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CREATION OF A REFORMED PENSION SYSTEM FOR CIVIL SERVANTS IN TIMOR-LESTE

World Bank Social Protection Unit

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I. Introduction

In February 2011, the government of Timor-Leste (GoTL) enacted a law creating a pension system for civil servants. However, the government now wants to repeal and replace this pension law as it deems it too broad in scope, coverage and cost, and it contains several non-standard design features.

In its place, the GoTL wants to consider creating a reformed permanent civil service pension program covering all civil servants. Within a few years thereafter, the government also wants to implement a national social security system. This system will cover formal sector workers, and it is likely civil servants will also participate. Consequently, civil servants may get benefits from both the national social security system and the civil service pension system.

Timor-Leste has many civil servants with long service both before and after independence. The reformed pension system for civil servants will give the government a method of honorably allowing its elderly civil servants to exit the work force. At this time, the primary method of caring for elderly civil servants is to continue salary payments. This is because there is no mandatory retirement age for civil servants and the government does not yet have effective procedures for compelling older workers to retire when their productivity level declines. Consequently, the government has informed us that the civil service pension is unlikely to pay benefits to any civil servants until such time as these two issues are resolved. The government estimates this will take five years (until 2018). Until that time, elderly civil servants will continue to receive their salary and will not receive a pension from the reformed civil service pension program.

This report does not address the design and financing of the national social security system, nor are the design recommendations in this report based on any assumption about whether civil servants will or will not participate in the national social security plan. Before enacting the new civil service pension law, the government should carefully consider whether the establishment of a national pension system for the formal sector should be one of its top social protection policy priorities for the next few years. A national pension system will require a separate dedicated pension fund and a much more sophisticated governance process and administrative procedures since hundreds of different small private sector employers and their workers will participate.

1.1 Pension System Reform Parameters

The government has stated that the reformed pension program for civil servants will retain many of the structural elements of the current civil service pension program since they have already been discussed with and approved by the Cabinet of Minsters, but changes will be made to reduce the cost and eliminate non-standard design elements. Key design elements that will be retained under the reformed civil service pension program are:

- Benefits will be based on pay history and years of service
- Years of service will include service after independence, and probably will not include service prior to independence
- Lifetime pensions will be paid to those who are eligible for old age and disability retirement
- Old age pensions will be payable as a life annuity with a continuation to the spouse following the death of the participant

- Pensions will be indexed to inflation, wages or some combination
- The retirement age will be 60 but retirement at that age will not be mandatory
- Old age retirement benefits are assumed to begin in 2018, after necessary changes in law and/or administrative procedures to allow for mandatory retirement or to compel retirement due to performance have been enacted
- Survivor pensions will be paid to the spouse and eligible children of civil servants who die before or after retirement
- Eligible participants can receive only one of the following – the reformed civil service plan benefit, the 30 USD per month elderly or disability pension, or the veterans benefit.

However, in order to reduce the cost of the program, eliminate nonstandard features and keep the program consistent with its initial objectives, the following changes will be considered:

- The level of old age, disability and survivor benefits will be re-examined to limit costs to a fiscally sustainable amount
- Disability and survivor benefit formulas will be redesigned to eliminate non-standard features.

1.2 Current Timor-Leste Social Assistance Programs and Expenditures

The reformed civil service pension program will be an addition to the existing budget-financed social assistance programs that already exist in Timor-Leste today. However, the cost of the program will increase slowly since it is a new program and the first retirements will not take place until 2018. Nevertheless, it will increase public expenditures and may necessitate increased withdrawals from the Petroleum Fund, which are already in excess of the Estimated Sustainable Income (ESI), or require additional government borrowing. Alternatively, government expenditures in other areas could be reduced to offset the additional cost of the reformed pension scheme.

Most of Timor-Leste's current social assistance programs are not well targeted to the poor and the same will be true of this program. Most civil servants are not poor and civil servants generally have a higher average salary than private sector workers. This program is inconsistent with Timor-Leste's stated desire to better target its social assistance programs and expenditures to the poor.

However, it is understandable that today's social assistance programs are not as targeted as they normally would be for a country at Timor-Leste's level of economic development. The current collection of programs arose in the aftermath of the 2006 conflict as part of a broader package of social protection programs and served an important purpose by contributing towards the provision of security, public trust in the government and economic recovery. These social assistance programs serve a variety of purposes, from rewarding those who sacrificed in the independence struggle to protection of vulnerable groups. Against the background of a post-conflict environment, damaged capacity for service delivery and limited financial infrastructure, the government has moved quickly in the face of substantial need with some notable achievements. Since its inception in the wake of the 2006 crisis:

- Elderly and disability pensions have become nearly universal and provide protection against old-age poverty

- The government has started paying a veterans pension to over 13,000 beneficiaries as an important part of paying homage to veterans of the resistance
- The government has established a conditional cash transfer program, Bolsa da Mae, to encourage and reward poor families that keep their children in school, and the government is continuing to improve the targeting and size of this program.

The rapid increase in the social assistance budget has been supported by growing fiscal space from oil-fund revenues but is increasingly relying on spending in excess of the ESI of the Petroleum Fund. Timor-Leste's public expenditures on social assistance increased significantly beginning from $109 million in 2008 to $160 million in 2012. The reformed civil service pension scheme will further increase this amount and will commit the government to permanent benefit payments from the budget or permanent contributions to a civil service pension program.

The remainder of this report examines design options for the reformed pension program for civil servants. Part II of this report looks at the different kinds of social protection programs and clarifies the role of each program. Many governments get into trouble when they are not clear about the role and rationale for each of their programs or they start using programs for purposes for which they were not intended. Part III looks at the current civil service pension program and comments on the nonstandard design elements and the cost of the program. Part IV examines international experience with civil service pension programs. This information will be used to help inform design recommendations for Timor-Leste's reformed civil service pension program. Section V summarizes design options and provides estimated costs for the government's consideration. Section VI summarizes the actuarial methods and assumptions used to prepare the financial projections in this report.

II. Overview of the Role and Purpose of Social Protection Systems

Governments use a variety of social protection programs to provide protection to its population against poverty, income loss from adverse life events and for old age support. These include programs for providing access to health insurance, assuring income following retirement, protecting workers against voluntary and involuntary employment termination, and protecting families against the financial consequences of the death or disablement of the primary wage earner. The government may have separate programs to meet each of these different needs or one program may cover several of these needs. This section describes the different types of programs available to governments to help manage these risks.

2.1 National social security program

A national social security program is part of the government's overall system of social protection. Its primary purpose is to prevent elderly poverty for formal sector workers after leaving the labor force. Workers participate in the system throughout their career, even when they change formal sector jobs, and their benefit is based on their pay and service with all employers throughout their entire career. Benefits are normally financed by contributions from both employers and workers as a percent of payroll. Benefits are generally not sufficient to allow middle and upper income workers to maintain their full pre-retirement standard of living from social security benefits alone. Rather, these workers are expected to supplement the benefit from personal savings and other sources. The program often does not provide significant benefits to those members of society who are unemployed or working in the informal sector throughout most of their career. Social assistance programs financed directly from government revenues typically cover these workers.

2.2 Civil servant pension program

A civil service pension program is not part of the national system of social protection. Rather, it is a program provided by the government as part of the benefit package offered to government employees. Its purpose is to help the government hire and retain the kind of workers it needs to successfully fulfill its functions. It should be viewed, therefore, as a private occupational pension program that covers the workers of only one employer and is one component of workers' overall compensation package.

A civil service pension program typically pays benefits only to those who retire directly from civil service. Workers are often required to make modest contributions to the program, but the majority is usually funded by the government either directly from the government budget or through contributions to a separate dedicated pension fund. It is usually designed to assure that civil servants who remain with the government throughout their entire career maintain a similar living standard to the one they enjoyed while working. A second possibility is that civil servants participate in the national pension program and the civil service pension program provides a top-up to that benefit. In this case, it is the sum of the benefits from both plans that allow civil servants to maintain their pre-retirement living standard.

This means the reformed civil service pension program, if it provides all post-retirement benefits for civil servants, should not be viewed as a template for the national social security system. Its goals and objectives are different from the goals and objectives of a national social security system. Consequently, the benefits under the reformed civil service plan are likely to be too high and accrue too rapidly, and the required payroll contributions are likely to be too high for a national social security system.

Despite the difference in objectives between civil service and national pension programs, in some countries, civil servants participate in the national pension system on the same basis as all other workers. In this instance, the pension design is based on the principles underlying national systems. There are three typical ways of harmonizing civil servant pension programs with national social security systems.

- Single plan: In some countries, civil servants receive the same benefits as all other formal sector workers. This is most prevalent in countries that have an "open" civil service, where there is significant flow between the civil service and private sector employment. It is also common in formerly communist and socialist countries
- Separate plans: Civil servants (and the military) have their own pension plan and there is a separate national pension system for other formal sector workers. This is still the dominant model in East Asia and is most appropriate for a "closed" civil service system, where there is little or no movement between the civil service and the private sector.
- Top-up plan: Under this arrangement, civil servants participate in the national social security system, but they also receive a supplemental pension benefit that may be financed from the State budget or through payroll contributions.

Timor-Leste's reformed civil service pension program will be a separate plan. Once the national social security system is introduced, civil servants will either participate in a separate plan or have a top-up plan.

2.3 Severance pay programs

This is a program that generally applies to formal sector workers, but typically not to civil servants. In developing countries, the severance pay requirements are normally contained in the country's labor law. Severance pay is paid when a worker terminates his or her employment with a particular employer and the benefit is usually a multiple of monthly wages that increases with years of service with the employer. Severance pay tends to be higher in countries where there is no unemployment insurance or formal sector pension programs. The amount paid may also vary depending on the reason for termination with higher benefits for firm bankruptcy or other forms of involuntary termination and lowest for those who voluntarily leave for other employment. The labor law typically does not cover civil servants, but this should be confirmed for each country. The rationale for not offering severance pay to civil servants is that in most developing countries, civil servants are hired at a young age and remain with the government until retirement. It is uncommon to hire civil servants at older ages and most governments do not feel an obligation to make separation payments to civil servants who choose to leave the civil service and join the private sector in mid-career.

2.4 Redundancy programs

This term is normally applied to programs that are designed to help facilitate workforce reduction. Typically, these methods are designed to encourage certain groups of workers to voluntarily leave or retire early as an alternative to involuntary layoffs. There are various possible strategies employed.

- Hiring freeze: Workers who retire or leave voluntarily are not replaced. This is the mildest form of workforce reduction and does not involve coercion or involuntary terminations
- Early retirement program: Those who are close to retirement (typically within 5 years) are encouraged to retire early. In exchange, they receive a packet of benefits that might include lump sums or pensions that cover the time period from early retirement to the standard date when retirement benefits are available under the employer's pension scheme. Health or other benefits might also be included
- Voluntary termination payments: Workers who are not yet close to retirement age and voluntarily agree to leave might be given lump sum payments, often equal to a multiple of monthly salary that varies with years of service. They might also have health insurance for an extended period of time, assistance with finding another job or other such benefits
- Involuntary layoffs: These may or may not be accompanied by lump sum payments or other benefits. Workers may be offered assistance with finding other employment.

2.5 Social assistance programs

Social assistance programs are designed to take care of the needs of the poorest households. Their purpose is to prevent extreme poverty and to reduce the incidence of poverty among poor and vulnerable households. They may help to assure the next generation in poor families does not live in poverty by making it possible for children from poor families to receive quality health care, remain in school, and receive proper nutrition.

Benefits under social assistance programs are usually based on need and the eligible group is carefully targeted. These programs are financed directly from that State budget. There are several additional purposes that may also be served by social assistance programs.

- They may be used to provide benefits to informal sector workers, whether or not they are poor, since it is difficult to include them in contributory social insurance systems
- They may provide assistance to families that temporarily fall into poverty due to natural disasters or economic crises.

Social assistance programs may also take care of the needs of those who spend too little time in the labor force, as they will not be able to receive adequate benefits from the national social security system. Examples of this include social pensions and Chile's minimum pension program.

III. Analysis of Timor-Leste's current civil service pension law

In 2012, the World Bank prepared an analysis of the provisions of the current civil service pension law and a financial projection of the expected costs of the system over the next 75 years.

3.1 Political and Macroeconomic Environment

The civil service pension program is being introduced at a time when the government is planning to significantly reduce the growth rate of recurring government expenditures starting in 2016. This will likely require the government to restrain the growth of civil servant salaries and benefits and rethink its strategy for public transfers. It will also require the government to gradually reduce its capital expenditures to bring them back to 2010 levels on a real basis in order to reduce or eliminate excess withdrawals from the Petroleum Fund. While the need for a civil service pension program is clear, it is important to control the costs of the program in order to limit budget expenditures.

3.2 Design Issues

The design of the civil service pension program does not follow international standards in several respects.

- 75% of final average pay is a rich benefit, particularly for a country that needs to constrain civil servant salaries and benefits, restructure public transfers and constrain the rate of Petroleum Fund withdrawals
- The 75% benefit is paid to everyone with 5 or more years of service (this will increase to 9 years of service by 2015). The benefit doesn't vary with years of service once the minimum years of service requirement have been met. Normally, the formula is a specified percent of average pensionable earnings for each year of service. For example, the formula could be 1.5% of average pay for each year of service. Under this scheme, someone with 10 years of service would receive 15% of average pay while someone with 30 years would receive 45%. Those who pay in more should receive more

- The survivor benefit has an unusual design. The benefit for the spouse can vary from as little as one year to life depending on the spouse's age and the age of any children when the civil servant dies; the benefit amount does not vary with the number of child beneficiaries and the benefit payment period depends only on the age of the youngest child. The benefit also does not reduce as each child attains age 17
- Benefits will be paid to those who became disabled and survivors of civil servants who died prior to enactment of the pension law and after independence.

The 75% benefit for anyone with five or more years of service is highly unusual. Most plans don't provide a benefit that high under any circumstances. Even if a plan did pay a 75% benefits, it would normally require 30-40 years of service. It is very unusual to pay such a high benefit with such short service. It encourages individuals to join the civil service for just a few years in order to earn the high benefit and then move to the private sector.

In this instance, the government of Timor-Leste is trying to find a way to pay a meaningful pension to older civil servants who are near or already over age 60. Normally, such participants would receive a percent of pensionable earnings for each year of service, including service prior to plan establishment. However, most of the service records for older civil servants were lost during periods of conflict. Consequently, it would be difficult for the government or the civil servants to provide proof of their period of employment. Consequently, the government decided to look at post-independence service only and grant the full pension based on only this service period.

In this situation, many post-conflict countries use a proxy for service in the time period for which records are no longer available. This would be the preferred approach for Timor-Leste as well. Then civil servants with longer service would receive higher benefits than those with shorter service. For example, in Sierra Leone all service histories were lost in a civil war when guerillas occupied the capital. The government used actuaries and auditors to reconstruct civil service histories and developed a rough formula based on age and historical employment histories. In Mozambique all combatants before independence were given a special retirement benefit though this is managed as a fund separate from regular accruals. The reformed civil service pension plan could use a similar approach to that used in Mozambique.

Another issue that needs to be addressed is the legal rights created by the current civil service pension program. If Timor-Leste enacts a reformed civil service pension law and repeals the current law, does the new law apply retroactively or does it only apply prospectively from date of enactment? In many countries, when pension plan provisions are changed the existing formula applies to all current workers and only new workers are subject to the new provisions, while in other countries the new formula applies to all workers, but only on a prospective basis. It would appear there are no such requirements under Timor-Leste law but this will require careful legal examination by senior government lawyers.

3.3 Financial Issues

As is the case with most new pension systems, the cost of the program is quite low in the early years but is significantly higher 20-30 years later. It is politically easy to enact these laws because the programs are popular, have little immediate budget impact and the long-term financial problems created by the plan don't occur until many years later. That is the case with Timor-Leste's current civil service law as well. The absolute cost is low in the early years and the cost as a percent of existing public transfers is also low. However, in the long term, the true cost of the plan is estimated at about 20% of covered payroll.

Another issue for this particular program is that it is difficult to estimate what the initial cost of the program will be because the number of applications for pension benefits to date has been very low. Consequently, much of the necessary data about the number of initial pensioners and their benefit amounts is not yet available. As of May 2013, only about 27 benefit applications had been received and processed. Other complexities include:

- The number of initial old-age pensioners is difficult to estimate because those age 60 and older are not required to retire. Age 60 is the minimum retirement age but there is no mandatory retirement age. Many civil servants are able to continue working rather than retiring. This allows them to receive 100% of salary rather than 75% of salary from the pension program
- The number of disability pensioners is difficult to determine as it will depend heavily on how the disability provision is administered. It isn't clear how many current and past civil servants will be judged disabled and eligible for the benefit.
- There is no good information about the number of eligible survivors of civil servants who died after independence and prior to the enactment of the pension law and what their benefit amount and payment period will be.

Consequently, it is difficult to accurately estimate the initial expenditures under the pension program. Therefore, the estimated short-term cost of the program in the Bank's projections will have a higher degree of uncertainty than it would for many other national or civil service pension programs.

In response to this concern, the government has instructed us to assume that for the next five years, civil servants over the age of 60 will continue to receive their regular salary. Then, starting in 2018, all civil servants 60 or older at that time will retire and begin receiving pension benefits. We will also assume that disability and survivor pensions will be awarded prospectively only, beginning from 2018. Benefits for those who become disabled or to beneficiaries of those who die before that date will be paid outside the plan.

Another key issue for long-term projections is the size of the civil service and the likely rates of real pay increases for civil servants. As there is no firm government policy on either of these issues, the estimates are likely to be less accurate than they would be for other programs.

World Bank projections for the existing civil service pension program are shown in Figures 1 and 2 and are based on our October 2012 actuarial report. Using previous assumptions about the number of initial pensioners, Figure 1 shows that estimated expenditures in 2012 are 2.5 million USD and increase to 56.1 million USD by 2026.

Figure 1: Total Expenditures in Millions of USD (2012-2026)

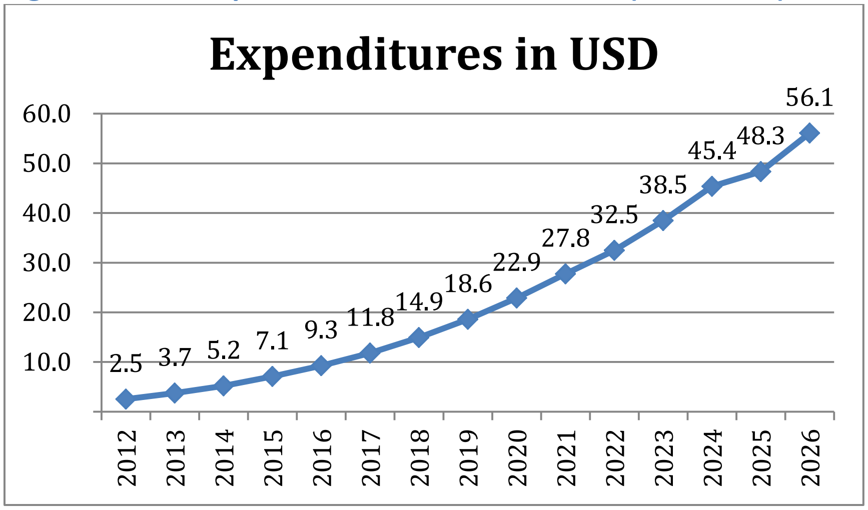
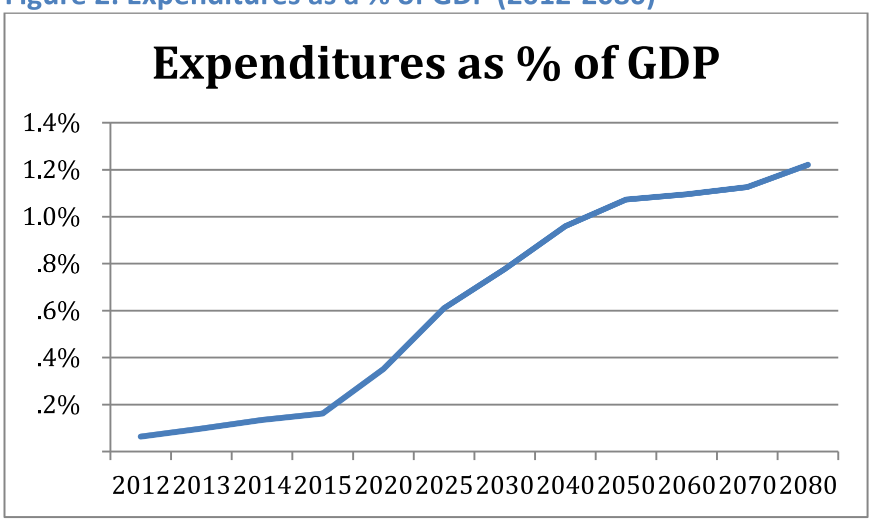


Figure 2 shows expenditures as a percent of GDP for the current program from the same actuarial report. It shows that expenditures increase sharply as a percent of GDP from 2015 through 2050 and then moderate somewhat.

Figure 2: Expenditures as a % of GDP (2012-2080)



However, these figures assume everyone age 60 or older retires at the start of the plan. In actuality, this has not occurred, so actual expenses have been much lower (practically zero). As mentioned in the Bank's actuarial report, these projections will need to be revised once the application process has been completed. Similar adjustments will need to be made to the estimates in this report regarding the reformed civil service pension program.

IV. International Experience

Based on discussions with Timor-Leste government officials, the following countries were selected for inclusion in our analysis – Indonesia, Singapore, Cambodia, Laos, Papua New Guinea, Fiji and Mongolia. These countries were selected because of one or more of the following factors – size, geographic location, level of economic development and presence of a resource-based economy.

Below is a brief summary of the civil service pension system in each of these countries. Please note that unlike national pension systems, details of civil service pension systems can sometimes be difficult to obtain. When public resources were insufficient, we contacted government officials to try to obtain more detail. That process is still ongoing, and the discussion below reflects the information available to us today.

Indonesia: Civil servants participate in a separate defined benefit pension program with a target benefit of 75% of pensionable wages (base pay plus family allowances). Retirement age varies with position and is 56 for most workers and 60 for others. Civil servants also participate in an endowment insurance program that pays 60% of last monthly base salary for each year of service as a lump sum. Survivor benefits are a life pension of 36% of pensionable wages in case of death before retirement and 36% of pensions in case of death after retirement. In case of work related or non-natural death, a life pension equal to 72% of pensionable wages is payable to eligible survivors. For work related disabilities a life pension at 75% of pensionable wages is payable immediately. In case of non-work related disability participants with 4 or more years of service get an immediate benefit based on the normal retirement benefit formula.

Singapore: Civil servants participate in the Central Provident Fund under the same terms and conditions as all other workers. The CPF is a multi-purpose defined contribution fund with separate accounts for savings for housing, medical expenses, special purposes and retirement. Benefits in the retirement account are paid out starting at age 65 and must be annuitized. Certain amounts in the other three accounts can be withdrawn in a lump sum at age 55. Disability and survivor benefits are equal to the CPF account balance, though additional benefits may be payable under the CPF term-life and ElderShield programs.

Cambodia: Civil servants participate in a separate defined benefit pension program. Retirement age varies by position. For lower positions, the standard retirement age is 55 while for higher positions it is 58 or 60. Civil servants with 30 or more years of service can retire immediately regardless of age. The benefit is equal to 3% of base pay plus allowances for each of the first 20 years and 2% of pay for all years thereafter to a maximum of 80%. In addition, a lump sum of 8 months' of final salary is paid as a lump sum at retirement. Disability pension are a lump sum with less than 20 years of service and a pension of 50% with 20 years of service and 65% with 30 years of service. Survivor benefits are equal to a lump sum, a funeral allowance and a monthly pension equal to a flat amount for the spouse and an additional flat amount for each child under age 16. Survivor benefits are generally inadequate. Cambodia intends to switch from budget financing to payroll contributions and is planning to establish a separate social security fund for civil service pensions.

Laos: Civil servants participate in a separate defined benefit pension program. Benefits are financed from a civil service pension fund. Workers contribute 6% and the government contributes the remaining required amount. Retirement age is 60 for men and 55 for women and 25 years of service. The benefit is 3% for each of the first 25 years and 1% for each additional year to a maximum of 90%. Pensioners also receive a lump sum of 15% of final salary per year of service. Disability benefits vary depending on whether the individual is living in a State invalidity center or not. The benefit is linked to the level of disability. The pension benefit for invalids living in State centers varies from 10% to 40% of minimum salary and the pension benefit for those not living in State centers varies from 40% to 100% of minimum salary. Death benefits are equal to a lump sum depending on years of service, a funeral allowance, plus a child pension equal to 10% of salary per child at time of death, payable until age 18. There is no spouse pension benefit.

Papua New Guinea: In 1991, the government replaced the existing defined benefit plan for civil servants with a partially funded defined contribution plan. Workers contribute 6% of salary to the program. The government contributes 8.4%, but they don't make their accumulated contribution with interest until the civil servant actually retires. Consequently, the government has a deferred liability that needs to be measured and managed, and the government has often been late in reimbursing the fund for payments to pensioners. We have not been able to obtain information about whether disability and death benefits are equal to anything other than the accumulated account balance.

Fiji: Civil servants in Fiji hired after November 1971 participate in the national pension program. Benefits are payable from a provident fund on a defined contribution basis. Workers pay a contribution rates of 8% of which a small amount is deducted to financed death benefits. Employers contribute 8% to 30% of pay. Old age benefits are payable at age 55. The benefit is equal to the entire account balance and can be taken as a lump sum, periodic withdrawal or annuity. Up to 30% of the total account can be withdrawn for education and medical expenses. Of the remaining 70%, up to 1/3 can be withdrawn just prior to retirement for housing costs. The provident fund also pays disability, survivor and death benefits with the same options as for retirement benefits. The benefit is the account balance and can be taken as a lump sum, periodic withdrawal, or annuity benefit. Fiji also has means-tested monthly allowances for old age and disabled individuals and a lump sum death benefit.

Mongolia: Civil servants in Mongolia participate in the national pension program, which is a defined benefit plan based on notional accounts. Retirement ages are generally 60 for men and 55 for women. Those working for long periods of time in hazardous professions have earlier retirement ages. Disability benefits are equal to 60% of average wage at time of disablement for total and permanent disability. The percentage is reduced for those with lesser disabilities. The survivor benefit varies based on the number of beneficiaries.

The tables below summarize the international experience for several key variables.

Table 1: Civil servant and national pension program integration

	Separate plan	Integrated plan	Top-up Plan
Indonesia	x		
Singapore		x	
Cambodia	x		
Laos	x		
PNG	x		
Fiji		x	
Mongolia		x	

All the countries in our study either maintained a separate program for civil servants, or included civil servants in the national pension system without any supplemental benefits.

Table 2: Type of program

	Defined benefit	Defined contribution
Indonesia	x	
Singapore		x
Cambodia	x	
Laos	x	
PNG		x
Fiji		x
Mongolia	x	

The countries in our study were almost evenly split between defined contribution and defined benefit programs. In Singapore and Fiji, civil servants participate in the national defined contribution pension plan. Only PNG maintains a separate defined contribution program for civil servants. All other separate plans are defined benefit.

Table 3: Funding arrangement

	Defined benefit	Defined contribution
Indonesia	Pay-as-you-go financing. Benefits are paid directly from the State budget.	
Singapore		Fully funded based on individual accounts. Workers and the State make contributions
Cambodia	Pay-as-you-go financing. Benefits are paid from the State budget. There are plans to establish a separate social security fund	
Laos	Pay-as-you-go financing. Both workers and the government contribute to a pension fund	
PNG		Partially funded defined contribution plan based on individual accounts. The government's contribution is paid into the fund with interest only at retirement
Fiji		Fully funded based on individual accounts.

	Defined benefit	Defined contribution
		Workers and the State make contributions
Mongolia	Pay-as-you-go financing. Both workers and the government contribute to a pension fund	

Table 3 shows that all the defined benefit plans are financed on a pay-as-you-go basis. This is the most common method worldwide for civil service pension programs, as the government normally prefers to preserve scarce budget resources for other priorities. Also, it is often better to invest budget resources in infrastructure to grow the economy then to put the money in a pension fund to earn a low rate of return. Defined contribution programs are almost always fully funded, but the program in PNG is a rare exception.

Table 4: Disability benefit design

Country	Program Design
Indonesia	Percent of wages not related to years of service for work-related disabilities, and accrued pension benefit for non-work related disabilities
Singapore	Benefit is equal to the account balance at time of disablement. A separate social assistance program pays a pension benefit to poor families under the ElderShield program
Cambodia	Benefit is a lump sum for less than 20 years of participation. For those with 20 or more years of participation, the benefit is a percent of wages that varies with years of participation.
Laos	Benefit is a percent of wages that does not vary with service. Benefit varies based on degree of disablement and whether or not the individual is living in a State invalidity center
PNG	No information available. Probably equal to the account balance at time of disablement.
Fiji	Benefit is equal to the account balance at time of disablement. There are also means-tested monthly allowances
Mongolia	Benefit is a percent of salary and does not vary with years of service. The percentage is reduced for partial disabilities

Table 4 shows that disability benefits in defined benefit plans are usually equal to a flat percent of salary that does not vary with years of service. The benefit amount may vary, however, with degree of disablement, or may be greater for occupational than non-occupational disabilities. This design is common because it allows the plan to pay adequate pensions to those who are unfortunate enough to become totally disabled at a young age.

Table 5: Survivor benefit design

Country	Program Design
Indonesia	Benefit is equal to a percentage of wages. Benefit does not vary with number of beneficiaries. A higher percentage is paid for work-related deaths than non-work related deaths.
Singapore	Benefit is equal to the account balance at retirement. A term life benefit is payable under a separate program.
Cambodia	The benefit is equal to a lump sum, a funeral allowance, and a flat pension amount for the spouse and each child.
Laos	The benefit is equal to a lump sum, a funeral allowance and a pension benefit of 10% of salary for each child. There is no survivor pension for the spouse
PNG	No information available. Probably equal to the account balance at time of death.
Fiji	Benefit is equal to the account balance at time of death. There is also an additional lump sum death benefit from another program
Mongolia	Benefit varies with number of beneficiaries.

Table 5 shows that for defined benefit plans, the benefit usually varies with the number of eligible beneficiaries. In most cases, the spouse and children are considered eligible beneficiaries. Laos is an exception to this role, as benefits are provided for children only. Defined contribution programs normally pay out the account balance at death. Note that there may be supplemental life insurance programs outside of the pension program as well.

V. Recommended Design Options

The government of Timor-Leste wishes to repeal the existing law on civil service pension benefits and enact a new law to provide benefits to civil servants who retire prior to the time a national social security system is established.

This report has reviewed international experience for civil service pension plans in countries in the region of a similar size and level of economic development as Timor-Leste. It has also clearly outlined the purpose served by various different types of social assistance, pension and pay replacement schemes. Based on this analysis and discussions with the government, we recommend that Timor-Leste examine the design and cost of the reformed civil service pension program on the following bases.

- *Start date.* Benefits will be payable under this plan from 2018 onward. Prior to that date, elderly civil servants will receive continuation of pay and any disability or survivor benefits will be paid outside the pension program
- *Coverage.* All civil servants will be covered in a reformed pension program. Civil servants are also likely to participate in the national social security system as well, but this decision has not yet been made

- *Retirement age.* The initial retirement age will be age 60, but retirement is not mandatory. For purposes of this analysis, based on input from the government, we assumed that starting in 2018 all civil servants over age 60 will retire voluntarily. Prior to that date, the government will continue making salary payments to elderly civil servants. The retirement age will be slowly increased from 60 to 64 over the analysis period as life expectancy increases
- *Old age benefit levels.* The target replacement ratio will be 30%, 35%, 50% or 75% for civil servants with 35 years of service. The benefit will vary with years of service. Options will be considered that take into account service before and after independence, and also options that include service after independence only. Approximate methods will be established and used where precise service records are not available for pre-independence service
- *Pensionable earnings.* Pension benefits will be calculated by averaging wages over a worker's entire career using the civil service pay matrix in effect at time of retirement and the position/rank of the civil servant in each year of his/her career. This will be phased in prospectively if appropriate records for the past are not available
- *Pension indexing.* It is important for pension benefits to be indexed following retirement. Otherwise, the purchasing power of the pension erodes rapidly, even at low inflation rates. Benefits should be indexed to inflation and not to wages as there is a large difference in cost
- *Disability benefit.* The disability benefit will be paid for total and permanent disability only. These are disabilities expected to be permanent or to result in death. The disability benefit will be a flat percent of wages at the time of disablement and will be payable for life. Another way to view the benefit is that it is a percentage of the projected old age pension benefit that would have been paid at the standard retirement age
- *Survivor benefit*. The survivor benefit will be a flat percent of wages that varies with the number of eligible beneficiaries. Benefits for the spouse will be paid for life or until remarriage. Benefits for the children will stop on attainment of age 18. The benefit will reduce whenever a beneficiary ceases eligibility. This can also be viewed as a percentage of the projected old age pension benefit that would have been paid at the standard retirement age. It should be recognized that verifying marriages, dates of birth and parents of children can be challenging in Timor-Leste as it is in other parts of the developing world.

The table below shows the benefits and years of service used to calculate benefits for each of the five scenarios that we analyzed.

Table 6: Plan Design Options

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Old age	75%	50%	35%	50%	30%
Disability	65%	40%	30%	40%	24%
Survivor (pre-retirement)					

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
• **Spouse**	50%	35%	25%	35%	20%
• **Each child (maximum of 3)**	10%	7%	5%	7%	4%
Years of Service	All	All	All	Post independence only	Post independence only

For old age pension benefits, the full benefit accrues over 35 years. So the accrual rate for scenario 1 is 2.14% (75% /35 years), 1.43% for scenarios 2 and 4, 1% for scenario 3 and 0.86% for scenario 5. At least 10 years of service is required to be eligible to receive an old age pension benefit.

The disability benefit is a flat percent of pay regardless of years of service. For non-occupational disabilities, a minimum of 10 years of service is required while for occupational disabilities there is no service requirement. The percent depends on the scenario as shown in the table above. Under Scenario 2, for example, someone who becomes totally and permanently disabled will receive 40% of pay as a pension benefit. Another way to state this is that the benefit is 80% of the projected old age pension.

Survivor benefits are equal to 65% of the pension benefit for spouses of those who have already retired and is payable to the spouse for life. For those who die prior to retirement age, the benefit varies by scenario as shown in the table above. This survivor benefit design is appropriate for a country where women have much lower low labor force participation rates than men, family sizes are large and where it is culturally acceptable for women to be homemakers.

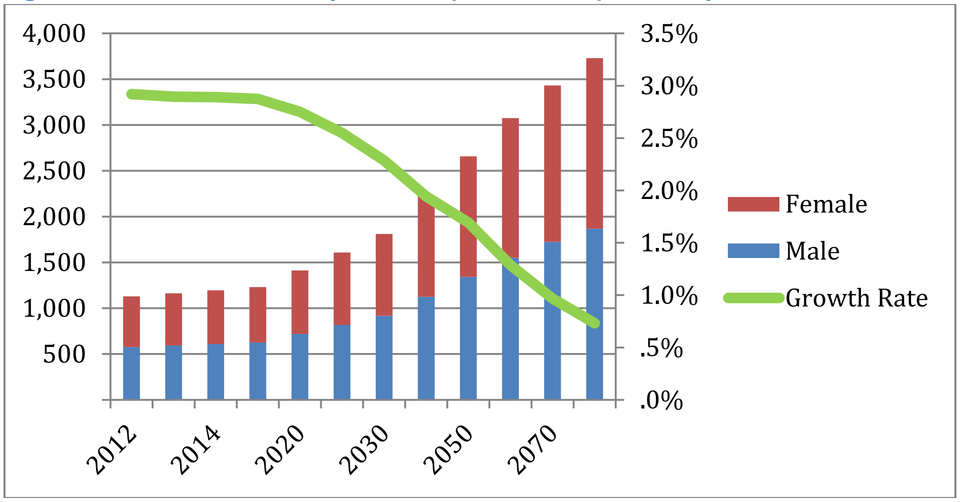
VI. Fiscal Analysis

We show complete fiscal analysis for Scenario 2 in this section. Then we summarize key results for all three scenarios. Please note that the population projections and the projections of the number of civil servants do not vary by scenario. It is only expenditures and the required payroll contribution rate that vary by scenario.

6.1 Population projections

The government of Timor-Leste has advised us that it expects the growth rate in the number of civil servants to be approximately equal to the growth rate of the population. Consequently, it is necessary to estimate the size and growth rate of the population as part of our projections. Population growth and composition also has a significant impact on the expected growth rate of GDP. The population of Timor-Leste is expected to grow rapidly, particularly between 2012 and 2030. Mortality rates are expected to decline throughout the analysis period. Although the fertility rate is expected to decline, it will remain near 5 children per mother until 2020 and over 3 through 2040. Figure 3 shows the expected growth of the population and between now and 2080, based on the 2010 census and United Nations fertility and mortality projections.

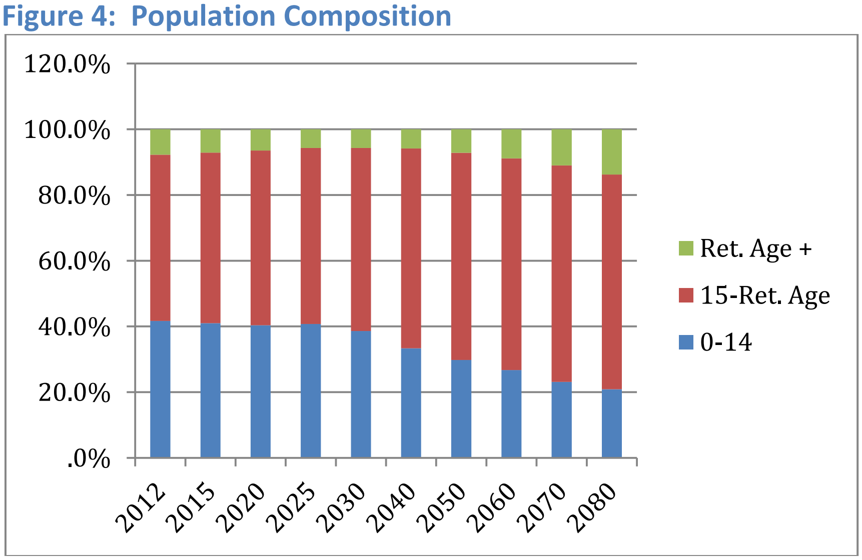
Figure 3: Timor-Leste Population (thousands) and Population Growth Rate



Source: Graph created by author from World Bank PROST model output

Figure 4 shows how the composition of the population changes over time. The number of children decreases significantly due to reducing fertility rates while the number of elderly grows due to declining mortality rates. Note that the assumed retirement age is increasing at several points throughout the projection period (see Table later in this report) as the current pension law stipulates that retirement ages should increase as life expectancy improves, and this increase reduces the percent of the population that is at or over retirement age in this graph.

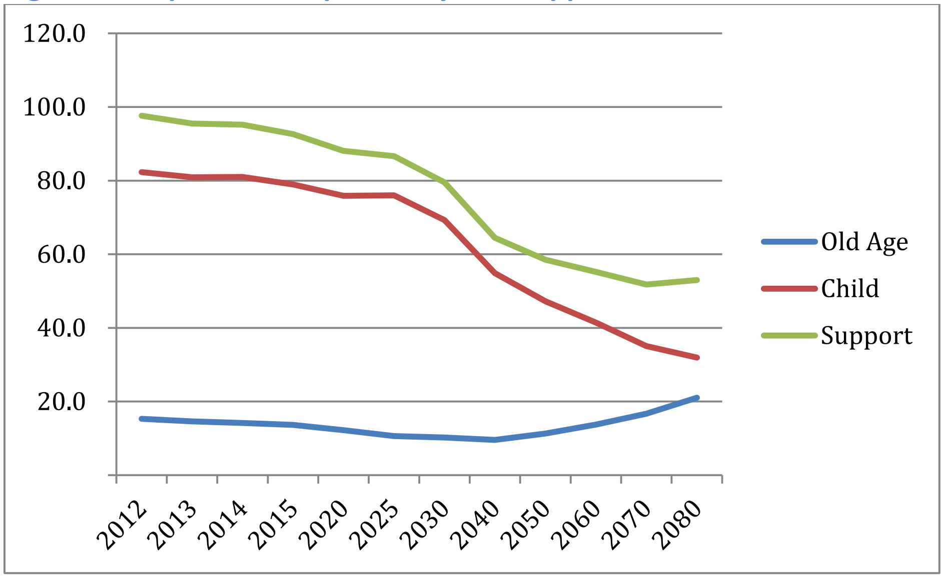
Figure 4: Population Composition



Source: Graph created by author from World Bank PROST model output

Finally, it is interesting to compare the number of citizens of working age with those who are either too young or too old to work. The ratio of citizens at or above pension age to the number of working age is often referred to as the elderly dependency ratio. The ratio of children to citizens of working age is the child dependency ratio. The support ratio is the number at or above pension age plus the number of children divided by the number of working age. The support ratio shows how many citizens who are not working are supported by each person who is working. Economic growth is likely to be higher when support ratios are low. Figure 5 shows these ratios for Timor-Leste.

Figure 5: Population Dependency and Support Ratios



Source: Graph created by author from World Bank PROST model output

Note that while the elderly support ratio initially declines and then increases, the overall support ratio declines steadily throughout most of the analysis period due to the sharply reduced number of children. This means that over time Timor-Leste will enjoy a "demographic dividend" over most of the analysis period A greater proportion of the Timorese population will be working in the future than today.

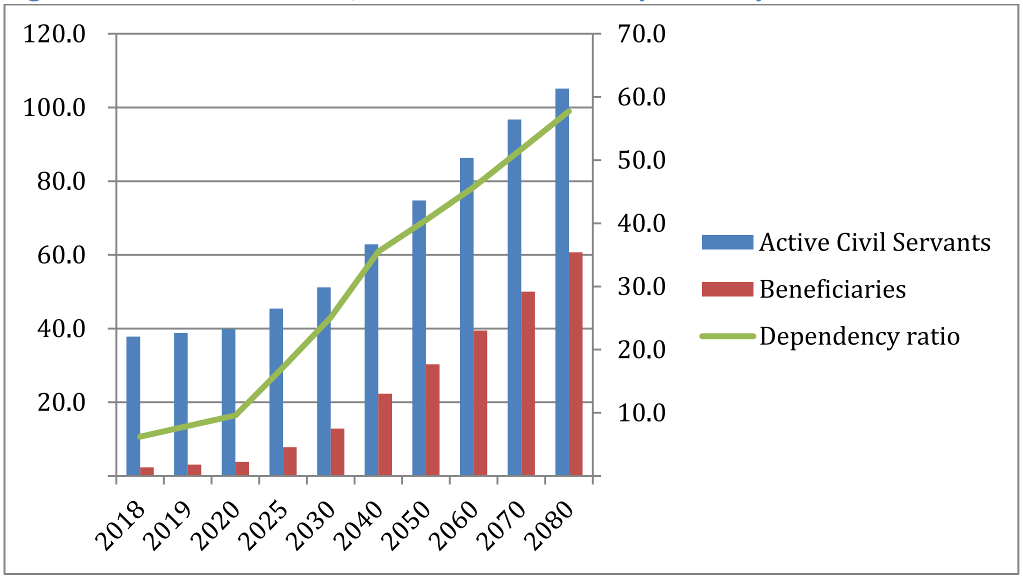
6.2 Active Members and Beneficiaries

In our analysis, we assumed the number of civil servants grows in proportion to the population throughout the analysis period. In 2018 (five years from now), we assumed everyone age 60 or over retires immediately. Thereafter, everyone retires upon attaining the minimum retirement age, which is 60 initially and increases to 64 by the end of the analysis period. Based on discussions with the government, we assumed there will be no benefits payable from the pension plan between now and the end of 2017. Elderly civil servants will receive salary continuation rather than a pension between now and then. Any disability or survivor benefits will be paid outside the plan.

Rates of disablement vary by age and sex and are used to determine the number of new disability retirees. The number of survivors is estimated using mortality rates, the probability that a participant is married at the time of death, the age of the spouse relative to the participant and estimates of family status at the time of death. Survivors include beneficiaries of deceased old age and disability pensioners as well as beneficiaries of those who die prior to retirement. In the count of the number of survivor beneficiaries, spouses and children are not separately counted. Members of one family eligible for payments are treated as one beneficiary.

Figure 6 shows the number of active members and beneficiaries and the plan dependency ratio on this basis. The plan dependency ratio is the ratio of the number of beneficiaries to the number of active members. An increasing ratio indicates the number of beneficiaries is growing faster than the number of active members and plan contribution rates as a percent of covered payroll will likely increase over time.

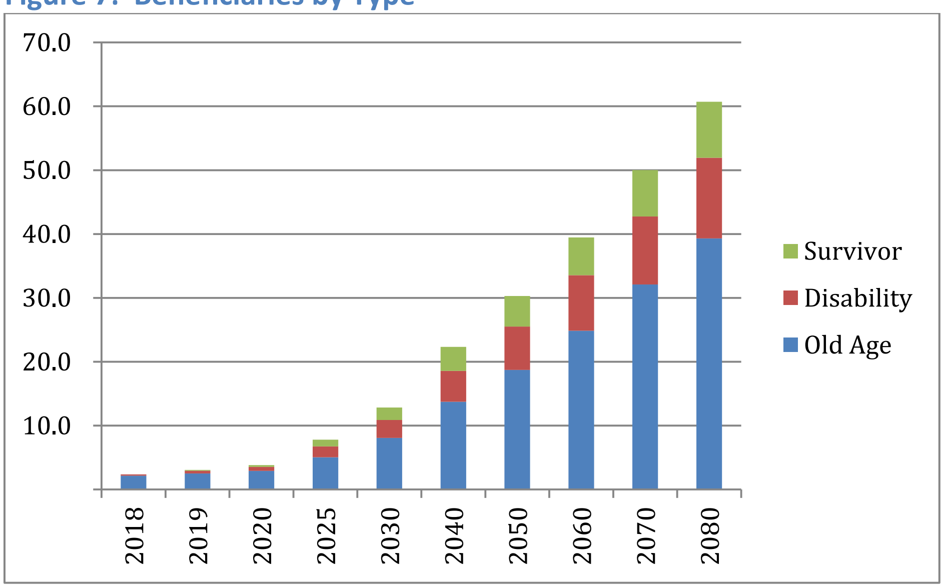
Figure 6: Active Members, Beneficiaries and Dependency Ratio



Source: Graph created by author from World Bank PROST model output

Figure 7 gives more detail regarding the number of beneficiaries. There are three types of beneficiaries under the civil service pension program – old age pensioners, disability pensioners and survivor pensioners (both pre and post retirement).

Figure 7: Beneficiaries by Type

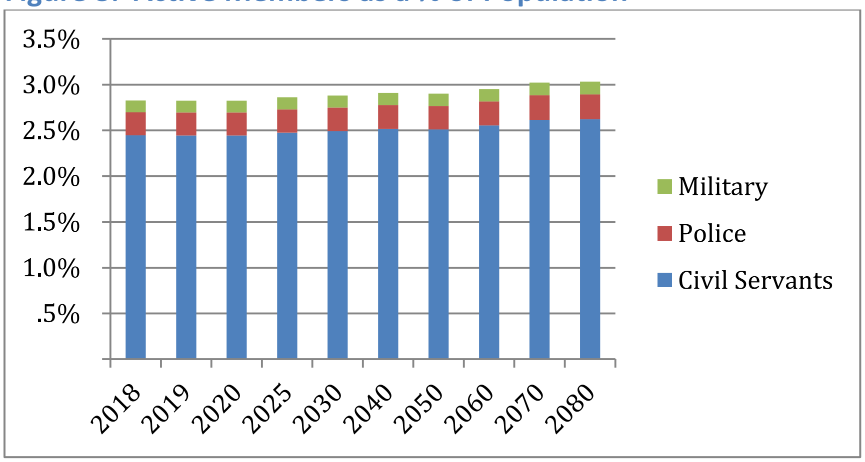


Source: Graph created by author from World Bank PROST model output

This Figure shows that old age pensioners are the majority of total pensioners, but the number of disability and survivor pensions increases significantly over time. The number of survivor pensions is higher than under the current civil service law, because the period of payment for survivor benefits has been increased under the proposed plan designs.

Figure 8 shows the number of civil servants as a percent of the population. This ratio in Timor-Leste is reasonable compared to international norms. According to the World Bank report, "Timor-Leste Civil Service Review" dated June 15, 2011, the number of civil servants, excluding military and police, should be no more than 2.5% of the population and this is the approximate level today. Assuming the growth rate in the number of civil servants remains equal to or less than the population growth rate, the number of civil servants, excluding police and military, will remain less than 2.5% of the population.

Figure 8: Active Members as a % of Population



Source: Graph created by author from World Bank PROST model output

However, it is possible the number of civil servants will grow more rapidly. As Timor-Leste fully implements decentralization a larger civil service workforce will likely be needed to accommodate the increased needs and responsibilities of local government.

6.3 Expenditures and Payroll Contributions

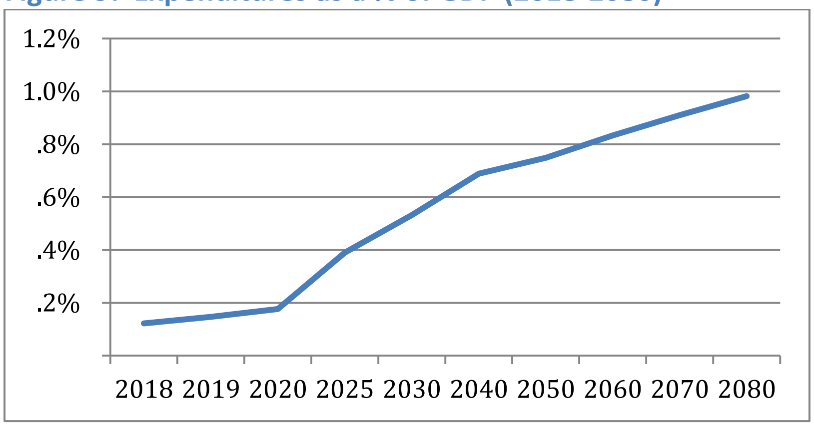
The primary purpose of this analysis is to estimate the total amount of expenditures in each future year for several alternative civil service pension program designs. These expenditures will initially be paid from the State budget and will increase the total amount of public transfers, which will in turn increase total budget expenditures, and either the amount of excess withdrawals from the Petroleum Fund or the amount of government borrowing. However, base on direction from the government, we have assumed there will be no payments under the pension program until 2018, and the budget payments or contributions under the new civil service pension program will remain a small proportion of total public transfers in the early years of the new system.

Expenditures are equal to expected benefit payments to all types of beneficiaries plus the administrative expenses of the program. Since elderly civil servants will receive salary continuation through 2017, there are no pension expenditures prior to that date. Expenditure projections cover the period from 2018 through 2080 and assume there are no retirements of any type prior to January 1, 2018. On that date, we assume everyone who is then 60 or over retires. Disability and survivor benefits are assumed to be paid only to those who become disabled or die on or after January 1, 2018.

For purposes of these projections, we assumed pension benefits are indexed to the increase in the Consumer Price Index (CPI) each year. The pension law states that the government will periodically increase benefits based on increases in prices and wages in the economy. The usual international practice is to index benefits to price increases as wage indexing as too costly, and without indexing, inflation will quickly erode the value of pension benefits.

Figure 9 shows total projected expenditures for Scenario 2 as a percent of GDP from 2018 through 2080 on this basis. Due to plan maturation and slight population aging, costs as a % of GDP increase from about 0.1% of GDP at the start of the program to slightly over 1% of GDP in 2080. This graph is important as it shows the burden on the economy if the government decides to finance the pension program from the State budget. Expenditures as a % of GDP can be converted to expenditures as a percent of the budget by dividing by the ratio of the State budget to GDP.

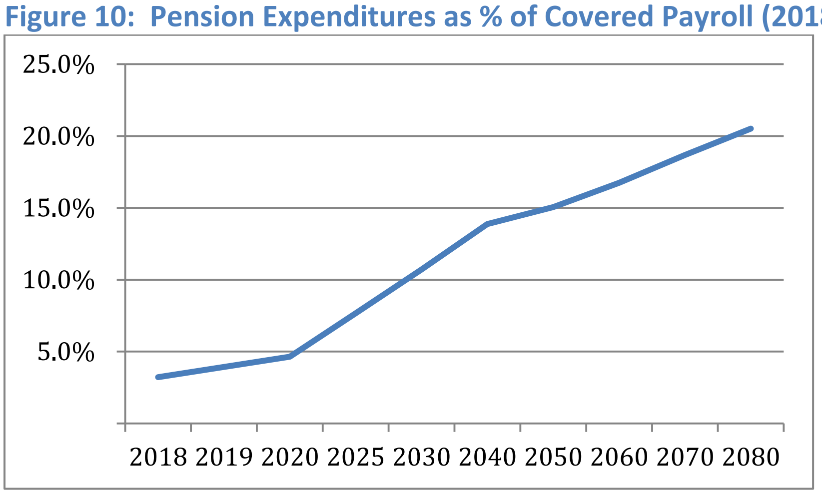
Figure 9: Expenditures as a % of GDP (2018-2080)



Source: Graph created by author from World Bank PROST model output

We understand the government plans to finance the civil service pension program with payroll contributions that will be shared between workers and the government. For this analysis, expenditures should be expressed as a percent of covered wages in each future year. As shown in Figure 10, total program expenditures as a percent of covered payroll also grows throughout the entire analysis period.

Figure 10: Pension Expenditures as % of Covered Payroll (2018-2080)



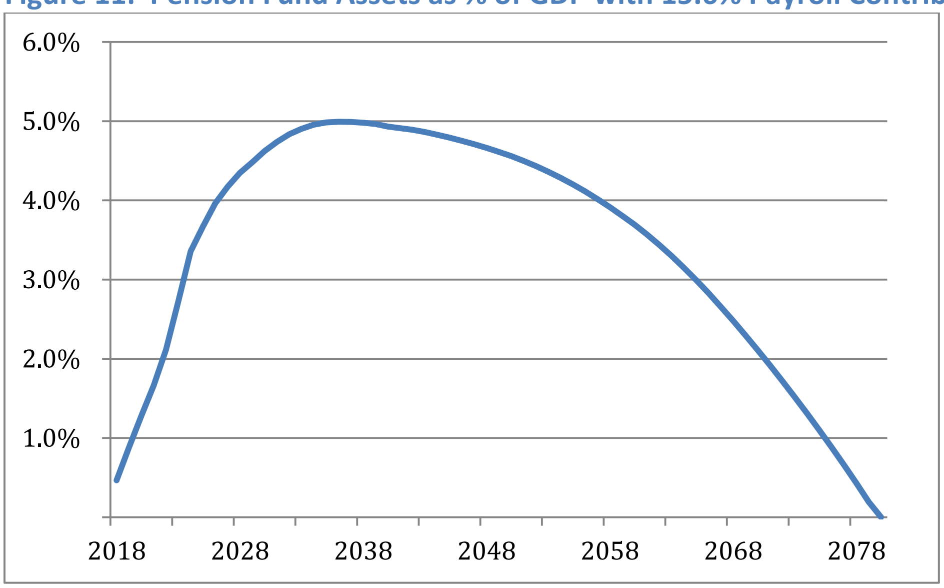
Source: Graph created by author from World Bank PROST model output

The required contribution rate starts out at about 3% of payroll in 2018 and increases to just over 20% of covered payroll by 2080. This is caused by the sharp increase in the pension plan's dependency ratio. The number of beneficiaries and total pension payments grows more rapidly than the number of contributors and their wages throughout the analysis period. Figure 10 represents the required total contribution rate for the civil service pension program assuming it is financed on a pay-as-you-go basis. The total contribution can be allocated between workers and the State budget as the government sees fit.

The level required payroll contribution to fully finance all expected expenditures over the entire period from 2018 to 2080 is equal to 15.6%. This is cost of the program on a "target funding" basis. This means if 15.6% of payroll was collected from civil servants and the government combined, it would be sufficient, together with expected investment income, to pay all plan expenses when due from 2018 through 2080.

If the plan is funded this way, the amount collected would be far more than needed in the early years of the program and less than is needed in the later years of the program. The excess contributions collected in the early years would have to be saved and invested in a pension fund so that the fund could be used to help pay expenditures in later years when collected contributions alone are expected to be insufficient. The required contribution rate as a percent of payroll is less than 15.6% through 2052 and more than 15.6% thereafter. The size of the asset accumulation in the pension fund with a contribution rate of 15.6% of covered payroll is shown in Figure 11.

Figure 11: Pension Fund Assets as % of GDP with 15.6% Payroll Contribution Rate

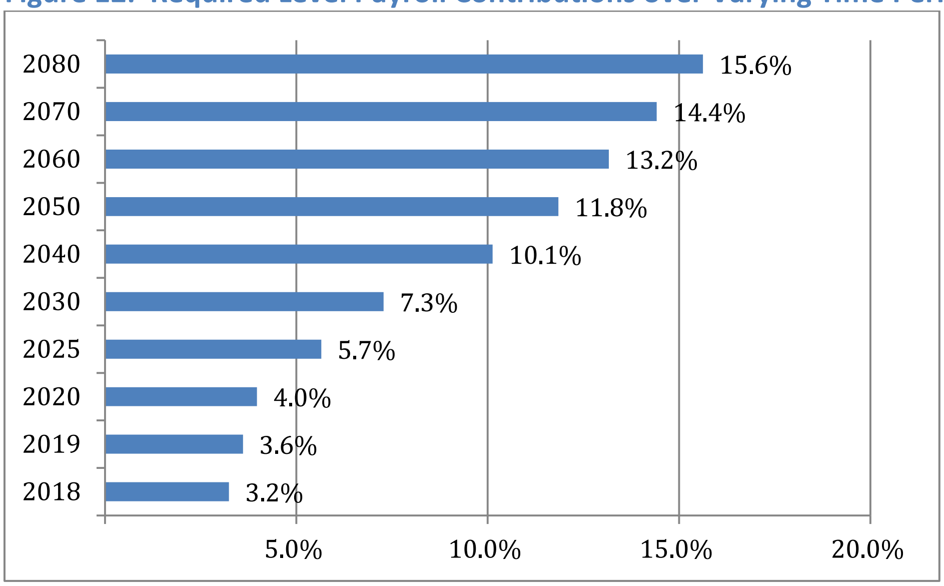


Source: Graph created by author from World Bank PROST model output

As can be seen, the amount of assets in the pension fund would accumulate to 5% of GDP by 2036 and then would be steadily liquidated thereafter. Note that the fund will run out of money at the end of the analysis period on this basis. The contribution rate of 15.6% is just sufficient to assure assets are not exhausted until 2080. This amount of money would need to be properly protected and managed in order to assure benefits could be paid to civil servants when due. The government may not wish to accumulate such a large amount of funds, as it would overwhelm the size of local capital markets and would force the government to invest most if not all of the contributions overseas as it currently does with the Petroleum Fund. On the other hand, the Petroleum Fund experience should help Timor-Leste properly manage such a pension fund.

It should be noted that there are many different funding options available to the government other pay-as-you-go or charging 15.6% of payroll from the start. For example, it could set contribution rates at a lower initial level and then increase them periodically. Figure 12 shows the level required contribution rates over varying time periods in order to fully fund the program through that date. For example, if the government wanted to keep the contribution rate level from now through 2030, the required contribution rate would be 7.3%. Of course, the contribution rate thereafter would be significantly higher and would exceed 15.6%. There are an infinite number of possible contribution patterns that the government could follow, each with their own contribution and asset accumulation patterns. However, for any patterns of payments, the present value of expected future contributions must be equal to the present value of future expenditures in order for the program to be fiscally sustainable.

Figure 12: Required Level Payroll Contributions over Varying Time Periods



Source: Graph created by author from World Bank PROST model output

6.4 Expenditures and Payroll Contributions for Alternative Plan Designs

This section shows a comparison of key financial results for all five scenarios requested by the government as outlined in Section 5 of this report.

Table 7: Plan Design Comparisons

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Contribution rate	21.5%	15.6%	10.0%	13.5%	8.1%
Expenditures as % of payroll					
2020	7.0%	4.6%	3.3%	2.8%	2.8%
2050	21.4%	15.1%	9.9%	13.7%	8.2%

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
2080	27.5%	20.5%	12.8%	18.0%	10.8%
Maximum assets as % of GDP	6.5%	5.0%	3.0%	7.5%	3.2%

Note that many key outputs will be the same for all three scenarios, since the covered group and the eligibility conditions for receipt of benefits are the same. This means the number of active members, the number of beneficiaries, and the payroll of active members will be the same in all scenarios. Similarly, the demographic and macroeconomic assumptions are the same in all scenarios. It is only the level of benefits and therefore, the level of expenditures and the required contribution rates that change.

VII. Computer Model and Assumptions

This section describes the various assumptions that we made in order to prepare the short and long-term financial projections for the civil service pension program.

7.1 Computer Model (PROST Model)

Projection models are an essential tool to analyze new and existing pension systems, systematically evaluate their financial status and examine policy reform options. Since the fiscal costs and benefit effects of pension systems are only realized over long periods of time, it is essential to use an actuarial model that systematically projects these effects over multiple generations. The analytical basis for the review of the new civil service pension scheme in this report was the use of projections prepared using version 14 of the World Bank's Pension Reform Options Simulation Toolkit (PROST) model. This model contains six input spreadsheets for inputting data, assumptions and pension program benefits. The model then produces a wide variety of output reports, graphs and charts. The World Bank maintains a dedicated team of programmers and user groups that constantly work together to maintain and update this software and provide quality assurance. Version 14 is the most recent version of this model.

7.2 Demographic Assumptions

Information on the population by age and sex in 2012 was based on the 2010 census brought forward using the PROST model to 2012. United Nations data was used for assumed mortality rates, mortality improvement and fertility. Data was available in five-year age increments from 2010 through 2080. The UN data anticipates a slow decline in fertility rates and a significant decline in mortality rates over the 70-year period. Table 8 shows the expected fertility rates in selected years. Fertility rates are the number of children that a mother is expected to have during her lifetime.

Table 8: Fertility Rates

Year	Rate
2010	5.92

Year	Rate
2030	3.73
2050	2.56
2070	2.06

Source: United Nations, 2010-2080

The expected decline in mortality rates will have a significant impact on the period of time for which pensions will be paid. Assuming a retirement age of 60, Table 9 shows life expectancy for males and females for selected years.

Table 9: Life Expectancy at Age 60

Year	Males	Females
2010	15.3	16.8
2030	16.6	18.5
2050	18.0	21.0
2070	19.6	23.1

Source: United Nations 2010-2080, and author's calculations using World Bank's PROST model

7.3 Macroeconomic Assumptions

Timor-Leste has an unusual macroeconomic environment. It is in the early stages of a transition from an oil-based to a non-oil based economy. New oil revenues are expected through 2025 only and revenues are generally expected to decline from one year to the next. In 2012, the projections of Timor-Leste's future oil revenues were reduced and the expenses of recovering that oil were increased, resulting in a significant decrease in the present value of expected future oil revenue.

The government of Timor-Leste has accumulated excess past oil revenues (those oil revenues not used to support budget expenditures) in a Petroleum Fund. The government has a formula for calculating the amount that can be withdrawn from the Petroleum Fund each year – referred to as the ESI or Estimated Sustainable Income – that will allow the Petroleum Fund to continue indefinitely. The ESI is part of the planned budget revenue for each year.

However, in recent years the government has chosen to take excess withdrawals – withdrawals in excess of the ESI – from the Petroleum Fund to support high levels of capital expenditures to develop needed infrastructure for the non-oil economy. If this pattern of high excess withdrawals continues, it is likely the Petroleum Fund will be exhausted rapidly once new oil revenues cease.

To preserve the Petroleum Fund, the government will need to hold level or reduce nominal recurring expenditures, and will need to sharply reduce capital expenditures after 2016. Recurring expenditures include salaries and wages for civil servants, goods and services and public transfers. The payments from the budget to civil servants, or the payments by the government to a civil service pension fund under this pension program will further increase already high public transfers.

The key macroeconomic variables for the pension fund projections are the inflation rate, growth rate of real non-oil GDP, projected oil revenues, the growth rate of real wages and the growth rate of the number of civil servants. The macroeconomic unit of the Ministry of Finance gave us inflation and GDP estimates from 2012 through 2050. The real wage growth assumption is based on discussions with the Civil Service Commission. These variables from 2012 through 2026 are shown in Table 10, and from 2012 through 2080 are shown in Table 10a.

Table 10: GDP, Inflation and Wage Growth (2012 – 2026)

	2012	2013	2014	2015	2016	2017	2018	2019
Non-oil GDP excl UN (nominal)	1,272.3	1,476.9	1,727.4	2,047.3	2,443.4	2,929.9	3,437.8	4,007.6
Oil GDP (150% of oil revenue)	2,648.7	2,346.9	2,115.6	2,334.9	2,394.9	2,281.5	1,810.5	1,942.5
Total GDP	3,921.0	3,823.8	3,843.0	4,382.2	4,838.3	5,211.4	5,248.3	5,950.1
Inflation	11.7%	7.6%	7.7%	7.7%	7.7%	7.7%	6.0%	6.0%
Non-oil GDP growth (real)	10.0%	10.0%	9.8%	11.4%	12.1%	12.8%	12.1%	10.9%
Total GDP growth rate (real)	-28.1%	-9.4%	-6.7%	5.9%	2.5%	0.0%	-5.0%	7.0%
Wage increase (real)	3.5%	3.5%	3.5%	3.5%	3.5%	2.5%	2.5%	2.5%
Growth rate of civil servants	2.9%	2.9%	2.9%	2.9%	2.8%	2.8%	2.8%	2.8%

	2020	2021	2022	2023	2024	2025	2026
Non-oil GDP excl UN (nominal)	4,575.5	5,156.3	5,763.3	6,402.9	7,082.2	7,829.0	8,654.2
Petroleum Revenues (oil GDP)	1,938.0	1,945.5	1,627.5	858.0	141.0	91.5	-
Total GDP	6,513.5	7,101.8	7,390.8	7,260.9	7,223.2	7,920.5	8,654.2
Inflation	5.7%	5.3%	5.0%	4.7%	4.3%	4.3%	4.3%
Non-oil GDP growth (real)	9.0%	7.5%	6.8%	6.3%	6.0%	5.8%	5.7%
Total GDP growth rate (real)	3.6%	3.5%	-0.9%	-6.1%	-4.6%	5.1%	4.7%
Wage increase (real)	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Growth rate of civil servants	2.8%	2.7%	2.7%	2.6%	2.6%	2.5%	2.5%

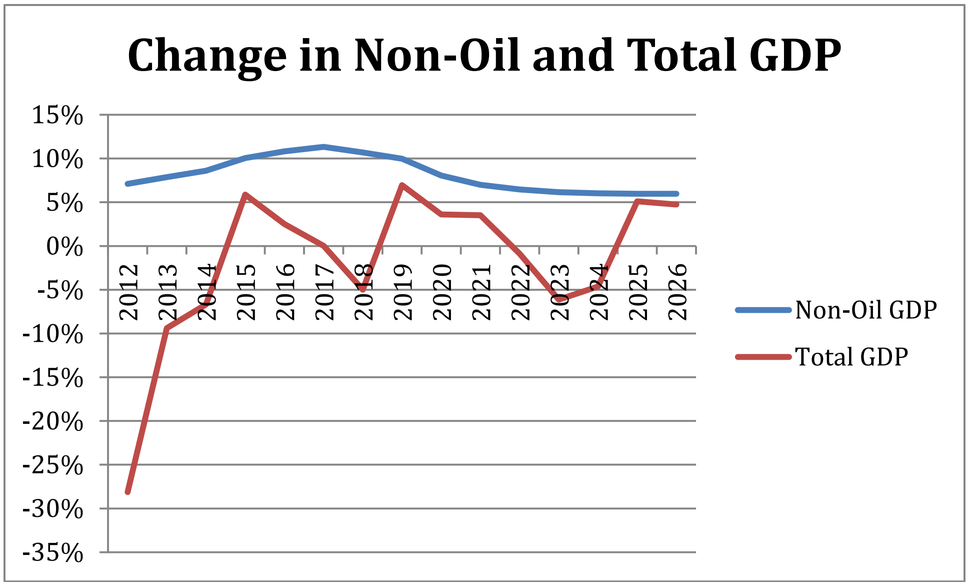
Source: Macroeconomic Directorate of MoF, CSC for real wage increase

Table 10a: GDP, Inflation and Wage Growth (2012 – 2080)

	2012	2020	2030	2040	2050	2060	2070	2080
Non-oil GDP excl UN (nominal)	1,272.3	4,575.5	12,863.0	33,520.8	98,367.2	271,638.9	629,494.2	1,357,567.0
Oil GDP (150% of oil revenue)	2,648.7	1,938.0	-	-	-	-	-	-
Total GDP	3,921.0	6,513.5	12,863.0	33,520.8	98,367.2	271,638.9	629,494.2	1,357,567.0
Inflation	11.7%	5.7%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Non-oil GDP growth (real)	10.0%	9.0%	5.9%	6.2%	7.8%	5.3%	4.0%	3.7%
Total GDP growth rate (real)	-28.1%	3.6%	5.9%	6.2%	7.8%	5.3%	4.0%	3.7%
Wage increase (real)	3.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Growth rate of civil servants	2.9%	2.8%	2.3%	1.9%	1.7%	1.3%	1.0%	.7%

GDP projections for the next 15 years are a combination of small but rapidly growing non-oil GDP combined with declining oil GDP. The net result is an erratic total GDP that varies from positive to negative and averages *negative* 2.3% real per year from 2012 to 2026 despite a 10-13% real growth rate in non-oil GDP from 2012 through 2019. Figure 13 compares the rates of increase of non-oil and total GDP from 2012 through 2026.

Figure 13: Real Growth Rate of Non-Oil and Total GDP (2012-2026)



Inflation exceeded 11% in 2011 and was estimated to be 11.7% in 2012. Thereafter, the projections from the macroeconomic unit of the Ministry of Finance show quickly declining future inflation rates. Since pension benefits are assumed to be indexed to inflation, the rate of inflation has a material impact on the expenditures of the pension program in USD. Inflation is also a component of both nominal GDP and wage increases. This variable will need to be carefully tracked and results will need to be adjusted if inflation remains in double digits.

Real wage growth together with inflation determines the rate of increase of civil servant wages. This impacts pension benefits payable to civil servants, expected expenditures on a pay-as-you-go basis and required payroll contributions on a funded basis. The real rate of increase in wages should reflect productivity improvements in the civil service and the economy, the mix of skill sets needed by government and competition for skilled labor.

The assumed growth rate of real wages was set to 2.5% per year throughout the analysis period with the exception of 2012 through 2016 when it was set at 3.5%. This assumption was set in consultation with the Civil Service Commission. Civil servants have not had an increase in pay since 2009 when the pay structure was revised. This revision primarily benefited those in higher positions. Meanwhile, inflation has average about 12% per year since that time. Consequently, a catch-up increase is needed. We were also told that the government is also trying to fill many senior positions and there is a big shortage of qualified candidates. Those with the necessary skills have many other opportunities. The expectation is that many senior positions will be filled in the next few years and salaries for those positions will be higher than planned.

4.1 Decrement Assumptions

Retirement Age: Workers are assumed to retire at the minimum retirement age (age 60) beginning in 2018. The minimum retirement age is then assumed to increase in proportion to the increase in life expectancies. This is in accordance with the pension law. Table 11 shows the assumed retirement ages used in the model.

Table 11: Assumed Retirement Ages

Retirement Age	Years
60	2018-2024
61	2025-2039
62	2040-2054
63	2055-2069
64	2070-2080

Source: Author's assumptions

We may need to modify this assumption if actual experience shows that civil servants often voluntarily choose to continue working beyond the minimum retirement age or if Timor-Leste adopts a mandatory retirement age.

Rate of Disablement: Rates of total and permanent disability were taken from the 2009 experience of the American Social Security system, for lack of a better source of data. This can be adjusted as actual experience emerges. On the one hand, rates of disablement can be expected to be higher in Timor-Leste than in America. On the other hand, the pension program only covers civil servants, and their rates of disability should be less than for the population as a whole.

We also compared results using these rates with disability incidence experience from Eastern Europe and Latin America. Using the American Social Security rates, about 0.5% of the covered population is expected to become disabled each year. Incidence rates in Latin America have been about 0.9%. Studies done by the author for mature pension systems in Armenia and Macedonia showed incidence rates of 0.4% and 0.7% respectively. Consequently, we believe these disablement rates are reasonable.

Mortality rates: Mortality rates and rates of mortality improvement were based on 2010 data from the United Nations. These tables show rapid expected improvement in mortality in Timor-Leste – about 2% per year at working ages and 1% per year at post-retirement ages. This is about double the rate of improvement in developed countries like the United States.

VIII. Conclusion and Next Steps

Timor-Leste is a very young country with a rapidly increasing population, but despite this, the cost of the civil service pension program increases over time. The increase in program costs as a percent of GDP or percent of payroll can be attributed to several factors:

- There are many older members of the civil service, who are expected to retire in 2018 when the government plans to stop salary continuation payments
- The size of the civil service will continue to increase rapidly, particularly in the early years of the program when population growth rates remain near 3%

- The number of beneficiaries is increasing more rapidly than the number of contributors, so the pension plan dependency ratio is increasing
- While non-oil GDP is expected to grow rapidly over the next 15 years due to the government's investment in infrastructure and capital, oil GDP is declining as oil fields become depleted and the cost of extracting the remaining oil increases.

In our analysis, we made a number of changes in the assumed program design of the new civil service pension program that have had a significant impact on the financial results compared with our analysis of the current civil service pension law:

- We have examined fourpotential target replacement rates for old age pensioners. These are 75%, 50%, 35% and 30%. The current law provides a 75% replacement ratio
- The full old age benefit is now earned over 35 years rather than over five to nine years as in the current law
- For scenarios 1, 2 and 3, service prior to and after independence is used while in scenarios 4 and 5, only post-independence service is counted. The current law uses service on or after independence only and requires a very short period of service to earn the maximum benefit
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- We have lowered the disability benefit to make it slightly less generous than the old age benefit. This is to discourage older workers from using disability retirement as a substitute for early retirement or unemployment insurance. The current law has equal old age and disability survivor benefits.
- We have improved the survivor benefits to recognize the nature of Timorese society today. Female labor force participation rates are 40-50% of male labor force participation rates, employment opportunities are scarce, fertility rates are very high, and women traditionally stay home to care for children. Consequently, it is not reasonable to assume that women who lose their husbands will be able to easily find jobs and enter the labor force. This means that more generous survivor benefits are needed to care for these widows, both before and after the primary breadwinner retires. The current law provides benefits only until children attain age 18 and provides only one year of benefits to spouses under retirement age and without young children.

In the next few years, the government will need to make difficult decisions about how to manage its recurring expenditures – including civil servant salaries and wages, salaries of outside consultants, amounts spent on existing public transfer programs and the transfers to participants in the civil service pension program. It will also need to decide how to manage its investments in capital and infrastructure while keeping the Petroleum Fund fiscally sustainable. The civil servant pension program will be yet one more significant challenge to be managed, whether benefits are paid directly from the budget or are financed through government and worker contributions to a civil service or national pension fund.

Once the government has decided on the design of the new civil service pension program and enacted needed legislation, the next step will be to create the necessary governance, administrative and financial framework to manage the new program. This will require the following major activities:

- Socialization: Information on plan provisions, participant rights and obligations, methods of applying for benefits, availability of retirement planning and counseling services
- Application process: Application, documents to submit with application, review and approval/rejection process, calculation of benefits, appeals process
- Establish MIS systems: Capture past and future pay, service and position information needed for determining eligibility and calculating benefits; purchase needed hardware; purchase or develop needed software
- Payment process: Set up a structure for making monthly pension payments to beneficiaries and stopping payments when eligibility ceases
- Set up a pension fund, to receive contributions from workers and the government and make payments to eligible beneficiaries
- Reporting and disclosure: Reports to plan participants, the government and Parliament
- Financial management: Accounting and financial statement preparation
- Legal management: Plan interpretation, issue regulations, receive and respond to complaints, legal actions by and against the pension plan.

This will require preparation of a detailed roadmap for program implementation, clear accountability for all activities, close interface among government Ministries and other relevant stakeholders, and assistance from development partners.

The government will also need to decide when to implement a national social security system for formal sector workers, and whether civil servants will participate in the national pension system. This issue should be carefully considered when deciding on the final benefit formula for the civil service pension system. Higher benefits will be needed if the civil service pension system will be separate from the national system and lower benefits will be needed if the civil service pension system will top-up benefits from the national social security system.

We look forward to working with the government of Timor-Leste and other development partners to assist the government with implementation of this important new program.