Document of the Inter-American Development Bank

**Jamaica**

**Support to the Public Sector Transformation Programme**

**(JA-L1073; JA-L1078)**

**Economic Analysis**

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1. **Introduction**
   1. The present document presents an ex ante economic analysis of the Support to the Public Sector Transformation Programme (JA-L1073 y JA-L1078) planned to be executed in the period 2017-2022. The methodology used was cost-benefit analysis.
   2. The main objective of this programme is to improve the delivery of public services in Jamaica through (i) enhancing the quality of transactional services; and (ii) enhancing efficiency in public spending. To meet this objective, the programme is structured as a hybrid project, with a Policy-Based Loan (PBL) and an investment loan.
   3. The total amount of the programme is US$160 million structured as follows: (i) a multi-tranche PBL of US$110 million with two tranches of US$55 million each; (ii) an Investment Loan of US$50 million to be executed over a period of 6 years. **The PBL has the following components (i) macroeconomic stability,** to maintain a stable macroeconomic framework in line with the policy matrix, **(ii) enhancing quality of public services**, to establish an adequate digital government framework for public sector transformation, enhance service delivery in prioritized sectors and strengthen the institutional capacity of the Government to implement the public sector reform and **(iii) enhancing efficiency in public spending**, to improve the efficiency of public spending both in personnel and non-personnel expenditures in the public sector. **The investment loan has two of the main components of the PBL and they finance the following activities: (i) enhancing quality of public services:** modernization of three prioritized MDAs (MLSS, MOEYI and MICAF), improve government connectivity and retraining/upskilling of civil servants, and **(ii)** e**nhancing efficiency in public spending:** the expansion of the HCMES, the implementation of shared corporate services for the public sector and compensation review.
   4. The measures in the first tranche of the PBL open up the path to critical reforms, while the policy measures of the second tranche will deepen them. The investment loan components, in turn, will finance activities which will allow the government to consolidate the new sector policies for the enhancement of quality of services and of efficiency in public spending, ensuring their full implementation and making them sustainable over time.[[1]](#footnote-1)
   5. The results and policy matrices included in the POD, show the corresponding policy triggers, activities, indicators baseline and target values.
2. **Assumptions and Methodology** 
   1. To quantify the benefits associated with the $50 million of the investment operation, the following activities were evaluated:
      1. **Improvement of government connectivity**: the lack of a Government-wide communications network and the fragmented ICT operational functions across MDAs are two of the main challenges in Jamaica. Both issues create inefficiencies in the use of resources and forces MDAs to rely heavily on their own limited capacity. Furthermore, the Government of Jamaica has created a dependency on private sector telecommunications providers which are very costly.
      2. **Improvement and modernization of the Ministry of Labour and Social Security (MLSS), specifically**: **(i) the Work Permit Section[[2]](#footnote-2)**: the lack of efficiency in granting work permits to foreigners has obstruct the entry into the country of skill workers with financial resources, hindering economic contributions and **(ii) the National Insurance Scheme (NIS)[[3]](#footnote-3):** currently the department takes on average 8-15 months to estimate the pensions retirees should receive.
   2. To quantify the benefits associated with the PBL the following activities were evaluated:
      1. **Improvement in the efficiency of personnel expenditures in the public sector through the Pension (Public Service) Act**: the IMF has specified that reforms to the public pension system are necessary for its sustainability. Full implementation of the Pension (Public Service) Act 2017 could lower cash flow costs from the current unfunded public pension system. This reform aims to include a mandatory contribution of 5 percent and increase the retirement age from 60 years to 65 years. These measures are necessary in order to improve the fiscal sustainability of the system.
      2. **Implementation of a Special Early Retirement Programme (SERP)**: the Government of Jamaica has established that a SERP is part of the development of the implementation framework for the reorganization of the public sector. The government aims to offer the SERP to the members of the Public Sector who currently are eligible to benefit from the Central Government Pensions Scheme and who are in the age range of 50 – 59 years.
   3. The calculation of the benefits derived from the activities previously mentioned are based on the following general assumptions. The specific assumptions are mentioned below
   4. The discount rate used is 12% as per IDB standard practice.
   5. The savings are projected over a period of 10 years. After this period, the benefits were not computed, although they may exist. Therefore, the quantifications presented can be interpreted as conservative.
   6. To estimate the annual benefits of the savings associated with each of the activities over a period of 10 years the following formula was applied with a discount rate of 12%.

where refers that the sum of the benefits by year and refers to the current year.

* 1. The operational costs were calculated as the present value of the expenses flow of the program. The formula used was:

where *g* is the annual expense of the current period.

1. **Benefits and economic cost results – Investment Loan**
   1. **Government connectivity.** The Government of Jamaica has invested significantly in ICT infrastructure to facilitate efficiency in operations and provision of services. Nevertheless, the benefits from these ICT investments are not being maximized.
   2. In 2014, MSTEM elaborated a report to estimate the expenditure the Government was incurring on telecommunications services given by the main service providers of the country (Digicel, LIME, Claro). The main results of the study determined that the government was spending a total sum of approximately US$8.52 million per year on services for intra government telecommunications activities. This included telecommunications services, equipment, personnel, its activities and contracts for services.
   3. Since the breakdown of this spending was not available, the following assumptions to estimate the benefits of government connectivity[[4]](#footnote-4) were used: 60% of the US$ 8.52 million were related to telecommunications services savings (US$5.1 million) of which only 50% related to fixed to fixed call spending’s; meaning that the programme would produce annual savings of US$ 2.5 million, since calls to fixed phones wouldn’t be necessary, thanks to connectivity (see table 1).

**Table 1: Annual expenditure on services for intra government**

**telecommunications activities**

|  |  |
| --- | --- |
|  | Per year  (US$ mill) |
| Intra Government telecommunications activities | **8.52** |
| Telecom – (telephone use) | **5.11** |
| Assumed expenditure on fixed phone calls | 2.56 |
| Assumed expend. on cellphone and other calls | 2.56 |
| Other services | **3.41** |

Source: Simulation of intra-government telecommunications expenditures

using sparse data (2014)

* 1. In 2017, e-Gov Jamaica estimated a cost model for a typical MDA “mini” data center. The main objective was to estimate how much the Government of Jamaica was spending on each data center in each MDA (initial investment and operational costs).
  2. Since the national budgeting does not allow accurate tracking and management of all ICT expenditure by MDA (see table 2), the following assumptions to estimate the benefits of a unique Data Center were consider[[5]](#footnote-5): the Government of Jamaica will save 40% of the operational costs only and will be able to connect 7-10 MDAs[[6]](#footnote-6). Meaning annual savings of US$0.5 million.

**Table 2: Estimated cost model for a typical government MDA "MINI” Data Center**

|  |  |
| --- | --- |
|  | US$ |
| Hardware & infrastructure Initial investment: (5-year technology refresh cycle) | |
| 5 mid-rage servers @ U$15K each | 75,000 |
| 4 switches @ U$1.5K | 6,000 |
| 1 router @ U$ 2.5K | 2,500 |
| 1 firewall @ U$ 7.5K | 7,000 |
| Networking (for 200 drops @ U$160) | 32000 |
| UPS (60 KVA) @ U$43K | 43,000 |
| Cooling (@U$ 45K) | 45,000 |
| SOFTWARE SUPPORT SYSTEMS |  |
| Office Productivity Suite (for 200 users @ U$ 270/license) | 54,000 |
| Email Server (for 200 users) | 32,000 |
| HR (U$ 30K) | 30,000 |
| Accounting (U$ 30K) | 30,000 |
| Administration (U$ 30K) | 30,000 |
| SUB TOTAL | **386,500** |
|  |  |
| Operational costs (annual recurrent) | |
| Licenses & Support (@ 25% of cost price) | 96,625 |
| Salaries & benefits | 75,000 |
| SUB TOTAL | **171,625** |
|  |  |
| Total | **558,125** |

Source: eGov Jamaica (2017) “Data Center upgrade & Govnet implementation proposal cost-benefit justification/ economic analysis”

* 1. The expected percentage growth of savings through the 10-year period analysis of both connectivity and Data Center savings are showed in table 3. The first years there is a small increase since it will take time to adjust.

**Table 3: Percentage of growth increase**

|  |  |
| --- | --- |
| Year | % of growth increase of savings in Government Connectivity |
| 1 | 0% |
| 2 | 10% |
| 3 | 20% |
| 4 | 40% |
| 5 | 60% |
| 6 | 100% |
| 7 | 100% |
| 8 | 100% |
| 9 | 100% |
| 10 | 100% |

* 1. **Work Permit Section improvement and modernization of the MLSS.**  This a high priority for the government due to the increasing demand for an efficient and effective delivery from its customers.
  2. A performance based study was requested from the MLSS to provide a comprehensive assessment of the business process at the Work Permit Department. The primary objective of this study was to provide evidence-based recommendations for improvement. The main results showed[[7]](#footnote-7) that during 2014‑2016, on average, 89% of the total applications received were processed (90% approved and 1,4% refused) and 11% were left outstanding. The estimated waiting time to receive an approved permit averaged 2 - 4 months in the best scenario (see table 4 and 5).

**Table 4: Average number of monthly processed**

**and outstanding applications**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | 2014 | 2015 | 2016\* |
| Received | 452 | 536 | 518 |
| Processed (approved/refused) | 389 | 482 | 473 |
| *Share processed (%)* | *86%* | *90%* | *91%* |
| Outstanding | 63 | 56 | 45 |
| *Share outstanding (%)* | *14%* | *10%* | *9%* |

Source: Jamaica Productivity Center (2016) “Business Process Analysis, Improvement and Reengineering of the Work Permit Department”, table 2

\*Data Base provided by the MLSS

**Table 5: Average number of approved and refused**

**applications monthly in 2016**

|  |  |  |
| --- | --- | --- |
| Year | 2016 | |
| **Number** | **Share (%)** |
| Received | 518 | 100.0% |
| Processed | 473 | 91.3% |
| Approved | 466 | 90.0% |
| Refused | 7 | 1.4% |
| Outstanding | 45 | 8.7% |

Source: Data Base provided by the MLSS

* 1. The main inefficiencies in the service provided identified by the study were: inadequate supporting documentation, the lack of ICT tools and the existence of outdated processes (mainly manual and paper-based). With the development of an electronic work permit system, the users of this service will experience a lower waiting time, less number of visits to the ministry, and less transportation costs for the issuance of the permit.
  2. Based on the previous information the quantifiable savings included in the present analysis were the following: (i) salaries (economic contributions) of foreigners will receive thanks to the decrese in outstanding and refused permits, (ii) the increase in demand of permits due to a more efficient process (mainly of entities that will stop hiring foreigners without work permits and of entities that will consider Jamaica as a country that facilitates the entry of new skills) and (iii) the decrease in associated costs (transportation costs and time) to foreigners when visiting the MLSS to process the permit[[8]](#footnote-8)
  3. To estimate these benefits the following assumptions were considered: (i) the MTSS will take time to equip the department with ICT tools, update the process and retrain the staff, therefore benefits at the beginning will be very small, the assumptions of growth rate used are showed in table 6 and (ii) an annual growth rate of 1%[[9]](#footnote-9) of the work permits received was assumed during the first years of quantifiable savings and of 2% after the 7th year of implementation of the programme[[10]](#footnote-10); the latter reflects the increase in demand of permits due to a more efficient process.
  4. The estimated average wage salary of employees requesting work permits was US$1,243 per month[[11]](#footnote-11) Therefore, the average estimated demand of received, refused and outstanding work permits was the following (see table 6).

**Table 6: Demand flow of work permits received monthly and**

**associated savings due to the loan**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Received (amount) | **507** | **512** | **517** | **522** | **528** | **533** | **544** | **554** | **565** | **577** |
| *Annual growth rate (%)* |  | *1%* | *1%* | *1%* | *1%* | *1%* | *2%* | *2%* | *2%* | *2%* |
| Processed | 452 | 456 | 461 | 465 | 470 | 475 | 484 | 494 | 504 | 514 |
| Approved | 456 | 461 | 465 | 470 | 475 | 479 | 489 | 499 | 509 | 519 |
| Refused | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 |
| Outstanding | 56 | 56 | 57 | 58 | 58 | 59 | 60 | 61 | 62 | 64 |
|  | | | | | | | | | | |
| % rate of growth increase of savings | 0% | 10% | 20% | 40% | 60% | 100% | 100% | 100% | 100% | 100% |
| Savings (unpaid salaries of refused and outstanding permits) in US$ million | 0 | 1.1 | 2.3 | 4.6 | 7.0 | 11.8 | 12.0 | 12.3 | 12.5 | 12.8 |

* 1. Regarding the decrease in costs associated of issuance of a work permit to foreigners; an estimate was included considering as benchmark the cost associated with getting a new passport estimated in the National Identification System (NIDS) for economic growth. Table 7 shows the costs.

**Table 7: Cost associated with processing /renewing a work permit**

|  |  |  |
| --- | --- | --- |
| Variable | Before project | After project |
| Number of visits to the office | 2 | 2 |
| Time spent in the MLSS office (hours) | 1 | 0.2 |
| Time spent in the picture (hours)[[12]](#footnote-12) | 0.5 | 0 |
| Average time (round trip) to get picture (hours) | 1.3 | 0 |
| average time (round trip) to MLSS office (hours) | 1.3 | 1.3 |
| Total trips (MLSS, picture store) | 4 | 2 |
| Expenditure of transportation (round trip) | 6 | 6 |
| Expenditure of picture (USD) | 2 | 0 |

Source: National Identification System (NIDS) for economic Growth

* 1. The current cost of getting a work permit is US$80.27 per person. With the programme, the cost associated would drop to US$34.2. Consequently, the unit benefit related to decreasing the transactional costs of getting a work permit were estimated at US$46,07. These benefits would apply to the demand of all received established in table 6.
  2. **NIS improvement and modernization of the MLSS.** The Government of Jamaicais very aware of the importance to develop an electronic system that will help the NIS implement a more efficient administration of pensions**.** On average, the NIS requires 8-15 months[[13]](#footnote-13) to process the information of retirees and estimate their corresponding pension. The implementation of a new electronic system will benefit the public pension scheme by improving its efficiency and transparency. This will facilitate the timely payout of pension benefits.
  3. According to the MLSS the main inefficiencies in the service provided by the NIS are: inadequate supporting documentation to create the employee history, the semi-automated systems mainly paper based and general lack of ICT tools.
  4. The quantifiable savings of the NIS included in this study were the following: (i) the annual interest rate earnings of the pension if retirees had received it on time and (ii) the decrease in associated costs when visiting the MLSS to obtain the pension.
  5. To estimate the pension, the following equation was used . The 2,2% corresponds to the accrual rate. The average domestic interest rates estimated was 1.42%[[14]](#footnote-14). The salaries of the retirees were obtained from the E-Census. Since the Pension Reform Act will increase the age of retirement to 65, employees who were 59 in 2017 will comply with the age of retirement until the 6th year of the programme, therefore the savings start in this year (see table 8).

**Table 8: Average annual salary (without allowances) of employees**

**in the age range of 50-59**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age  in 2017 | Years of service | Num. employees | Salary  2017 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 50 | 20.7 | 698 | 7,707 | 7,638 | 7,530 | 7,659 | 7,877 | 7,930 | 7,976 | 8,046 | 8,154 | 8,257 | 8,335 |
| 51 | 21.6 | 637 | 7,753 | 7,684 | 7,576 | 7,705 | 7,924 | 7,978 | 8,024 | 8,095 | 8,203 | 8,307 | 8,386 |
| 52 | 21.1 | 699 | 7,645 | 7,577 | 7,470 | 7,597 | 7,814 | 7,866 | 7,912 | 7,982 | 8,089 | 8,191 | 8,268 |
| 53 | 21.9 | 672 | 7,258 | 7,193 | 7,091 | 7,212 | 7,418 | 7,468 | 7,511 | 7,577 | 7,679 | 7,776 | 7,850 |
| 54 | 22.8 | 649 | 7,465 | 7,398 | 7,294 | 7,418 | 7,630 | 7,681 | 7,726 | 7,794 | 7,898 | 7,998 | 8,074 |
| 55 | 22.6 | 706 | 7,727 | 7,658 | 7,550 | 7,679 | 7,898 | 7,951 | 7,997 | 8,068 | 8,175 | 8,279 | 8,357 |
| 56 | 23.8 | 664 | 7,605 | 7,537 | 7,431 | 7,558 | 7,773 | 7,825 | 7,871 | 7,940 | 8,046 | 8,148 | 8,225 |
| 57 | 24.2 | 719 | 7,634 | 7,566 | 7,459 | 7,587 | 7,803 | 7,855 | 7,901 | 7,971 | 8,077 | 8,179 | 8,257 |
| 58 | 25.1 | 662 | 7,567 | 7,499 | 7,393 | 7,520 | 7,734 | 7,786 | 7,831 | 7,900 | 8,006 | 8,107 | 8,184 |
| 59 | 26.0 | 670 | 7,190 | 7,126 | 7,026 | 7,146 | 7,349 | 7,399 | 7,442 | 7,507 | 7,608 | 7,704 | 7,777 |
|  | | | | | | | | | | | | | |
| Age of retirement with Pension Act Reform approval | | | 60 | 61 | 62 | 63 | 64 | 65 | 65 | 65 | 65 | 65 | 65 |
| Total interest rate earnings of pensions (US$ thousands) | | |  |  |  |  |  |  | 49.5 | 51.9 | 57.7 | 54.7 | 59.6 |

Source: E-Census using real growth estimates based on IMF Article IV.

* 1. To estimate the associated costs (time and transportation costs) of retires visiting the MLSS to receive the pension an estimate was included. This estimate takes as benchmark the cost associated with getting a new passport estimated in the National Identification System (NIDS) for economic growth.[[15]](#footnote-15). Since, the pension process takes such a long time in comparison with a passport, the number of visits to the office was increased (from 2 to 3) and the time spent was also duplicated (from 1 to 2). The specific costs are showed in table 9.

**Table 9: Cost associated with processing /renewing a work permit**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Before project | | After project |
| Number of visits to the MLSS | 3 | 2 | |
| Time spent in the MLSS office (hours) | 2 | 0.2 | |
| average time (round trip) to MLSS office (hours) | 1.3 | 1.3 | |
| Expenditure of transportation (round trip) | 6 | 6 | |

Source: National Identification System (NIDS) for economic Growth

* 1. The estimated current cost of getting the pension was US$73.26 per person, which is very conservative considering the waiting time of retirees. With the programme, the cost associated would drop to US$22.2. Consequently, the unit benefit related to resulting transactional cost savings of getting the pension was estimated at US$51.06. The demand of this service would be the number of employees in age of retirement, shown in table 8.
  2. Table 10 shows the benefits and costs of the investment operation. These estimates are conservative since they include only the results of enhancing the quality of one MDA, and excludes the benefits of enhancing MOEYI, MICAF, the expansion of the HCMES and the implementation of shared corporate services for the public sector.

**Table 10: Cost- benefit analysis investment loan**

**(million US$)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BENEFITS** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **Investment Loan** |  |  |  |  |  |  |  |  |  |  |
| **Government connectivity** |  | **$0.3** | **$0.6** | **$1.2** | **$1.8** | **$3.1** | **$3.1** | **$3.1** | **$3.1** | **$3.1** |
| Telecommunications |  | $0.3 | $0.5 | $1.0 | $1.5 | $2.6 | $2.6 | $2.6 | $2.6 | $2.6 |
| Data center |  | $0.1 | $0.1 | $0.2 | $0.3 | $0.5 | $0.5 | $0.5 | $0.5 | $0.5 |
| **MLSS** |  | **$1.1** | **$2.3** | **$4.6** | **$7.0** | **$11.9** | **$12.1** | **$12.3** | **$12.6** | **$12.8** |
| Work permits  (Unpaid salaries outstanding) |  | 1.1 | 2.3 | 4.6 | 7.0 | 11.8 | 12.0 | 12.3 | 12.5 | 12.8 |
| Work permits  (associated costs of visiting MLSS) |  | 0.0 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| NIS (interest rate of pensions) | - | - | - | - | - | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| NIS (associated costs of visiting MLSS) | - | - | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total Savings (USD)** |  | **$1.4** | **$2.9** | **$5.9** | **$8.9** | **$14.9** | **$15.2** | **$15.4** | **$15.7** | **$15.9** |
| NPV benefits |  | $1.2 | $2.1 | $3.7 | $5.0 | $7.6 | $6.9 | $6.2 | $5.6 | $5.1 |
| **COSTS** |  |  |  |  |  |  |  |  |  |  |
| **Investment Loan** |  |  |  |  |  |  |  |  |  |  |
| **Government connectivity** | **-$1.6** | **-$1.7** | **-$2.2** | **-$2.0** | **-$1.1** | **-$1.9** |  |  |  |  |
| **MLSS** | **-$0.3** | **-$0.4** | **-$0.3** | **-$0.3** | **-$0.2** | **-$0.2** |  |  |  |  |
| **Other components** | **-$8.1** | **-$4.1** | **-$5.3** | **-$6.7** | **-$6.4** | **-$7.2** |  |  |  |  |
| Total Costs (USD) | **-$10.0** | **-$6.2** | **-$7.8** | **-$9.0** | **-$7.7** | **-$9.3** |  |  |  |  |
| Total Cash flow | -$10.0 | -$4.8 | -$4.9 | -$3.1 | $1.2 | $5.6 | $15.2 | $15.4 | $15.7 | $15.9 |
| NPV Cash flow | -$8.9 | -$3.8 | -$3.5 | -$2.0 | $0.7 | $2.9 | $6.9 | $6.2 | $5.6 | $5.1 |
| **NVP** | **$9.2** |  |  |  |  |  |  |  |  |  |
| **IRR** | **20%** |  |  |  |  |  |  |  |  |  |

* 1. Based on these estimates the investment loan is profitable, the NPV is US$9.2 million with an internal rate of return of 20% (clearing the IDB threshold of 12%).

1. **Benefits and economic cost results – PBL**
   1. **Pension Act** **implementation.** This is a very important policy for the Government of Jamaica since it will lower cash flow costs form the current unfunded public pension system. Given the age profile of public employees and that most public‑sector pension schemes are non-contributory[[16]](#footnote-16), the government has been dealing with the problem of balancing the need of providing adequate benefits for employees, while ensuring fiscal sustainability in the long term.
   2. Based on data provided by the Financial Regulations Division of the MOFPS, the savings of the pension act were estimated. Table 11 shows for the period 2014‑2017 the contributions that employees paid to contributory schemes, for the period 2018-2022 the MOFPS estimated the increase in contributions due to the new reform. The MOFPS expects that the increases in the contribution due to the Pension Act will be applied in two phases, the first one in 2018 and the second in 2020. More conservative estimates were included in this economic analysis assuming half of the expected growth rate and considering only real growth.

**Table 11: Pension expenditure and employee contribution**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Pension Expenditure (Projected)\*  (million US$) | Employee Contribution  (million US$) | Annual growth rate (%) |
| 2014 | 194.27 | 7.69 |  |
| 2015 | 207.65 | 8.28 | 7.7% |
| 2016 | 221.71 | 8.53 | 3.0% |
| 2017 | 235.77 | 8.79 | 3.0% |
| 2018 | 249.84 | 19.71 | 124.4% |
| 2019 | 263.90 | 20.30 | 3.0% |
| 2020 | 277.96 | 36.09 | 77.7% |
| 2021 | 292.02 | 37.17 | 3.0% |
| 2022 | 306.09 | 38.28 | 3.0% |

Source: MOFPS

* 1. Since the Public Sector has other pension schemes that are contributory, its assumed that the government would not incur in operational costs to implement the Pension Act.
  2. **SERP implementation.** The Government of Jamaica has established that the SERP is part of the development of the reorganization of the public sector. Specifically, the government is committed to enhance the delivery of public services and achieve a wage-to-GDP ratio of 9% by FY2018/19. The latest data from Jamaican authorities and IMF’s estimates indicate a current ratio of 9.6%. This retirement programme is a mechanism that will contribute to achieve this goal.
  3. Based on information provided by the Strategic Human Resource Management Division of the MOFPS[[17]](#footnote-17) and communications with the government, the results of this policy were estimated.
  4. Form the savings side, the implementation of the SERP would generate the following benefits: (i) annual salary of the employees accepting the retirement programme and (ii) the savings of anticipating the lump sum[[18]](#footnote-18) based on the premises that if employees retiree at the age of 65, given the real growth of salaries, the lump sum would be higher if the SERP is not implemented. To estimate these benefits the following assumptions were considered(i) due to the increase in the retirement age from 60 to 65 years with the new Pension act, employees closer to 60 years will be more willing to accept the SERP, (ii) preliminary estimations of the government assume that the take up rate of the SERP will be 30% of the total eligible population (equivalent to 2002 employees), nevertheless to be more conservative a 25% take up was considered for this analysis, (iii) employees positions that take the SERP will be left unoccupied. Only key positions will be filled to guarantee service delivery and (iv) upskilling and retraining will be implemented to help reorganize the ministries with the vacancies due to the SERP (see table 12).

**Table 12: Main variables to estimate SERP**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Age  in 2017 | Years of service | Num. employees | Acc. days of vacations | Salary  2017 (without allowances) | Take-up rate |
| 50 | 20.7 | 698 | 54 | 7,707 | 0% |
| 51 | 21.6 | 637 | 61 | 7,753 | 0% |
| 52 | 21.1 | 699 | 56 | 7,645 | 0% |
| 53 | 21.9 | 672 | 59 | 7,258 | 0% |
| 54 | 22.8 | 649 | 59 | 7,465 | 0% |
| 55 | 22.6 | 706 | 55 | 7,727 | 30% |
| 56 | 23.8 | 664 | 57 | 7,605 | 40% |
| 57 | 24.2 | 719 | 57 | 7,634 | 50% |
| 58 | 25.1 | 662 | 57 | 7,567 | 60% |
| 59 | 26.0 | 670 | 60 | 7,190 | 70% |
| Total |  | **6,776** |  |  | **25%** |
|  |  |  |  |  | **(1,703)** |

Source: E-census

* 1. The associated costs that will be financed by the PBL are: (i) accumulated vacations of the employees taking the SERP, (ii) additional incentive for employees’ to take the SERP, (iii) lump sum (iv) pension cost associated with advancing the pension payments and (v) associated costs to be able to process the pensions of the employees taking the SERP, the MOFS estimates one-time costs of US$137 thousand dollars. To guarantee service delivery a percentage of the savings where included as a cost in case salaries of key positions must be paid.
  2. Table 13 details the formula and definitions used to estimate each benefit and cost:

**Table 13: Definitions and formulas of main costs and benefits**

|  |  |
| --- | --- |
| Total savings (TS) |  |
| Full pension (FP) | The accrual rate is 2.2% per worked year. |
| Reduced pension (RP) |  |
| Lump Sum (LS) | Lump sum is equivalent to 25% of the full pension multiplied by 12.5 years. |
| Key positions, replacements | To guarantee service delivery 15% of the total savings (TS) will be used to for crucial positions.[[19]](#footnote-20) The replacement cost in year 0 will equal cero. For year 1 they are estimated as 1/3 of the total replacements, meaning they will use 5% of the 15%, for year 2 2/3 of the total replacements will be hired (10% of the 15%) and for year 3 all replacements will be hired (15%). |
| Additional incentive | 2 weeks per worked year |

* 1. Based on this information the estimated benefits of the PBL are shown on table 14:

**Table 14: Cost- benefit analysis PBL**

**(million US$)**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BENEFITS** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **PBL** |  |  |  |  |  |  |  |  |  |  |  |
| Pensions Act |  | $6.2 | $6.1 | $13.9 | $13.7 | $13.5 | $13.3 | $13.2 | $13.0 | $12.8 | $12.6 |
| SERP |  | $14.6 | $14.4 | $14.6 | $15.0 | $15.1 | $22.8 | $22.2 | $21.9 | $21.3 | $21.6 |
| Total Savings (USD) |  | $20.7 | $20.5 | $28.5 | $28.8 | $28.7 | $36.2 | $35.4 | $34.9 | $34.1 | $34.2 |
| NPV benefits |  | $18.5 | $16.3 | $20.3 | $18.3 | $16.3 | $18.3 | $16.0 | $14.1 | $12.3 | $11.0 |
| **COSTS** |  |  |  |  |  |  |  |  |  |  |  |
| **SERP** |  |  |  |  |  |  |  |  |  |  |  |
| Vacations | -$2.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 |
| Incentive | -$10.6 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 |
| Lump sum | -$21.6 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 | $0.0 |
| Pension costs | $0.0 | -$5.2 | -$5.1 | -$5.1 | -$5.2 | -$5.3 | -$3.5 | -$1.9 | -$0.4 | $0.0 | $0.0 |
| Key positions, replacements | $0.0 | -$0.6 | -$1.2 | -$1.9 | -$2.0 | -$2.0 | -$2.0 | -$2.0 | -$2.0 | -$2.1 | -$2.1 |
| Implementation costs | -$0.1 |  |  |  |  |  |  |  |  |  |  |
| Upskilling/ Retraining |  | -$0.1 | -$0.4 | -$0.4 | -$1.5 | -$1.2 | -$0.4 |  |  |  |  |
| Total Costs (USD) | -$34.4 | -$5.9 | -$6.8 | -$7.4 | -$8.7 | -$8.4 | -$5.9 | -$3.9 | -$2.4 | -$2.1 | -$2.1 |
| Total Cash flow | -$34.4 | $14.8 | $13.7 | $21.2 | $20.1 | $20.2 | $30.3 | $31.5 | $32.5 | $32.1 | $32.1 |
| NPV Cash flow | -$34.4 | $13.3 | $10.9 | $15.1 | $12.8 | $11.5 | $15.4 | $14.2 | $13.1 | $11.6 | $10.3 |
| NVP | $83.6 |  |  |  |  |  |  |  |  |  |  |
| IRR | 52% |  |  |  |  |  |  |  |  |  |  |

* 1. Table 14 shows that based on these estimates two of the reforms financed with the PBL would be profitable, the NPV is US$83.6 million with an internal rate of return of 52% (clearing the IDB threshold of 12%).

1. **Results, sensitivity analysis and discussion** 
   1. A sensitivity analysis was estimated for both the loan and the PBL operations. The main variables of the analysis are (i) the growth rate of the savings over time in government connectivity (table 3) and (ii) the growth rate of the savings of the salaries foreigners will receive thanks to the decrease in outstanding and refused work permits (table 8). Specifically, (i) for the conservative scenario, the benefits were calculated considering a 10% less growth rate for each year, for both the government connectivity and work permits and (ii) for the optimistic scenario, the benefits were calculated considering a 10% more growth rate for each year for both the government connectivity and work permits (see table 15).

**Table 15: Sensitivity analysis - Investment loan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | NPV Cost  (US$ million) | NPV Savings  (US$ million) | Net Present Value (US$ million) | IRR |
| Scenario 1 - Base | US$34.2 | US$43.4 | US$9.2 | 20% |
| Scenario 2 - Conservative | US$34.2 | US$39.5 | US$5.2 | 16% |
| Scenario 3 - Optimistic | US$34.2 | US$47.4 | US$13.1 | 24% |

* 1. In the three scenarios, the net present value is positive and IRR is greater than 12%. Therefor the present economic analysis shows the investment is profitable.
  2. For the PBL the two main variables for the sensitivity analysis were the savings from the pension act and the take up of the SERP. The conservative scenario considers (i) only 30% of the estimates from MOFPS regarding employee’s contribution and (ii) a take up of 20% of the SERP. The optimistic scenario considers (i) 80% of the estimates from MOFPS regarding employee’s contribution and (ii) a take up of 30% of SERP (see table 16).

**Table 16: Sensitivity analysis - PBL**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | NPV Cost  (US$ million) | NPV Savings  (US$ million) | Net Present Value (US$ million) | IRR |
| Scenario 1 - Base | US$67 | US$161 | US$83.6 | 52% |
| Scenario 2 - Conservative | US$54 | US$110 | US$50 | 43% |
| Scenario 3 - Optimistic | US$81 | US$202 | US$108.2 | 55% |

* 1. In the three scenarios, the net present value is positive and IRR is greater than 12%. Therefor the present economic analysis shows the investment is profitable.

1. The investment activities are expected to be executed during six years. [↑](#footnote-ref-1)
2. The Work Permit Section is responsible of granting work permits and exemptions, based on the requirements of the Foreign Nationals and Commonwealth Citizens (Employment) Act as well as the CARICOM Community (Free Movement of Skilled Persons) Act 1997 [↑](#footnote-ref-2)
3. The NIS is the compulsory contributory funded social security scheme, which offers financial protection to the worker and his family against loss of income arising from injury on job, incapacity, retirement, and death of the insured. [↑](#footnote-ref-3)
4. These assumptions were established upon experts’ judgements [↑](#footnote-ref-4)
5. The project will work with eGov Jamaica to extend and create a network connecting their data center to all MDAs in KMA through fiber optics, creating a redundant, reliable, connectivity network across the government, which as well is more resilient to natural disasters [↑](#footnote-ref-5)
6. The investment loan has estimated US$ 4million for Data Center and since the estimate to connect 1 Data Center is US$524 thousand, only 7 will get connected. [↑](#footnote-ref-6)
7. Jamaica Productivity Center (2016) Business Process Analysis, Improvement and Reengineering of the Work Permit Department [↑](#footnote-ref-7)
8. Since information of transactional costs was not available an estimate was included considering as benchmark the cost associated with getting a new passport estimated in the National Identification System (NIDS) for economic growth

   <http://www.iadb.org/en/projects/project-description-title,1303.html?id=JA-L1072> [↑](#footnote-ref-8)
9. Based on the information of 2014-2016 of the MLSS the average annual growth rate was 7.5%, to be conservative the growth was determined as less than the half of this number [↑](#footnote-ref-9)
10. After the service is improved it is assumed that the demand of work permits will increase, since employers will be more willing to issue work permits and stop working under informality and new businesses will be attracted. [↑](#footnote-ref-10)
11. According to the Labor Force Survey of Jamaica the average salary per hour is US$7.40. The amount of hours per month is assumed to be 168 [↑](#footnote-ref-11)
12. A Work Permit is a document (card) bearing a number and photograph. [↑](#footnote-ref-12)
13. Source of information: staff from the NIS, MLSS. [↑](#footnote-ref-13)
14. <http://boj.org.jm/statistics/econdata/stats_list.php?type=5> [↑](#footnote-ref-14)
15. An estimate was included considering as benchmark the cost associated with getting a new passport estimated in the [National Identification System (NIDS) for Economic Growth](http://www.iadb.org/en/projects/project-description-title,1303.html?id=JA-L1072). [↑](#footnote-ref-15)
16. Members of the police force currently contribute 1.7% of their salary toward their pensions. Parish Councilors and Parliamentarians contribute 6% towards their pensions. Some civil servants currently contribute 4% of their salary to the Family Benefit Scheme. [↑](#footnote-ref-16)
17. The information provided was the E-Census which details regarding wages of the Central Government in the age range 50 - 59 years. [↑](#footnote-ref-17)
18. Under the current pension regulation, employees have two options of payment when applying for either normal retirement or early retirement: (i) full pension or (ii) lump sum plus a reduced pension. The lump sum or gratuity is equivalent to 25% of the full pension benefit. The payment of the lump sum triggers a reduced pension (75% compared to full pension) for 12.5 years, after that period the full pension is restored. In the new Pension act scheme the restoration after 12.5 years is eliminated. According to the Government of Jamaica, all employees choose the lump sum plus a reduce pension [↑](#footnote-ref-18)
19. Since salaries of new rehires are much lower than employees close to retirement the 15% of allowances was not included in this estimate. [↑](#footnote-ref-20)