, and 7 years later, the Provision National Institute closed its doors. The Ecuadorian Institute of Social Security (IESS), which is still operating today, replaced the Provision National Institute in 1970, and has remained the administrator of the nation´s social security system until today.

## 3.2    CHARACTERISTICS OF THE ECUADORIAN SOCIAL SECURITY SYSTEM

The IESS offers a variety of assistance services to its affiliates, and it is divided into the following four Funds: General Pension Insurance Fund, Health Care Insurance Fund, General Insurance of Labor Risks Fund, and the Rural Social Insurance Fund.

According to the Annual Labor Report, presented by the board of the IESS, 55.3% of the Ecuadorian population is covered by the social security system. There are 16.03 million people in the country, as of June 2014, of which 8.88 million are affiliated. The following table indicates the number of people that receive coverage from each of the Insurance branches.

| National Coverage<br>Ecuadorian Institute of Social Security (IESS)<br>June 2014<br>No. of People (millions) | |
| --- | --- |
| General Mandatory Insurance | 2.71 |
| Rural Social Insurance – Contributors | 0.36 |
| General Insurance – Pensioners | 0.41 |
| Rural Social Insurance – Retired Pensioners | 0.05 |
| Rural Social Insurance – Eligible Population | 1.18 |
| General Insurance Affiliated Children (0-18 yrs.) | 4.15 |
| Total | 8.88 |

*Source: Board of Directors of the IESS - Labor Report

The following graph presents the evolution of the coverage of the IESS.



**Evolution of National Coverage**
**Ecuadorian Institute of Social Security**
**(millions)**

| Year | Value |
| --- | --- |
| 2008 | 2,87 |
| 2009 | 3,89 |
| 2010 | 6,21 |
| 2011 | 6,92 |
| 2012 | 7,38 |
| 2013 | 8,39 |
| Jun. 2014 | 8,88 |
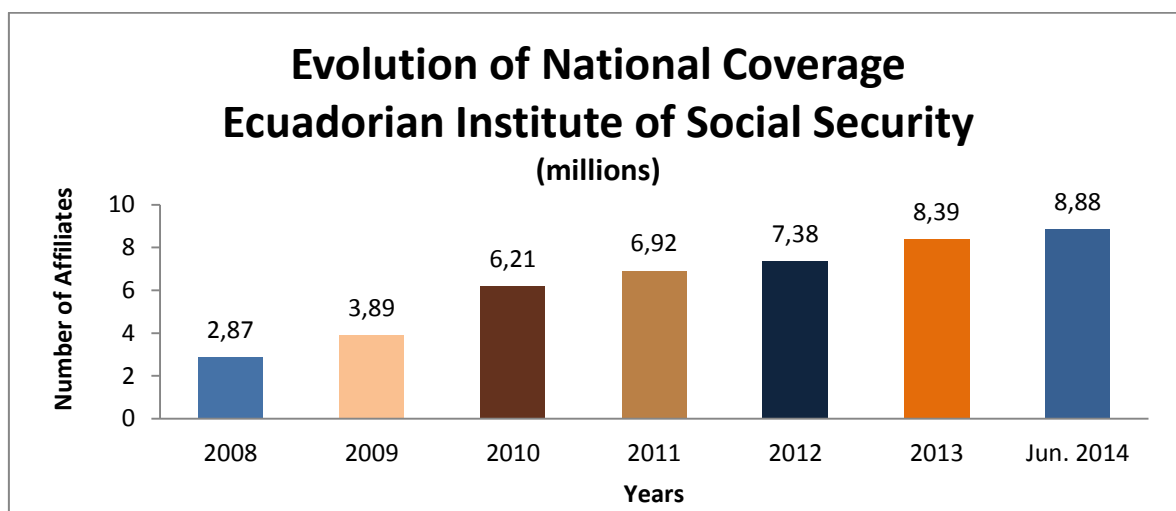
*Source: Board of Directors of the IESS - Labor Report

We can observe that in less than 6 years, the population affiliated to the IESS has almost triplicated. In fact, in 2010 2.32 million people were added, and in June 2014, the total increased to 8.88 million. As observed, the government has witnessed radical coverage growth, getting closer to their goal of universalizing social security.

The main source of financing of the IESS is the mandatory contribution of each of the private sector workers and employers. The percentage of contributions is as follows:

| Contribution Rates Ecuadorian Institute of Social Security | Worker | Employer | Total |
|---|---|---|---|
| Private Sector | 9.45% | 11.15% | 20.60% |
| Banking, municipal and decentralized public entities | 11.45% | 11.15% | 22.60% |
| Public workers; public teachers; public law workers | 11.45% | 9.15% | 20.60% |
| Foreign service workers living abroad | 9.45% | 9.15% | 18.60% |

The financial health of the IESS has received a lot of attention in recent years. In 2012, the Health Care Insurance Fund showed a deficit of $374 million USD. In 2013, the General Pension Insurance Fund showed a deficit of $54 million USD.

In this actuarial study of the IESS, we have determined that the General Pension Insurance Fund had an actuarial deficit of $5.14 billion USD in December of 2010. This deficit was mostly due to the increase in life expectancy, the rise in the number of affiliated members, and incremental rises to the pensions.

The following actuarial balance presents the state of the General Pension Fund, as of December 2010.

| ACTUARIAL BALANCE OF THE GENERAL PENSION FUND OF INVALIDITY, RETIREMENT AND DEATH DECEMBER 2010 (in billions USD) | |
|---|---|
| **ASSETS** | **162.95** |
| Central Government´s Debt (40% of paid pensions) | 1.23 |
| Equity (Capitalized Fund) | 3.55 |
| Central Government´s contribution to the 40% payment of pensions in progress  (2011) | 0.60 |
| Central Government´s contribution to the 40% payment of pensions in progress  (2012-2050) | 65.27 |
| Future contributions of beneficiaries (2011) | 1.60 |
| Future contributions of beneficiaries (2011-50) | 89.07 |
| Future contributions of Pensioners(2012-2050) | 1.63 |
| | |
| **LIABILITIES** | **162.95** |
| Expenditure on retirement pensions (PV) | 127.45 |
| Expenditure on invalidity pensions (PV) | 4.76 |
| Expenditure on widowhood pensions (PV) | 26.36 |
| Expenditure on orphanage pensions (PV) | 6.10 |
| Expenditure fon funeral assistance (PV) | 1.04 |
| Administrative Expenditure (PV) | 2.39 |
| **Actuarial Deficit** | **(5.14)** |

As observed in the actuarial balance above, the value of the Fund´s total assets is $162.95 billion USD, and shows an actuarial deficit of $5.14 billion USD. The calculated value from the contributions of affiliates is just $90.67 billion USD, and the contributions from the state total $65.86 billion USD.

In terms of liabilities, the single largest expense for the Fund is the payout of retirement pensions. The total actuarial value of this account was $127.45 billion USD, as of December 2010.

## 4.    REFORM TO THE LAW OF SOCIAL SECURITY

In most developed and developing countries, household labor is often regarded as an invisible force of the economy. It is not accounted for as part of the GDP. It doesn´t receive any remuneration, and homemakers are not considered part of the Labor force. This disregard is changing in Ecuador, where homemakers are increasingly being considered as an important part of the country´s economic organization. As the country's economy has continued to grow over the last eight years under Rafael Correa´s presidency, Ecuador has witnessed radical reforms in international affairs, fiscal policy, and labor laws.

Correa´s Social Security Law Reform was presented to the Legislative power in November 2014 and will become effective in 2015. It goes beyond

acknowledging the contributions of homemakers and household labor to the economy, as it seeks to include homemakers into the IESS, so that they too can receive retirement pensions, disability, welfare and death benefits in recognition of their household labor.

## 4.1 REFORM BACKGROUND

The drive behind this reform arises from the political ideal that declares that the social security system should be public and universalized, and should attend to the needs of the whole urban and rural populations. Article No. 34 of the Ecuadorian Constitution states that "the right to have social security is an irrevocable right of all people, and should be the state´s primary responsibility." In the macro view, the idea of universalizing social security appeals to the socialist political agenda of the current government, which seeks equality, inclusion and extended protection for all its citizens.

## 4.2 GENERAL CLAUSES

This section presents an overview of the proposed reforms to the Social Security Law that deal with the voluntary affiliation of homemakers to the Social Security System, as well as the financing plan of said project.

Item 1 of Article 42 of the Social Security Law states that the portion of the population that performs household labor with no remuneration will become eligible to be added to the General Mandatory Insurance. According to item 5 of Article 42, homemakers are "those who perform household work without any kind of remuneration or economic compensation, and are not involved in any occupation that requires the obligatory affiliation under another intended mode in the Law and don´t receive any social security benefit."

## 4.3 BENEFITS

In terms of the benefits that homeworkers will receive, item 6 of Article 42, states that the individuals who perform household labor will receive assistance for retirement, invalidity, and death contingencies. More specifically, they will receive the following benefits: retirement pensions, total and absolute permanent disability assistance, death of the pensioner or affiliate compensation, widowhood, orphanage benefits, and funerary subsidy. However, homemakers will not receive any health, severance or other benefits.

The pensions granted by the General Pension Insurance Fund will vary according to the following table, depending on household income.

| Household Income | Monthly Retirement Pensions | Monthly Pensions for total invalidity | Monthly Pensions for absolute invalidity | Monthly Pensions for death Contingencies |
|---|---|---|---|---|
| Less than 50% of minimum wage | $ 77 | $ 68 | $ 77 | $ 68 |
| More than 50% and less than 100% of minimum wage | $ 111 | $ 102 | $ 111 | $ 102 |
| More than 100% and less than 150% of minimum wage | $ 159 | $ 140 | $ 159 | $ 140 |
| Over 150% of minimum wage | $ 213 | $ 187 | $ 213 | $ 187 |

*Source: Labor Reform Chapter I: General dispositions

## 4.4 CONTRIBUTION RATES

Contributions to the IESS will be paid by the immediate family of the insured homemakers, as well as by the state, and will depend on the family´s monthly income. In this sense, there will be four groups of homemakers, divided by family income and contributions. The following table presents the different personal and governmental contribution rates for the insurance of homemakers.

| Household Income | State´s Subsidy | Affiliate´s Contribution |
|---|---|---|
| Less than 50% of minimum wage | $ 9.20 | $ 2.00 |
| More than 50% and less than 100% of minimum wage | $ 13.50 | $ 9.00 |
| More than 100% and less than 150% of minimum | $ 15.20 | $ 18.60 |
| Over 150% of minimum wage | $ 0.00 | $ 45.00 |

*Source: Labor Reform Chapter I: General dispositions

The current minimum wage in Ecuador is $354 USD per month. As observed in the table above, monthly family contributions start from as low as $2 USD a month and go up to $45 USD for higher income households. The government funds (subsidizes) part of the contributions for the insurance of homemakers, starting from $9.20 USD a month for lower income families, and reaching $15.20 USD for families whose income is between 1 and 1.5 times the minimum wage.

## 4.5 REQUIREMENTS

According to the new reforms, homemakers will receive retirement benefits after 240 monthly contributions, (20 years), and only after they have turned 65 years of age. These settlements applying only to women who work in the household and do not receive any other kind of monetary remuneration. This means that if the Reform Project of the Social Security Law is approved in 2015, the first generation of pensioners will emerge in 2035.

In the case of permanent disability, and in order to receive the benefits, the affiliate must have made 6 monthly contributions if between the ages of 15 and 25, 36 if the affiliate is between 26 and 45 years of age, and 60 contributions for the affiliates that are older than 46 years of age.

## 4.6 PROCESS OF INCORPORATION

The affiliation of homemakers into the IESS will be voluntary and in stages. The objective for the first stage of the project is to incorporate the 400,000 homemakers that currently receive the Human Development Welfare Benefits. In future years, more homemakers will be progressively added until all 1.5 million homemakers are covered.

## 4.7 SUBSIDY FUNDING

The IESS reforms will be financed by the monthly contributions of the families of the insured, as well as by capital granted by the government for the project. The state´s subsidy will be funded by the excess of profit sharing from private companies, which is also part of the current reforms. Article 9 of the Reformatory Law states that the profit sharing distributed to the private sector workers "shall not exceed 24 times the minimum wage. In the case that exceeds the indicated amount, the excess will be transferred to the solidary services of the Social Security…" According to the Minister of Labor, the excess of profit sharing is expected to be around $100 million USD per year.

The inclusion of homemakers in the social security system is an innovative concept in the history of insurance and pension systems worldwide, and the project already has a financing plan in place. But it is important to analyze the long term impact that this reform will have on the IESS and on the lives of millions of people. In the next section we will conduct projections of the financial effect that the incorporation of homemakers will have on the social security system, in order to determine the actuarial future of this project.

## 5. ACTUARIAL ANALISIS AND PROJECTIONS

In this section we present the actuarial projections of the Ecuadorian Institute of Social Security, with the incorporation of homemakers to the system. The parameters and assumptions used in this analysis, as well as the resulting projections are detailed below:

Since the new Social Security Law Reform makes the affiliation of female homemakers optional, there isn´t an exact prediction of the number of new affiliates that will join the social security system as part of this program. Therefore, we have established three scenarios: optimistic, moderate, and pessimistic, where we approximate the distribution of domestic workers according to household income, as follows:

| Group | Household Income | Domestic Workers´ Distribution |
|---|---|---|
| 1 | Less than 50% of minimum wage | 26.67% |
| 2 | More than 50% and less than 100% of minimum wage | 30.08% |
| 3 | More than 100% and less than 150% of minimum wage | 32.50% |
| 4 | Over 150% of minimum wage | 10.75% |

This means that we have approximated group number 3 to constitute 32.50% of the total homemaker´s population, whose household income is between 1 and 1.5 times the minimum wage.

The parameters used in this analysis, for each one of the proposed scenarios, are the following:

| Parameters | Optimistic Scenario | Moderate Scenario | Pessimistic Scenario |
|---|---|---|---|
| Affiliated domestic workers proportion of total domestic workers | 25% | 50% | 75% |
| Number of domestic workers in the first group | 100,000 | 200,000 | 300,000 |
| Number of domestic workers in the second group | 112,818 | 225,636 | 338,453 |
| Number of domestic workers in the third group | 121,875 | 243,750 | 365,625 |
| Number of domestic workers in the fourth group | 40,307 | 80,615 | 120,922 |

As shown in the table above, the optimistic, moderate, and pessimistic scenarios consider a 25%, 50% and 75% incorporation of the total homemakers´ population, respectively. The number of domestic workers in the different groups gives the total amount of the new affiliates for each scenario.

The subsequent parameters were set based on historic information and held constant for the three scenarios with the objective of having differences in the results among the scenarios based solely on the number of new affiliates:

| Parameters | Optimistic Scenario | Moderate Scenario | Pessimistic Scenario |
|---|---|---|---|
| Domestic workers proportion of total population | 9.36% | 9.36% | 9.36%. |
| Pensions annual growth | 4.93% | 4.93% | 4.93% |
| Inflation Rate | 3% | 3% | 3% |
| Contributions annual growth | 3% | 3% | 3% |
| Discount rate | 4% | 4% | 4% |
| Excess Profits | US$ 100 million | US$ 100 million | US$ 100 million |
| Excess Profit growth | 4.30% | 4.30% | 4.30% |

The actuarial analysis was performed by calculating all the income received from the contributions made by the beneficiaries and the central government for each of the scenarios (Appendix 1). The contributions made by the central government are set to be financed by the excess profit from private companies according to the Social Security Law Reform. Nevertheless, as observed in Appendix 2, the central government runs out of funding in 2019 for the moderate scenario, and in 2017 for the pessimistic scenario and will be unable to meet the desired contributions.

The next table presents the actuarial balance for the current situation, and for each one of the scenarios projected in this analysis.

| COMPARATIVE ACTUARIAL BALANCE OF THE GENERAL PENSION FUND OF INVALIDITY, RETIREMENT AND DEATH CURRENT, OPTIMISTIC, MODERATE AND PESSIMISTIC SCENARIOS DECEMBER 31$^{ST}$, 2010 (In Billions USD) | | | | |
|---|---|---|---|---|
| | **Current Situation** | **Optimistic Scenario** | **Moderate Scenario** | **Pessimistic Scenario** |
| **LIABILITIES** | **168.09** | **173.39** | **178.51** | **184.33** |
| Expenditure for retirement pensions (PV) | 127.45 | 127.45 | 127.45 | 127.45 |
| Expenditure for invalidity pensions (PV) | 4.76 | 4.76 | 4.76 | 4.76 |
| Expenditure for widowhood pensions (PV) | 26.36 | 26.36 | 26.36 | 26.36 |
| Expenditure for orphanage pensions (PV) | 6.10 | 6.10 | 6.10 | 6.10 |
| Expenditure for funeral assistance (PV) | 1.04 | 1.04 | 1.04 | 1.04 |
| Administrative Expenditure (PV) | 2.39 | 2.39 | 2.39 | 2.39 |
| Domestic Workers expenditure for retirement pensions (PV) (2036-2050) | | 5.16 | 10.16 | 15.84 |
| Domestic Workers expenditure for invalidity pensions (PV) (2036-2050) | | 0.09 | 0.19 | 0.29 |
| Domestic Workers expenditure for widowhood pensions (PV) (2036-2050) | | 0.03 | 0.06 | 0.09 |
| Domestic Workers expenditure for orphanage pensions (PV) (2036-2050) | | 0.01 | 0.02 | 0.02 |
| **ASSETS** | **162.95** | **167.02** | **171.07** | **175.35** |
| Central Government Debt (40% of paid pensions) | 1.23 | 1.23 | 1.23 | 1.23 |
| Equity (Capitalized Fund) | 3.55 | 3.55 | 3.55 | 3.55 |
| Central Government contribution to the 40% payment for pensions in progress (2011-2050) | 65.86 | 65.86 | 65.86 | 65.86 |
| Beneficiaries future contributions (2011 - 2050) (PV) | 90.71 | 90.70 | 90.70 | 90.70 |
| Pensioners contribution(2011-2050) (PV) | 1.60 | 1.63 | 1.63 | 1.63 |
| Domestic workers future contributions (2011 - 2050) (PV) | | 2.22 | 4.47 | 6.83 |
| Central Government future contribution (2011-2050) (PV) | | 1.82 | 3.63 | 5.55 |
| **Deficit/Surplus** | **(5.14)** | **(6.37)** | **(7.44)** | **(8.98)** |

As observed in the actuarial balance above, the inclusion of homemakers to the system further burdens the financial situation of the General Pension Fund. In

the current situation, there is a **$5.14 billion USD** actuarial deficit in the General Pension Fund, as of December 2010. This number, compared to the entire country´s production, is of approximately 5% of the total GDP. With the incorporation of homemakers to the system, in the best case scenario, the General Pension Fund´s deficit will increase to **$6.37 billion USD**, and in the worst case, the deficit will increase to **$8.98 billion USD**.

# 6. CONCLUSIONS AND RECOMMENDATIONS

Social security systems worldwide have constantly evolved and expanded, each time offering more assistance programs and better coverage. The case is not different in Ecuador, where the social security system has grown at accelerated rates, and has witnessed fundamental improvements in recent years. The inclusion of homemakers into the IESS is one of the most innovative projects in the history of Ecuadorian insurance, and in pension systems worldwide.

With the voluntary contribution of the affiliate´s family, homemakers from around the country will be able to receive well-needed invalidity, retirement, and death benefits. However, there is a concern for the long-term financial health of the IESS. Even though the government is subsidizing the contributions of lower income families with the excess of utilities from the private sector, the unstable situation of the General Pension Fund indicates an urgent need for monetary funds.

The future of the IESS is endangered by the decreasing growth rate of the population, which will cause the proportion of active contributors to pensioners to decrease. In this way, a lower number of active affiliates will have to support a higher number of pensioners. Another reason that the IESS may suffer in the future is the increase in life expectancy. As people live longer, the system will have to pay pensions for longer periods of time. Moreover, the financial situation could be affected by the increase in pensions being paid, especially if it surpasses the increase in contributions.

There is a **$5.14 billion USD** actuarial deficit in the General Pension Fund, as of December 2010, and the incorporation of homemakers to the system will increase this deficit to **$6.37 billion USD** in the best case scenario. In the worst case, the deficit will increase to **$8.98 billion USD**.

The situation is worse when we don´t consider the 40% governmental subsidy, where the actuarial deficit in the current situation reaches **$70.98 billion USD**. With the incorporation of homemakers to the system, this deficit will increase to **$72.24 billion USD** in the best scenario, and to **$74.84 billion USD** in the worst case scenario.

There is no doubt about the innovative and well-intended nature of this Social Security Law Reform. On the other hand, the government must find better financing sources for this program´s subsistence, since the inclusion of homemakers to the General Pension Fund increases the actuarial deficit and endangers the financial future of the Institution. After analyzing the financial

situation of the IESS, we conclude that if this institution can´t find better sources of funding, another governmental institution that is more financially capable should assume the affiliation of the 1.5 million homemakers nationwide, such as the Ministry of Social Inclusion.

If the inclusion of homemakers to the IESS is successful, then there will be continued needs to expand and improve the coverage of the system, in order to build a more complete and universalized social security system.

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# 8. APPENDICES

## 8.1. APPENDIX 1

### Projection of Domestic Workers´ Contributions
### Moderate Scenario
### (In Millions of USD)

| Year | Total Affiliates | Beneficiary´s Total Contribution | Total State's Contribution | Total Income from Contributions | Beneficiary´s Total Contribution (Present Value) | Total Income from Contributions (Present Value) |
|------|------|------|------|------|------|------|
| 2016 | 0.08 | 1.98 | 9.11 | 11.09 | 1.98 | 9.11 |
| 2017 | 0.31 | 54.82 | 44.46 | 99.28 | 52.71 | 42.75 |
| 2018 | 0.48 | 85.94 | 69.70 | 155.64 | 79.45 | 64.44 |
| 2019 | 0.65 | 119.72 | 97.09 | 216.81 | 106.43 | 86.32 |
| 2020 | 0.82 | 156.30 | 126.77 | 283.07 | 133.61 | 108.36 |
| 2021 | 0.83 | 163.24 | 132.40 | 295.64 | 134.17 | 108.82 |
| 2022 | 0.84 | 170.44 | 138.24 | 308.68 | 134.70 | 109.25 |
| 2023 | 0.85 | 177.91 | 144.29 | 322.20 | 135.20 | 109.65 |
| 2024 | 0.86 | 185.65 | 150.57 | 336.21 | 135.65 | 110.02 |
| 2025 | 0.88 | 193.66 | 157.07 | 350.73 | 136.07 | 110.36 |
| 2026 | 0.89 | 201.97 | 163.80 | 365.77 | 136.44 | 110.66 |
| 2027 | 0.90 | 210.56 | 170.78 | 381.34 | 136.78 | 110.93 |
| 2028 | 0.91 | 219.46 | 177.99 | 397.46 | 137.08 | 111.17 |
| 2029 | 0.92 | 228.67 | 185.46 | 414.13 | 137.33 | 111.38 |
| 2030 | 0.93 | 238.26 | 193.24 | 431.50 | 137.59 | 111.59 |
| 2031 | 0.94 | 248.11 | 201.23 | 449.33 | 137.77 | 111.73 |
| 2032 | 0.95 | 258.29 | 209.48 | 467.77 | 137.90 | 111.84 |
| 2033 | 0.96 | 268.80 | 218.01 | 486.81 | 138.00 | 111.92 |
| 2034 | 0.97 | 279.66 | 226.82 | 506.48 | 138.05 | 111.96 |
| 2035 | 0.98 | 290.87 | 235.91 | 526.78 | 138.06 | 111.97 |
| 2036 | 0.99 | 302.45 | 245.30 | 547.74 | 138.03 | 111.95 |
| 2037 | 1.00 | 314.39 | 254.98 | 569.37 | 137.96 | 111.89 |
| 2038 | 1.01 | 326.70 | 264.97 | 591.67 | 137.85 | 111.80 |
| 2039 | 1.01 | 339.39 | 275.26 | 614.66 | 137.70 | 111.68 |
| 2040 | 1.02 | 352.48 | 285.87 | 638.35 | 137.51 | 111.53 |
| 2041 | 1.03 | 365.96 | 296.81 | 662.76 | 137.28 | 111.34 |
| 2042 | 1.04 | 379.84 | 308.06 | 687.90 | 137.00 | 111.12 |
| 2043 | 1.05 | 394.13 | 319.65 | 713.78 | 136.69 | 110.86 |
| 2044 | 1.05 | 408.83 | 331.58 | 740.41 | 136.34 | 110.57 |
| 2045 | 1.06 | 423.96 | 343.85 | 767.81 | 135.94 | 110.26 |
| 2046 | 1.07 | 439.52 | 356.47 | 795.99 | 135.51 | 109.91 |
| 2047 | 1.08 | 455.51 | 369.44 | 824.95 | 135.04 | 109.52 |
| 2048 | 1.08 | 471.94 | 382.77 | 854.71 | 134.53 | 109.11 |
| 2049 | 1.09 | 488.83 | 396.46 | 885.28 | 133.98 | 108.67 |
| 2050 | 1.09 | 506.16 | 410.52 | 916.67 | 133.40 | 108.19 |

# Projection of Domestic Workers´ Contributions
## Optimistic Scenario
## (In Millions of USD)

| Year | Total Affiliates | Beneficiary's Total Contribution | Total State's Contribution | Total Income from Contributions | Beneficiary's Total Contribution (Present Value) | Total Income from Contributions (Present Value) |
|---|---|---|---|---|---|---|
| 2016 | 0.04 | 0.99 | 4.55 | 5.54 | 0.99 | 4.55 |
| 2017 | 0.16 | 28.93 | 29.34 | 58.27 | 27.82 | 28.21 |
| 2018 | 0.24 | 43.99 | 39.77 | 83.76 | 40.67 | 36.77 |
| 2019 | 0.32 | 60.32 | 51.06 | 111.38 | 53.63 | 45.39 |
| 2020 | 0.41 | 78.00 | 63.26 | 141.25 | 66.67 | 54.07 |
| 2021 | 0.41 | 81.46 | 66.06 | 147.52 | 66.95 | 54.30 |
| 2022 | 0.42 | 85.02 | 68.96 | 153.98 | 67.20 | 54.50 |
| 2023 | 0.43 | 88.72 | 71.96 | 160.68 | 67.42 | 54.68 |
| 2024 | 0.43 | 92.55 | 75.06 | 167.62 | 67.63 | 54.85 |
| 2025 | 0.44 | 96.52 | 78.28 | 174.80 | 67.81 | 55.00 |
| 2026 | 0.44 | 100.63 | 81.61 | 182.24 | 67.98 | 55.13 |
| 2027 | 0.45 | 104.88 | 85.06 | 189.94 | 68.13 | 55.25 |
| 2028 | 0.45 | 109.28 | 88.63 | 197.91 | 68.25 | 55.36 |
| 2029 | 0.46 | 113.83 | 92.32 | 206.15 | 68.36 | 55.44 |
| 2030 | 0.46 | 118.60 | 96.19 | 214.79 | 68.49 | 55.55 |
| 2031 | 0.47 | 123.43 | 100.11 | 223.54 | 68.54 | 55.59 |
| 2032 | 0.47 | 128.45 | 104.18 | 232.64 | 68.58 | 55.62 |
| 2033 | 0.48 | 133.64 | 108.39 | 242.03 | 68.61 | 55.65 |
| 2034 | 0.48 | 139.00 | 112.74 | 251.74 | 68.62 | 55.65 |
| 2035 | 0.49 | 144.53 | 117.22 | 261.75 | 68.60 | 55.64 |
| 2036 | 0.49 | 150.24 | 121.85 | 272.08 | 68.57 | 55.61 |
| 2037 | 0.50 | 156.12 | 126.62 | 282.74 | 68.51 | 55.56 |
| 2038 | 0.50 | 162.19 | 131.54 | 293.72 | 68.43 | 55.50 |
| 2039 | 0.50 | 168.44 | 136.61 | 305.05 | 68.34 | 55.43 |
| 2040 | 0.51 | 174.88 | 141.83 | 316.71 | 68.22 | 55.33 |
| 2041 | 0.51 | 181.51 | 147.21 | 328.72 | 68.09 | 55.22 |
| 2042 | 0.52 | 188.34 | 152.75 | 341.09 | 67.93 | 55.10 |
| 2043 | 0.52 | 195.36 | 158.45 | 353.81 | 67.76 | 54.95 |
| 2044 | 0.52 | 202.59 | 164.31 | 366.90 | 67.56 | 54.79 |
| 2045 | 0.53 | 210.02 | 170.34 | 380.36 | 67.34 | 54.62 |
| 2046 | 0.53 | 217.67 | 176.54 | 394.20 | 67.11 | 54.43 |
| 2047 | 0.53 | 225.52 | 182.90 | 408.42 | 66.86 | 54.22 |
| 2048 | 0.54 | 233.58 | 189.45 | 423.03 | 66.58 | 54.00 |
| 2049 | 0.54 | 241.86 | 196.16 | 438.03 | 66.29 | 53.77 |
| 2050 | 0.54 | 250.36 | 203.06 | 453.42 | 65.98 | 53.52 |

# Projection of Domestic Workers´ Contributions
## Pessimistic Scenario
## (In Millions of USD)

| Year | Total Affiliates | Beneficiary's Total Contribution | Total State's Contribution | Total Income from Contributions | Beneficiary's Total Contribution (Present Value) | Total Income from Contributions (Present Value) |
|---|---|---|---|---|---|---|
| 2016 | 185,778 | 4.46 | 20.51 | 24.97 | 4.46 | 20.51 |
| 2017 | 707,278 | 123.46 | 100.13 | 223.60 | 118.71 | 96.28 |
| 2018 | 877,438 | 157.76 | 127.95 | 285.71 | 145.86 | 118.30 |
| 2019 | 1,052,209 | 194.86 | 158.04 | 352.90 | 173.23 | 140.50 |
| 2020 | 1,231,535 | 234.91 | 190.52 | 425.44 | 200.80 | 162.86 |
| 2021 | 1,248,842 | 245.36 | 199.00 | 444.36 | 201.67 | 163.56 |
| 2022 | 1,266,330 | 256.26 | 207.84 | 464.10 | 202.53 | 164.26 |
| 2023 | 1,283,683 | 267.57 | 217.01 | 484.57 | 203.33 | 164.91 |
| 2024 | 1,300,888 | 279.29 | 226.51 | 505.80 | 204.07 | 165.51 |
| 2025 | 1,317,933 | 291.43 | 236.37 | 527.80 | 204.76 | 166.07 |
| 2026 | 1,334,807 | 304.02 | 246.57 | 550.59 | 205.38 | 166.58 |
| 2027 | 1,351,495 | 317.06 | 257.15 | 574.20 | 205.95 | 167.04 |
| 2028 | 1,367,987 | 330.55 | 268.09 | 598.64 | 206.46 | 167.45 |
| 2029 | 1,384,269 | 344.52 | 279.42 | 623.94 | 206.91 | 167.81 |
| 2030 | 1,400,326 | 358.97 | 291.14 | 650.12 | 207.30 | 168.13 |
| 2031 | 1,416,576 | 374.03 | 303.36 | 677.39 | 207.69 | 168.44 |
| 2032 | 1,432,160 | 389.49 | 315.89 | 705.39 | 207.95 | 168.66 |
| 2033 | 1,447,487 | 405.47 | 328.85 | 734.32 | 208.16 | 168.82 |
| 2034 | 1,462,542 | 421.98 | 342.24 | 764.22 | 208.30 | 168.94 |
| 2035 | 1,477,316 | 439.03 | 356.07 | 795.10 | 208.38 | 169.01 |
| 2036 | 1,491,795 | 456.63 | 370.35 | 826.98 | 208.40 | 169.02 |
| 2037 | 1,505,968 | 474.80 | 385.08 | 859.88 | 208.36 | 168.99 |
| 2038 | 1,519,824 | 493.54 | 400.28 | 893.82 | 208.25 | 168.90 |
| 2039 | 1,533,351 | 512.87 | 415.96 | 928.83 | 208.09 | 168.77 |
| 2040 | 1,546,538 | 532.80 | 432.12 | 964.93 | 207.86 | 168.58 |
| 2041 | 1,559,375 | 553.34 | 448.78 | 1,002.12 | 207.57 | 168.35 |
| 2042 | 1,571,850 | 574.50 | 465.94 | 1,040.44 | 207.22 | 168.06 |
| 2043 | 1,583,952 | 596.29 | 483.62 | 1,079.91 | 206.80 | 167.73 |
| 2044 | 1,595,673 | 618.72 | 501.81 | 1,120.54 | 206.33 | 167.34 |
| 2045 | 1,607,001 | 641.81 | 520.54 | 1,162.35 | 205.80 | 166.91 |
| 2046 | 1,617,927 | 665.56 | 539.80 | 1,205.36 | 205.20 | 166.43 |
| 2047 | 1,628,442 | 689.98 | 559.60 | 1,249.59 | 204.55 | 165.90 |
| 2048 | 1,638,537 | 715.09 | 579.97 | 1,295.05 | 203.84 | 165.32 |
| 2049 | 1,648,202 | 740.88 | 600.89 | 1,341.77 | 203.07 | 164.70 |
| 2050 | 1,657,429 | 767.38 | 622.38 | 1,389.76 | 202.25 | 164.03 |

## 8.2. APPENDIX 2

**State´s Contribution Financing**
**Moderate Scenario**
**(In Millions of Dollars)**

| Year | Total State's Contribution | Excess Profit | Deficit/Surplus | Deficit/Surplus Present Value |
|------|------|------|------|------|
| 2016 | 9.11 | 80.00 | 70.89 | 70.89 |
| 2017 | 44.46 | 83.44 | 38.98 | 37.48 |
| 2018 | 69.70 | 87.03 | 17.33 | 16.02 |
| 2019 | 97.09 | 90.77 | -6.32 | -5.62 |
| 2020 | 126.77 | 94.67 | -32.09 | -27.43 |
| 2021 | 132.40 | 98.74 | -33.65 | -27.66 |
| 2022 | 138.24 | 102.99 | -35.25 | -27.86 |
| 2023 | 144.29 | 107.42 | -36.87 | -28.02 |
| 2024 | 150.57 | 112.04 | -38.53 | -28.15 |
| 2025 | 157.07 | 116.86 | -40.21 | -28.25 |
| 2026 | 163.80 | 121.88 | -41.92 | -28.32 |
| 2027 | 170.78 | 127.12 | -43.66 | -28.36 |
| 2028 | 177.99 | 132.59 | -45.41 | -28.36 |
| 2029 | 185.46 | 138.29 | -47.17 | -28.33 |
| 2030 | 193.24 | 144.23 | -49.00 | -28.30 |
| 2031 | 201.23 | 150.44 | -50.79 | -28.20 |
| 2032 | 209.48 | 156.91 | -52.57 | -28.07 |
| 2033 | 218.01 | 163.65 | -54.36 | -27.90 |
| 2034 | 226.82 | 170.69 | -56.13 | -27.71 |
| 2035 | 235.91 | 178.03 | -57.88 | -27.47 |
| 2036 | 245.30 | 185.68 | -59.61 | -27.21 |
| 2037 | 254.98 | 193.67 | -61.31 | -26.91 |
| 2038 | 264.97 | 202.00 | -62.97 | -26.57 |
| 2039 | 275.26 | 210.68 | -64.58 | -26.20 |
| 2040 | 285.87 | 219.74 | -66.13 | -25.80 |
| 2041 | 296.81 | 229.19 | -67.61 | -25.36 |
| 2042 | 308.06 | 239.05 | -69.02 | -24.89 |
| 2043 | 319.65 | 249.33 | -70.33 | -24.39 |
| 2044 | 331.58 | 260.05 | -71.54 | -23.86 |
| 2045 | 343.85 | 271.23 | -72.62 | -23.29 |
| 2046 | 356.47 | 282.89 | -73.58 | -22.69 |
| 2047 | 369.44 | 295.06 | -74.38 | -22.05 |
| 2048 | 382.77 | 307.74 | -75.02 | -21.39 |
| 2049 | 396.46 | 320.98 | -75.48 | -20.69 |
| 2050 | 410.52 | 334.78 | -75.74 | -19.96 |

## State´s Contribution Financing
## Optimistic Scenario
## (In Millions of USD)

| Year | Total State's Contribution | Excess Profit | Deficit/Surplus | Deficit/Surplus Present Value |
|------|------|------|------|------|
| 2016 | 4.55 | 80.00 | 75.45 | 75.45 |
| 2017 | 29.34 | 83.44 | 54.10 | 52.02 |
| 2018 | 39.77 | 87.03 | 47.26 | 43.69 |
| 2019 | 51.06 | 90.77 | 39.71 | 35.30 |
| 2020 | 63.26 | 94.67 | 31.42 | 26.85 |
| 2021 | 66.06 | 98.74 | 32.68 | 26.86 |
| 2022 | 68.96 | 102.99 | 34.03 | 26.90 |
| 2023 | 71.96 | 107.42 | 35.46 | 26.95 |
| 2024 | 75.06 | 112.04 | 36.97 | 27.02 |
| 2025 | 78.28 | 116.86 | 38.57 | 27.10 |
| 2026 | 81.61 | 121.88 | 40.27 | 27.20 |
| 2027 | 85.06 | 127.12 | 42.06 | 27.32 |
| 2028 | 88.63 | 132.59 | 43.96 | 27.46 |
| 2029 | 92.32 | 138.29 | 45.97 | 27.61 |
| 2030 | 96.19 | 144.23 | 48.04 | 27.74 |
| 2031 | 100.11 | 150.44 | 50.33 | 27.95 |
| 2032 | 104.18 | 156.91 | 52.72 | 28.15 |
| 2033 | 108.39 | 163.65 | 55.26 | 28.37 |
| 2034 | 112.74 | 170.69 | 57.95 | 28.61 |
| 2035 | 117.22 | 178.03 | 60.81 | 28.86 |
| 2036 | 121.85 | 185.68 | 63.84 | 29.13 |
| 2037 | 126.62 | 193.67 | 67.05 | 29.42 |
| 2038 | 131.54 | 202.00 | 70.46 | 29.73 |
| 2039 | 136.61 | 210.68 | 74.07 | 30.05 |
| 2040 | 141.83 | 219.74 | 77.91 | 30.39 |
| 2041 | 147.21 | 229.19 | 81.98 | 30.75 |
| 2042 | 152.75 | 239.05 | 86.30 | 31.13 |
| 2043 | 158.45 | 249.33 | 90.88 | 31.52 |
| 2044 | 164.31 | 260.05 | 95.74 | 31.93 |
| 2045 | 170.34 | 271.23 | 100.89 | 32.35 |
| 2046 | 176.54 | 282.89 | 106.35 | 32.79 |
| 2047 | 182.90 | 295.06 | 112.15 | 33.25 |
| 2048 | 189.45 | 307.74 | 118.30 | 33.72 |
| 2049 | 196.16 | 320.98 | 124.81 | 34.21 |
| 2050 | 203.06 | 334.78 | 131.72 | 34.72 |

## State´s Contribution Financing
## Pessimistic Scenario
## (In Millions of USD)

| Year | Total State's Contribution | Excess Profit | Deficit/Surplus | Deficit/Surplus Present Value |
|------|---------------------------|---------------|-----------------|-------------------------------|
| 2016 | 20.51 | 80.00 | 59.49 | 59.49 |
| 2017 | 100.13 | 82.56 | -17.57 | -16.90 |
| 2018 | 127.95 | 85.20 | -42.75 | -39.52 |
| 2019 | 158.04 | 87.93 | -70.11 | -62.33 |
| 2020 | 190.52 | 90.74 | -99.78 | -85.29 |
| 2021 | 199.00 | 93.65 | -105.35 | -86.59 |
| 2022 | 207.84 | 96.64 | -111.20 | -87.88 |
| 2023 | 217.01 | 99.74 | -117.27 | -89.12 |
| 2024 | 226.51 | 102.93 | -123.59 | -90.30 |
| 2025 | 236.37 | 106.22 | -130.15 | -91.44 |
| 2026 | 246.57 | 109.62 | -136.95 | -92.52 |
| 2027 | 257.15 | 113.13 | -144.02 | -93.55 |
| 2028 | 268.09 | 116.75 | -151.34 | -94.53 |
| 2029 | 279.42 | 120.48 | -158.94 | -95.45 |
| 2030 | 291.14 | 124.34 | -166.80 | -96.33 |
| 2031 | 303.36 | 128.32 | -175.04 | -97.19 |
| 2032 | 315.89 | 132.42 | -183.47 | -97.96 |
| 2033 | 328.85 | 136.66 | -192.19 | -98.67 |
| 2034 | 342.24 | 141.03 | -201.21 | -99.32 |
| 2035 | 356.07 | 145.55 | -210.52 | -99.92 |
| 2036 | 370.35 | 150.20 | -220.14 | -100.47 |
| 2037 | 385.08 | 155.01 | -230.07 | -100.96 |
| 2038 | 400.28 | 159.97 | -240.31 | -101.40 |
| 2039 | 415.96 | 165.09 | -250.87 | -101.78 |
| 2040 | 432.12 | 170.37 | -261.75 | -102.11 |
| 2041 | 448.78 | 175.83 | -272.96 | -102.39 |
| 2042 | 465.94 | 181.45 | -284.49 | -102.61 |
| 2043 | 483.62 | 187.26 | -296.36 | -102.78 |
| 2044 | 501.81 | 193.25 | -308.56 | -102.90 |
| 2045 | 520.54 | 199.43 | -321.10 | -102.96 |
| 2046 | 539.80 | 205.82 | -333.98 | -102.97 |
| 2047 | 559.60 | 212.40 | -347.20 | -102.93 |
| 2048 | 579.97 | 219.20 | -360.77 | -102.84 |
| 2049 | 600.89 | 226.21 | -374.67 | -102.70 |
| 2050 | 622.38 | 233.45 | -388.93 | -102.50 |

## 8.3. APPENDIX 3

**Benefit Expenses**
**Moderate Scenario**
**(In Millions of USD)**

| Year | Retirement Total | Retirement Total Present Value | Disability Total | Disability Total Present Value | Widowhood Total | Widowhood Total Present Value | Orphanage Total | Orphanage Total Present Value | Total Outflow | Total Outflow Present Value |
|------|------|------|------|------|------|------|------|------|------|------|
| 2016 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2019 | 0.00 | 0.00 | 6.29 | 5.59 | 0.00 | 0.00 | 0.00 | 0.00 | 6.29 | 5.59 |
| 2020 | 0.00 | 0.00 | 8.12 | 6.94 | 0.00 | 0.00 | 0.00 | 0.00 | 8.12 | 6.94 |
| 2021 | 0.00 | 0.00 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0.00 | 8.40 | 6.90 |
| 2022 | 0.00 | 0.00 | 8.68 | 6.86 | 0.00 | 0.00 | 0.00 | 0.00 | 8.68 | 6.86 |
| 2023 | 0.00 | 0.00 | 8.96 | 6.81 | 0.00 | 0.00 | 0.00 | 0.00 | 8.96 | 6.81 |
| 2024 | 0.00 | 0.00 | 9.24 | 6.75 | 0.00 | 0.00 | 0.00 | 0.00 | 9.24 | 6.75 |
| 2025 | 0.00 | 0.00 | 9.52 | 6.69 | 0.00 | 0.00 | 0.00 | 0.00 | 9.52 | 6.69 |
| 2026 | 0.00 | 0.00 | 9.83 | 6.64 | 0.00 | 0.00 | 0.00 | 0.00 | 9.83 | 6.64 |
| 2027 | 0.00 | 0.00 | 10.13 | 6.58 | 0.00 | 0.00 | 0.00 | 0.00 | 10.13 | 6.58 |
| 2028 | 0.00 | 0.00 | 10.43 | 6.51 | 0.00 | 0.00 | 0.00 | 0.00 | 10.43 | 6.51 |
| 2029 | 0.00 | 0.00 | 10.73 | 6.44 | 0.00 | 0.00 | 0.00 | 0.00 | 10.73 | 6.44 |
| 2030 | 0.00 | 0.00 | 11.03 | 6.37 | 0.00 | 0.00 | 0.00 | 0.00 | 11.03 | 6.37 |
| 2031 | 0.00 | 0.00 | 11.35 | 6.30 | 0.00 | 0.00 | 0.00 | 0.00 | 11.35 | 6.30 |
| 2032 | 0.00 | 0.00 | 11.67 | 6.23 | 0.00 | 0.00 | 0.00 | 0.00 | 11.67 | 6.23 |
| 2033 | 0.00 | 0.00 | 11.99 | 6.15 | 0.00 | 0.00 | 0.00 | 0.00 | 11.99 | 6.15 |
| 2034 | 0.00 | 0.00 | 12.30 | 6.07 | 0.00 | 0.00 | 0.00 | 0.00 | 12.30 | 6.07 |
| 2035 | 0.00 | 0.00 | 12.62 | 5.99 | 0.00 | 0.00 | 0.00 | 0.00 | 12.62 | 5.99 |
| 2036 | 146.60 | 66.90 | 12.96 | 5.91 | 0.73 | 0.33 | 0.22 | 0.10 | 160.50 | 73.25 |
| 2037 | 777.90 | 341.37 | 13.29 | 5.83 | 2.97 | 1.30 | 0.87 | 0.38 | 795.03 | 348.89 |
| 2038 | 1,199.41 | 506.10 | 13.63 | 5.75 | 4.85 | 2.05 | 1.40 | 0.59 | 1,219.29 | 514.49 |
| 2039 | 1,643.88 | 666.96 | 13.96 | 5.67 | 7.03 | 2.85 | 2.01 | 0.82 | 1,666.88 | 676.30 |
| 2040 | 2,112.32 | 824.06 | 14.30 | 5.58 | 9.53 | 3.72 | 2.71 | 1.06 | 2,138.86 | 834.41 |
| 2041 | 2,172.05 | 814.77 | 14.65 | 5.50 | 10.35 | 3.88 | 2.91 | 1.09 | 2,199.96 | 825.24 |
| 2042 | 2,233.60 | 805.64 | 15.00 | 5.41 | 11.23 | 4.05 | 3.13 | 1.13 | 2,262.96 | 816.22 |
| 2043 | 2,297.04 | 796.65 | 15.35 | 5.32 | 12.17 | 4.22 | 3.36 | 1.17 | 2,327.92 | 807.36 |
| 2044 | 2,362.44 | 787.82 | 15.70 | 5.24 | 13.18 | 4.39 | 3.61 | 1.20 | 2,394.92 | 798.65 |
| 2045 | 2,429.87 | 779.14 | 16.05 | 5.15 | 14.26 | 4.57 | 3.87 | 1.24 | 2,464.04 | 790.10 |
| 2046 | 2,499.40 | 770.61 | 16.41 | 5.06 | 15.42 | 4.75 | 4.15 | 1.28 | 2,535.38 | 781.70 |
| 2047 | 2,571.11 | 762.23 | 16.77 | 4.97 | 16.67 | 4.94 | 4.44 | 1.32 | 2,608.99 | 773.46 |
| 2048 | 2,645.09 | 754.00 | 17.13 | 4.88 | 18.00 | 5.13 | 4.76 | 1.36 | 2,684.98 | 765.37 |
| 2049 | 2,721.41 | 745.92 | 17.49 | 4.79 | 19.42 | 5.32 | 5.09 | 1.40 | 2,763.42 | 757.44 |
| 2050 | 2,801.00 | 738.21 | 17.85 | 4.70 | 20.95 | 5.52 | 5.45 | 1.44 | 2,845.24 | 749.87 |

## Benefit Expenses
## Optimistic Scenario
## (In Millions of USD)

| Year | Retirement Total | Retirement Total Present Value | Disability Total | Disability Total Present Value | Widowhood Total | Widowhood Total Present Value | Orphanage Total | Orphanage Total Present Value | Total Outflow | Total Outflow Present Value |
|------|------|------|------|------|------|------|------|------|------|------|
| 2016 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2019 | 0.00 | 0.00 | 3.35 | 2.98 | 0.00 | 0.00 | 0.00 | 0.00 | 3.35 | 2.98 |
| 2020 | 0.00 | 0.00 | 4.05 | 3.46 | 0.00 | 0.00 | 0.00 | 0.00 | 4.05 | 3.46 |
| 2021 | 0.00 | 0.00 | 4.19 | 3.45 | 0.00 | 0.00 | 0.00 | 0.00 | 4.19 | 3.45 |
| 2022 | 0.00 | 0.00 | 4.33 | 3.42 | 0.00 | 0.00 | 0.00 | 0.00 | 4.33 | 3.42 |
| 2023 | 0.00 | 0.00 | 4.47 | 3.40 | 0.00 | 0.00 | 0.00 | 0.00 | 4.47 | 3.40 |
| 2024 | 0.00 | 0.00 | 4.61 | 3.37 | 0.00 | 0.00 | 0.00 | 0.00 | 4.61 | 3.37 |
| 2025 | 0.00 | 0.00 | 4.75 | 3.33 | 0.00 | 0.00 | 0.00 | 0.00 | 4.75 | 3.33 |
| 2026 | 0.00 | 0.00 | 4.90 | 3.31 | 0.00 | 0.00 | 0.00 | 0.00 | 4.90 | 3.31 |
| 2027 | 0.00 | 0.00 | 5.04 | 3.28 | 0.00 | 0.00 | 0.00 | 0.00 | 5.04 | 3.28 |
| 2028 | 0.00 | 0.00 | 5.19 | 3.24 | 0.00 | 0.00 | 0.00 | 0.00 | 5.19 | 3.24 |
| 2029 | 0.00 | 0.00 | 5.34 | 3.21 | 0.00 | 0.00 | 0.00 | 0.00 | 5.34 | 3.21 |
| 2030 | 0.00 | 0.00 | 5.49 | 3.17 | 0.00 | 0.00 | 0.00 | 0.00 | 5.49 | 3.17 |
| 2031 | 0.00 | 0.00 | 5.65 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 | 5.65 | 3.14 |
| 2032 | 0.00 | 0.00 | 5.80 | 3.10 | 0.00 | 0.00 | 0.00 | 0.00 | 5.80 | 3.10 |
| 2033 | 0.00 | 0.00 | 5.96 | 3.06 | 0.00 | 0.00 | 0.00 | 0.00 | 5.96 | 3.06 |
| 2034 | 0.00 | 0.00 | 6.11 | 3.02 | 0.00 | 0.00 | 0.00 | 0.00 | 6.11 | 3.02 |
| 2035 | 0.00 | 0.00 | 6.27 | 2.98 | 0.00 | 0.00 | 0.00 | 0.00 | 6.27 | 2.98 |
| 2036 | 73.25 | 33.43 | 6.44 | 2.94 | 0.36 | 0.17 | 0.11 | 0.05 | 80.16 | 36.58 |
| 2037 | 501.99 | 220.29 | 6.60 | 2.90 | 2.08 | 0.91 | 0.61 | 0.27 | 511.28 | 224.37 |
| 2038 | 676.98 | 285.65 | 6.77 | 2.85 | 2.85 | 1.20 | 0.83 | 0.35 | 687.42 | 290.06 |
| 2039 | 860.88 | 349.28 | 6.93 | 2.81 | 3.74 | 1.52 | 1.07 | 0.44 | 872.63 | 354.05 |
| 2040 | 1,054.07 | 411.22 | 7.09 | 2.77 | 4.76 | 1.86 | 1.35 | 0.53 | 1,067.28 | 416.37 |
| 2041 | 1,083.82 | 406.56 | 7.27 | 2.73 | 5.16 | 1.94 | 1.45 | 0.55 | 1,097.71 | 411.77 |
| 2042 | 1,114.20 | 401.88 | 7.44 | 2.68 | 5.60 | 2.02 | 1.56 | 0.56 | 1,128.80 | 407.15 |
| 2043 | 1,145.50 | 397.28 | 7.61 | 2.64 | 6.07 | 2.10 | 1.68 | 0.58 | 1,160.86 | 402.60 |
| 2044 | 1,177.76 | 392.76 | 7.78 | 2.59 | 6.57 | 2.19 | 1.80 | 0.60 | 1,193.91 | 398.14 |
| 2045 | 1,211.01 | 388.31 | 7.95 | 2.55 | 7.10 | 2.28 | 1.93 | 0.62 | 1,228.00 | 393.76 |
| 2046 | 1,245.29 | 383.95 | 8.13 | 2.51 | 7.68 | 2.37 | 2.07 | 0.64 | 1,263.17 | 389.46 |
| 2047 | 1,280.64 | 379.66 | 8.30 | 2.46 | 8.30 | 2.46 | 2.21 | 0.66 | 1,299.45 | 385.24 |
| 2048 | 1,317.09 | 375.45 | 8.48 | 2.42 | 8.96 | 2.55 | 2.37 | 0.68 | 1,336.90 | 381.09 |
| 2049 | 1,354.68 | 371.31 | 8.65 | 2.37 | 9.67 | 2.65 | 2.54 | 0.70 | 1,375.54 | 377.03 |
| 2050 | 1,394.30 | 367.47 | 8.83 | 2.33 | 10.43 | 2.75 | 2.71 | 0.72 | 1,416.27 | 373.26 |

# Benefit Expenses
## Pessimistic Scenario
## (In Millions of USD)

| Year | Retirement Total | Retirement Total Present Value | Disability Total | Disability Total Present Value | Widowhood Total | Widowhood Total Present Value | Orphanage Total | Orphanage Total Present Value | Total Outflow | Total Outflow Present Value |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2017 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2018 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2019 | 0.00 | 0.00 | 10.24 | 9.10 | 0.00 | 0.00 | 0.00 | 0.00 | 10.24 | 9.10 |
| 2020 | 0.00 | 0.00 | 12.20 | 10.43 | 0.00 | 0.00 | 0.00 | 0.00 | 12.20 | 10.43 |
| 2021 | 0.00 | 0.00 | 12.63 | 10.38 | 0.00 | 0.00 | 0.00 | 0.00 | 12.63 | 10.38 |
| 2022 | 0.00 | 0.00 | 13.05 | 10.32 | 0.00 | 0.00 | 0.00 | 0.00 | 13.05 | 10.32 |
| 2023 | 0.00 | 0.00 | 13.48 | 10.24 | 0.00 | 0.00 | 0.00 | 0.00 | 13.48 | 10.24 |
| 2024 | 0.00 | 0.00 | 13.90 | 10.16 | 0.00 | 0.00 | 0.00 | 0.00 | 13.90 | 10.16 |
| 2025 | 0.00 | 0.00 | 14.33 | 10.07 | 0.00 | 0.00 | 0.00 | 0.00 | 14.33 | 10.07 |
| 2026 | 0.00 | 0.00 | 14.79 | 9.99 | 0.00 | 0.00 | 0.00 | 0.00 | 14.79 | 9.99 |
| 2027 | 0.00 | 0.00 | 15.25 | 9.91 | 0.00 | 0.00 | 0.00 | 0.00 | 15.25 | 9.91 |
| 2028 | 0.00 | 0.00 | 15.71 | 9.81 | 0.00 | 0.00 | 0.00 | 0.00 | 15.71 | 9.81 |
| 2029 | 0.00 | 0.00 | 16.16 | 9.71 | 0.00 | 0.00 | 0.00 | 0.00 | 16.16 | 9.71 |
| 2030 | 0.00 | 0.00 | 16.62 | 9.60 | 0.00 | 0.00 | 0.00 | 0.00 | 16.62 | 9.60 |
| 2031 | 0.00 | 0.00 | 17.11 | 9.50 | 0.00 | 0.00 | 0.00 | 0.00 | 17.11 | 9.50 |
| 2032 | 0.00 | 0.00 | 17.60 | 9.39 | 0.00 | 0.00 | 0.00 | 0.00 | 17.60 | 9.39 |
| 2033 | 0.00 | 0.00 | 18.08 | 9.28 | 0.00 | 0.00 | 0.00 | 0.00 | 18.08 | 9.28 |
| 2034 | 0.00 | 0.00 | 18.56 | 9.16 | 0.00 | 0.00 | 0.00 | 0.00 | 18.56 | 9.16 |
| 2035 | 0.00 | 0.00 | 19.05 | 9.04 | 0.00 | 0.00 | 0.00 | 0.00 | 19.05 | 9.04 |
| 2036 | 330.06 | 150.64 | 19.56 | 8.93 | 1.64 | 0.75 | 0.48 | 0.22 | 351.75 | 160.53 |
| 2037 | 1,752.03 | 768.85 | 20.07 | 8.81 | 6.70 | 2.94 | 1.96 | 0.86 | 1,780.76 | 781.46 |
| 2038 | 2,201.86 | 929.09 | 20.59 | 8.69 | 8.90 | 3.76 | 2.58 | 1.09 | 2,233.93 | 942.62 |
| 2039 | 2,675.74 | 1,085.62 | 21.10 | 8.56 | 11.43 | 4.64 | 3.28 | 1.33 | 2,711.55 | 1,100.15 |
| 2040 | 3,174.74 | 1,238.53 | 21.62 | 8.43 | 14.32 | 5.59 | 4.07 | 1.59 | 3,214.75 | 1,254.14 |
| 2041 | 3,264.68 | 1,224.64 | 22.15 | 8.31 | 15.56 | 5.84 | 4.38 | 1.64 | 3,306.77 | 1,240.42 |
| 2042 | 3,358.20 | 1,211.27 | 22.69 | 8.18 | 16.88 | 6.09 | 4.70 | 1.70 | 3,402.47 | 1,227.24 |
| 2043 | 3,454.62 | 1,198.12 | 23.22 | 8.05 | 18.30 | 6.35 | 5.05 | 1.75 | 3,501.19 | 1,214.27 |
| 2044 | 3,554.03 | 1,185.19 | 23.76 | 7.92 | 19.82 | 6.61 | 5.43 | 1.81 | 3,603.04 | 1,201.53 |
| 2045 | 3,656.56 | 1,172.48 | 24.30 | 7.79 | 21.45 | 6.88 | 5.82 | 1.87 | 3,708.14 | 1,189.02 |
| 2046 | 3,762.32 | 1,159.99 | 24.85 | 7.66 | 23.21 | 7.16 | 6.24 | 1.93 | 3,816.63 | 1,176.74 |
| 2047 | 3,871.43 | 1,147.72 | 25.40 | 7.53 | 25.10 | 7.44 | 6.69 | 1.98 | 3,928.62 | 1,164.68 |
| 2048 | 3,984.01 | 1,135.67 | 25.95 | 7.40 | 27.11 | 7.73 | 7.17 | 2.04 | 4,044.24 | 1,152.84 |
| 2049 | 4,100.19 | 1,123.84 | 26.51 | 7.27 | 29.26 | 8.02 | 7.68 | 2.10 | 4,163.63 | 1,141.23 |
| 2050 | 4,220.10 | 1,112.22 | 27.06 | 7.13 | 31.56 | 8.32 | 8.21 | 2.16 | 4,286.93 | 1,129.83 |