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**JAMAICA**

**Fiscal Structural Programme for Economic Growth II**

**(JA-L1051)**

**monitoring and evaluation plan**

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| --- | --- |
| **Abbreviations** | |
| FFF | Flexible Financing Facility |
| GDP | Gross Domestic Product |
| GOJ | Government of Jamaica |
| ICT | Information and Communication Technology |
| IDB | Inter-American Development Bank |
| IMA | Independent Macroeconomic Assessment |
| IMF | International Monetary Fund |
| M&E | Monitoring and Evaluation |
| MOF | Ministry of Finance |
| PBL | Policy Based Loan |
| PC | Project Coordinator |
| PMR | Progress Monitoring Report |
| TAJ | Tax Administration of Jamaica |
| XPMR | Extended Progress Monitoring Report |
| TC | Technical Cooperation |

**Fiscal Structural Programme for Economic Growth I**

**(JA-L1051)**

**monitoring and evaluation plan**

1. INTRODUCTION
   1. The programme’s objective is to support the Government of Jamaica’s efforts to achieve a sustainable fiscal path. This will be accomplished through: (i) reducing tax distortions which hinder private investment, employment and competitiveness; (ii) strengthening revenue collection through broadening tax bases and reducing tax rates while enhancing tax and customs administration effectiveness and facilitate trade; (iii) enhancing the control over budgetary expenditure; (iv) improving the fiscal sustainability of the National Insurance Scheme (NIS); and (v) strengthening the Fiscal Responsibility Framework (FRF). The components of the programme are: I. Macroeconomic stability; II. Strengthening tax policy and administration; III. Rationalisation of expenditure; IV. Ensuring Fiscal Sustainability of the NIS, and V. Strengthening the Fiscal Responsibility Framework.
   2. The programme is structured as a Policy Based Loan under the Programmatic approach (PBP) with three operations. This is the second operation of the PBP series that will disburse US$100 million in a single tranche. The third operation, tentatively for US$80 million, is scheduled for Board approval in 2016.
   3. The main Program expected impact and results are:

Table 1.2: Impact and Outcomes of the Programme

|  | **Baseline FY 2012/13** | **Interim**  **FY 2015/16** | **Target**  **FY2016/17** |
| --- | --- | --- | --- |
| **Impact** | | | |
| 1. Public sector balance (as % of GDP) | -4.1 | -0.3 | 1.4 |
| **Outcomes** | | | |
| 1. Increase Tax revenue (as % of GDP) | 23.1 | 23.9 | 25.5 |
| 2. Decrease Non-agriculture and agriculture imports tariffs | 40 | 30 | 20 |
| 3. Decrease CIT rate for unregulated companies reduced. | 30 | 25 | 25 |
| 4. Increase annual audits performed by (LTO and MTO) | 8 and 100 | 20 and 122 | 61 and 200 |
| 5. Increase Taxpayers using e-filling as a % of LTO and MTO taxpayers (32,000) | 5 | 73 | 100 |
| 6. Decrease annual central government’s sector wage bill | 11 | 10.2 | 9.0 |
| 7. Increase % of Self-financing PBs with financial statements on time (number) | 44 | 60 | 88 |
| 8. Increase the % of Non-self-financing PBs with financial statements on time (percent) | 14 | 70 | 80 |
| 9. Decrease the Actuarial Deficit of the NIF (% of GDP) | 29 | 20 | 18% |
| 10. Decrease Average time for pension claims processing (in months) | 12 | 8 | 4 |
| 11. Decrease Primary expenditure (as % of GDP) | 20.3 | 19.1 | 18.6 |

* 1. This monitoring and evaluation (M&E) plan presents: (i) key monitoring tools; (ii) the evaluation methodology chosen for assessing medium and long-term impacts; and (iii) responsibilities.

1. MONITORING
   1. **Indicators**
   2. The Results Matrix contains the program’s indicators. Program indicators have been selected to represent the essential activities within the project scope and are in line with the principles of SMART[[1]](#footnote-1) indicators. In order to evaluate effective operations of the project, the M&E Plan will include indicators related to achievement of performance targets, outputs and outcomes.
   3. The indicators to monitor program performance and achievements will be related to the following outcomes: (i) Support macroeconomic stability; (ii) Strengthen tax revenues; (iii) Quality of expenditure; (iv) Improve the Fiscal Sustainability of the National Insurance Scheme (NIS); and (v) Strengthening of the Fiscal Responsibility Framework (FRF).

**Table 1 – Impact and Results**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Indicators** | **Unit** | **Baseline**  FY 2012/13 | FY 2013/14 | FY  2014/15 | FY  2015/16 | | **Goals**  FY 2016/17 | | **Means of verification** | | **Observations** |
| **Impact: Increased public sector balance** | | | | | | | | | | | |
| (Total revenue – Total expenditure) / Nominal GDP | % of GDP | (4.1) | (-06) | (0.7) | (0.3) | | 1.4 | | Annual Financial Report prepared by the Ministry of Finance (MoF) | | Source: IMF 5th Review of the EFF (September 2014) |
| **\* GDP (`Billion $JD)** |  | **1,340** | **1,460** | **1,601** | **1,756** | | **1,935** | |  | |  |
| **Result 1: Increased tax revenue** | | | | | | | | | | | |
| Tax revenue / Nominal GDP | % of the GDP | 23.1 | 24.8 | 24.1 | | 23.9 | | 25.5 | | Tax Administration of Jamaica (TAJ) annual report | Tax reform represents 0.99% (see economic evaluation) – Component II |
| **Result 2: Decrease Non-agriculture and agriculture imports tariffs** | | | | | | | | | | | |
| Tariff on import | Tariff | 40 | - | - | | 30 | | 20 | | Annual Financial Report prepared by the Ministry of Finance (MoF) including Unregulated companies balance annexes | Corporate Income Tax (CIT) - Component II (tax policy) |
| **Result 3: Decrease CIT rate for unregulated companies reduced.** | | | | | | | | | | | |
| CIT rate | rate | 30 | - | - | | 25 | | 25 | | Ministry of Finance annual Financial Report including Unregulated companies balance annexes | Corporate Income Tax (CIT) – Component II (tax policy) |
| **Result 4: Increase annual audits performed by (LTO and MTO)** | | | | | | | | | | | |
| Audits Performed | Quantity LTO | 8 | - | - | | 20 | | 61 | | TAJ Annual Performance Report | Component II (tax administration) |
| Quantity MTO | 100 | - | - | | 122 | | 200 | |
| **Result 5. Increase Taxpayers using e-filling as a % of LTO and MTO taxpayers** | | | | | | | | | | | |
| Taxpayers filling/total taxpayers | % | 5 |  |  | | 73 | | 199 | | TAJ Annual Performance Report | Component II (tax administration)  32,000 taxpayers |
| **Result 6: Decrease annual central government’s sector wage bill** | | | | | | | | | | | |
| Wage bill / Nominal GDP. | % of GDP | 11.0 | 10.8 | - | | 10.2 | | 9.0 | | Ministry of Finance annual Financial Report | Central government’s wage bill is the total amount paid by the government on all subjects related to central government public servants’ salaries and pensions. Component III. |
| **Result 7. Increase the % of Self-financing PBs with financial statements on time (percent of total SF PBs)** | | | | | | | | | | | |
| Self-financing PBs with statement on time / Total Self-financing PBs | % | 44 | 50 | 55 | | 60 | | 88 | | Public Entities Division (PED) annual performance report | 90 self-financing PBs  Component III |
| **Result 8. Increase the % of Non-Self-financing PBs with financial statements on time (percent of total NSF PBs)** | | | | | | | | | | | |
| Non-Self-financing PBs with statement on time / Total Non-self-financing PBs | % | 14 | 30 | 50 | | 70 | | 80 | | Public Entities Division (PED) annual performance report | 105 – Non-self-financing PBs  Component III |
| **Result 9. Decrease the Actuarial Deficit of the NIF (% of GDP)** | | | | | | | | | | | |
| Actuarial Deficit | % GDP | 29 | - | - | | 20 | | 18 | | NIF annual financial report | Component IV |
| **Result 10. Decrease Average time for pension claims processing** | | | | | | | | | | | |
| Average time claims processing | months | 12 | 10 | - | | 8 | | 4 | | NIF annual performance report | Component IV |
| **Result 11: Decrease Primary expenditure** | | | | | | | | | | | |
| Primary Expenditure / Nominal GDP. | % of the GDP | 20.3 | 20.3 | 19.5 | | 19.1 | | 18.6 | | Annual Financial Report prepared by the Ministry of Finance (MoF) | As a result of the implementation of fiscal rules – component V |

* 1. **Data Collection and Instruments**
  2. The MOF has put in place a Program Manager, who is responsible for the coordination and management of the implementation of the program. The Program Manager is responsible for collecting this information and documentation on the part of the MOF. The Program Manager coordinates activities within the Ministry of Finance, via the Joint working group, which has been established to coordinate relations with multilateral institutions.
  3. The data on the outcome indicator target relating to the public sector balance will be provided by the MOF through the Treasury/MOF. The indicators related to increased tax revenue will be provided by the MOF through the Tax Administration of Jamaica and the Jamaica Customs Administration official reports. Indicators related to quality expenditure will be provided by the MOF trough the Treasury and the Public Entities Division (PED). Indicators related to National Insurance Scheme will be provided by NIS.
  4. For data collection, it will be necessary to identify all sources/ systems and responsible parties where the information will be collected from, in order to create a direct link with the corresponding organizations’ supervisors, through the creation of institutional mechanisms, to easily collect the information in waves or periodically according to the chronogram described in table 2. In the case of the taxes and Large and Medium Taxpayers, the information will be provided by the specific divisions of Tax Administration Jamaica (TAJ) in charge of the respective five main taxes included in the Program result matrix. The Public Enterprises Division (PED) will be the link to collect information about the Public Bodies and the National Insurance Scheme will collect information about the actuarial deficit of the National Insurance Fund. The Department of Statistics of the Ministry of Education will be the source of information about the pension claims.
  5. The information will be registered in a spreadsheet model, comprising all the information periodically collected and all corresponding indicators presented in the results matrix; which will record the timeliness of the indicators’ progress. The information will be consolidated yearly and evaluations comparing the progress achieved against targets will be carried out, including explanations every time distortions occur.
  6. Additionally, on a quarterly basis, the Program Manager will carry out interviews with the responsible parties to review the information collection and to evaluate targets highlighting deviations and possible actions to mitigate the deviations. Finally, surveys of the main stakeholders will be carried out, especially for the Large and Medium taxpayers as well as the Public Bodies, in order to evaluate the impacts of the Program’s policies on these stakeholders.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 2: Data Collection Activities and Timetable** | | | | | | | | | | | | | |
| **Activities/Periodicity** | **2014** | | | | **2015** | | | | **2016** | | | | **Responsibility / Budget** |
| **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** |
| 1. Identification of the sources /systems / responsible parties where the information will be collected from | **x** |  |  |  |  |  |  |  |  |  |  |  | MOF Program Manager – US$ 15,000 |
| 1. Preparation of the spreadsheets controls to consolidate and evaluate the information | **x** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Gathering Tax collection information (waves) |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.1 GCT - General Consumption Tax | **x** | **x** | **x** | **x** | **x** | **X** | **x** | **x** | **x** | **x** | **x** | **x** |
| 2.2 Minimum Business Income Tax | **x** | **x** | **x** | **x** | **x** | **X** | **x** | **x** | **x** | **x** | **x** | **x** |
| 2.3 Tax Allowance |  | **x** |  | **x** |  | **X** |  | **x** |  | **x** |  | **x** |
| 2.4 Tax Expenditure Budget | **x** | **x** | **x** | **x** | **x** | **X** | **x** | **x** | **x** | **x** | **x** | **x** |
| 2.5 CIT - Corporate Income Tax |  | **x** |  | **x** |  | **X** |  | **x** |  | **x** |  | **x** |
| 1. Auditing the Medium and Large Taxpayers |  |  |  | **x** |  |  |  | **x** |  |  |  | **x** |
| 1. Auditing the Public Bodies of the MoF |  | **x** |  | **x** |  | **X** |  | **x** |  | **x** |  | **x** |
| 1. Collecting the information from Actuarial deficit of the National Insurance Fund (NIF) |  | **x** |  | **x** |  | **X** |  | **x** |  | **x** |  |  |
| 1. Collecting the information from pension claims processing |  | **x** |  | **x** |  | **X** |  | **x** |  | **x** |  | **x** |
| 1. Consolidating the information for evaluation |  |  |  | **x** |  |  |  | **x** |  |  |  | **x** |
| 1. Interviews with the responsible parties for the information |  | **x** |  | **x** |  | **X** |  | **x** |  | **x** |  | **x** |
| 1. Interviews / surveys with key stakeholders |  |  |  | **x** |  |  |  | **x** |  |  |  | **x** |

* 1. **Reporting Monitoring Results.**
  2. The IDB has several monitoring systems in place, including the Progress Monitoring Report (PMR) and Loan Management System (LMS). These monitoring systems cover two aspects of program execution: fiduciary and technical. Since this is operation is a Policy-based loan (PBL), no procurement and financial management issues will be monitored. The technical aspects will focus on the attainment of project outcomes and outputs indicators. The results will be published in accordance with Table 1.
  3. **Monitoring Coordination, Work Plan and Budget.**
  4. The program will be monitored by the Government of Jamaica (GOJ), through the Ministry of Finance (MOF), with technical support from the project team. The MOF and the project team will hold semiannual meetings in order to review the progress achieved in implementing the Program and on the fulfillment of the conditions defined as triggers for the subsequent operations, as reflected in the Policy Matrix. For these meetings, the Borrower will furnish, prior to each meeting, information and documentation requested by the Bank regarding the advancement of the program. The meetings will focus on: verifying the degree of compliance with the indicators for the program and its components, as indicated in the Results Matrix; taking stock of the successes and shortcomings of program design and execution and its effectiveness in working toward the country’s development objectives; and recommending corrective or monitoring measures for the second and third operations of the programmatic series.
  5. IDB staff will host video-conferences at least twice a year until the end of the series and travel to Jamaica at least twice to gather information for the monitoring plan. The first trip is estimated for late 2014 and the second in late 2015/ early 2016.
  6. It is estimated that a budget of US$30,000 will be needed to cover the travel of IDB Staff to Jamaica. This will include two trips of two specialists.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 3: Monitoring Work Plan | | | | | | | | |
| Key Monitoring Activities / Products Per Activity | 2014 | 2014 | 2014 | 2014 | 2016 | Responsible Entity | Cost | Budget |
| Monitoring of the Compliance of the Conditions of the Policy Matrix and Triggers | Policy Matrix  Results Matrix  Means of Verification | Progress Reports | Progress Reports  Policy Matrix  Results Matrix  of 2nd Programmatic Loan | Progress Reports | Policy Matrix  Results Matrix of 3rd Programmatic Loan | MOF Program Manager  IDB Project Team | US $30,000 (three missions of two staff members at US $5,000 each) | US$30,000 |

1. EVALUATION
   1. The main objective of the evaluation plan is to determine whether the interventions and policy reforms supported by the program contributed to the expected impact and outcomes. Result indicators for each program component are included in the results matrix.
   2. **Main Evaluation Question(s).**
   3. The following questions will be used by the consultant and the project team to guide the evaluation process of the activities supported by the program.
2. Did the policy reform increased public sector balance promoting fiscal sustainability? Is the average balance of the last 3 years positive and the forecast for the next 3 years maintains the same scenario?
3. Did the policy reforms improve the quality of the tax system and tax administration? The reform introduced taxes and tariffs caps standards according to international best practices (IMF, WB, IDB, and OECD).
4. Did the program improve the efficiency in the execution of tax (TAJ) and customs (JCA) administration? The periodicity of the audits are being carried out according to international best practices (IMF, WB, IDB, and OECD)? (All LTO are audited/inspected at least once a year)
5. Did the program improve the quality of public expenditure? Is the % of the budget dedicated to the Wage Bill compatible with the international best practices or with best practices in the region?
6. Did the program improve the monitoring of the Public Bodies? Are all self-financing and Non-self-financing PBs reporting their financial statements within a period compatible with the data being included in the Central Government Annual Statement?
7. Did the program improve the quality of the National Insurance Scheme (NIS)? Was the NIS deficit solved and did the fund reach actuarially sustainability?
8. Did the program improve the Fiscal Responsibility Framework environment? The average of the 3 last years presented a primary surplus and does the forecast for the next 3 years present the same scenario?
   1. **Existing Knowledge (previous evaluations, ex ante economic analysis).**
   2. For the purpose of conducting the evaluation, the consultant will conduct interview with relevant stakeholders, apply surveys to target groups, and use previous assessments as reference material. Specifically, the consultant will review the Memorandum of Economic and Financial Policies (MEFP - IMF 2013), the Jamaica Report on Public Expenditure and Financial Accountability (PEFA 2013), the Jamaica Tax Policy, the Tax Administration and Customs Reforms (IDB 2013), and the Project Completion Report on the Jamaica Fiscal Consolidation Program, 2014 (IDBDOCS-#38968447-v1).
   3. **Key outcome indicators.**
   4. The key outcome indicators as well as their frequency of measurement and source are described in the results matrix (see Table 1 above).
   5. **Evaluation Methodology.**
   6. The Borrower and the Project Team agree that the most appropriate evaluation for this programmatic series, comprised by three Policy Based Loans (PBL), is the method of *reflective evaluation*. (See Annex I)This type of evaluation is recommended for programs that involve complex, long-term reforms as they capture not only quantitative, but also qualitative changes. This will provide critical information regarding what works and doesn’t work, as well as lessons learned that will be useful for future projects. This evaluation methodology will try to establish how successful the program was by thinking about the answers to the questions the program’s stakeholders ask themselves. The additionality of this type of evaluation methodology is that the ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan. To support the evaluation, a spreadsheet model will be developed comprising all indicators presented in the result matrix, as well as their corresponding progress, data collection and activities are detailed in paragraphs 2.3-2.7 and Table 2.
   7. Additionally, an *ex-post* financial evaluation to compare the estimated financial benefits with the benefits generated by the implementation of the policy actions will be carried out. In this regard, a similar financial evaluation will be carried out using the same methodology performed for the ex-ante evaluation. The estimated and the achieved benefits will be compared based on the following criteria:
      * 1. Year in which the benefits started occurring vs. year estimated.
        2. Amount generated by the benefits vs. amount estimated.
        3. Benefits Net Present Value (NPV) vs. NPV estimated
        4. Benefits Internal Rate of Return (IRR) vs. IRR estimated
        5. Benefits Accumulated Net Present Value (ANPV) vs. ANPV estimated compared to total investmen
   8. Finally, at the end of the 3 programmatic phases, an Impact Evaluation will be carried out to assure that the policies introduced were effective.

**Impact Evaluation Methodology**

* 1. Impact evaluation assesses the changes that can be attributed to a particular intervention, such as a tax reform, both the intended ones, as well as ideally the unintended ones. Impact evaluation is structured to answer the question: how would outcomes such as participants’ wellbeing have changed if the intervention had not been undertaken? This involves counterfactual analysis, that is, a comparison between what actually happened and what would have happened in the absence of the intervention. Impact evaluations seek to answer cause-and-effect questions. (See Annex II)
  2. Impact evaluation designs are identified by the type of methods used to generate the counterfactual and can be broadly classified into three categories – experimental, quasi-experimental and non-experimental designs – that vary in feasibility, cost, and involvement during design or after implementation phase of the intervention, and degree of selection bias. White (2006) and Ravallion (2008) discuss alternate Impact Evaluation approaches.

Experimental design

* 1. Under experimental design evaluations the treatment and comparison groups are selected randomly and isolated both from the intervention, as well as any interventions that may affect the outcome of interest. These evaluation designs are referred to as randomized control trials (RCTs). In experimental evaluations the comparison group is called a control group.
  2. Experimental design evaluations might not be practicable in the realm of social policy and may be ethically difficult to defend, although there may be opportunities to use natural experiments. Bamberger and White (2007) highlight some of the limitations to applying RCTs to development interventions.

Quasi-experimental design

* 1. Quasi-experimental approaches can remove bias arising from selection on observables and, where panel data are available, time invariant unobservables. Quasi-experimental methods include matching, differencing, instrumental variables and the pipeline approach; they are usually carried out by multivariate regression analysis.
  2. The pipeline approach uses beneficiaries already chosen to participate in a project at a later stage as the comparison group. The assumption is that as they have been selected to receive the intervention in the future they are similar to the treatment group, and therefore comparable in terms of outcome variables of interest. However, in practice, it cannot be guaranteed that treatment and comparison groups are comparable and some method of matching will need to be applied to verify comparability.
  3. As in the case of experimental design evaluations, quasi-experimental designs might not be practicable in the realm of social policy or tax policy reforms.

Non-experimental design

* 1. Non-experimental impact evaluations are so-called because they do not involve a comparison group that does not have access to the intervention. The method used in non-experimental evaluation is to compare intervention groups before and after implementation of the intervention. Intervention interrupted time-series (ITS) evaluations require multiple data points on treated individuals before and after the intervention, while before versus after (or pre-test post-test) designs simply require a single data point before and after. Post-test analyses include data after the intervention from the intervention group only.
  2. Non-experimental designs are the weakest evaluation design, because to show a causal relationship between intervention and outcomes convincingly, the evaluation must demonstrate that any likely alternate explanations for the outcomes are irrelevant. However, there remain applications in which this design is relevant, for example, in calculating time-savings from an intervention which improves access to amenities. In addition, there may be cases where non-experimental designs are the only feasible impact evaluation design, such as universally implemented programmes or national policy reforms in which no isolated comparison groups are likely to exist.

Proposed Methodology

* 1. The proposed methodology for the impact evaluation of the Jamaica Tax Reform belongs to the non-experimental design category. It consists of the implementation of a Dynamic Computable General Equilibrium Model that reproduces the historical data for the period 2011 – 2015 and the definition of alternative scenarios that describe the behaviour of the Jamaican economy without the tax policy measures that are part of the tax reform.
  2. The alternative scenarios define the counterfactuals of each of the tax policy measures defined in the tax reform. The simulation results of each of the alternative scenarios will be compared to the Baseline scenario. The Baseline scenario will be obtained by adjusting each of the behavioural equation of the DCGEM with “add-factors” to reproduce exactly the historical values for the period 2011 – 2015. Add factors are correction terms added to the intersect variable of each of the econometric equations of the model in order to reproduce without error the historical values for the time period under analysis.
  3. The estimation of the add factors constitutes the “calibration” of the model to obtain the Baseline scenario of the DCGEM that will be used to compare the alternative scenarios or counterfactuals of each of the tax policy measures of the tax reform.
  4. A description of the DCGEM for Jamaica is presented in the next section. Dynamic Computable General Equilibrium (DCGEM) models are a class of economic models that use actual economic data to estimate how an economy might react to changes in policy, technology or other external factors. A DCGE model consists of: (i) equations describing model variables; and (ii) a database (usually very detailed) consistent with the model equations. The equations tend to be neo-classical in spirit, often assuming cost-minimizing behaviour by producers, average-cost pricing, and household demands based on optimizing behaviour.
  5. Many CGE models are comparative-static: they model the reactions of the economy at only one point in time. For policy analysis, results from such a model are often interpreted as showing the reaction of the economy in some future period to one or a few external shocks or policy changes. That is, the results show the difference (usually reported in percent change form) between two alternative future states (with and without the policy shock). The process of adjustment to the new equilibrium is not explicitly represented in such a model, although details of the closure (for example, whether capital stocks are allowed to adjust) lead modellers to distinguish between short-run and long-run equilibria.
  6. By contrast, dynamic CGE models explicitly trace each variable through time—often at annual intervals. These models are more realistic, but more challenging to construct and solve—they require for instance that future changes are predicted for all exogenous variables, not just those affected by a possible policy change. The dynamic elements may arise from partial adjustment processes or from stock/flow accumulation relations: between capital stocks and investment, and between foreign debt and trade deficits. However there is a potential consistency problem because the variables that change from one equilibrium solution to the next are not necessarily consistent with each other during the period of change.

Dynamic Computable General Equilibrium Model for Jamaica

* 1. A Dynamic Computable General Equilibrium (DCGE) models are a class of economic models that allow economists to systematically analyze the most important policy challenges and economic shocks on an inter-temporal basis. Their structure is similar to the structure of Computable General equilibrium (CGE) models with the added feature of being dynamic to allow the impact analysis of a given policy or shock through a number of years. This feature is especially important when analyzing policies that are introduced through a given period of years.
  2. The DCGE is an “economy-wide” model because it describes the behaviour of producers and consumers and the linkages among them. Producers are depicted by 3 Cobb-Douglas production functions (primary, secondary and tertiary sectors) and consumers by a 10 consumption categories Linear Expenditure System (LES). The income generated by factors of production (capital and labor) and other sources of income (remittances from abroad, transfers, and other sources of income) is discriminated by income distribution categories (quintiles). This structure allows the analysis of policy impact on poverty levels and income distribution besides of sector economic growth and employment.
  3. The main dynamic elements of the model are the annual level of investment in each sector together with population growth and sectorial employment. Sectorial investment is discriminated by public and private investment. The closure of the model is done through the equilibrium between savings and investment and equilibrium between each sectorial production function and its corresponding sectorial demand. In the latter case, equilibrium is guaranteed by the capital utilization factor embodied on each Cobb-Douglas production function.
  4. To conduct experiments with the DCGE model, the analyst first elaborates a base scenario of the Jamaican economy based in most recent performance (calibration of the model). Then defines alternative policy scenarios and measures the differences between the alternative scenarios and the base scenario to draw conclusions on the impact of the proposed policies on economic growth, poverty levels, income distribution, tax revenue, etc. Hence, the model is not a forecasting model but instead a model that allows to study the impact of alternative policy scenarios on a given economic path (the base scenario).
  5. The proposed model structure is based in a similar model implemented for the government of Cape Verde that is currently being used as an analytical tool to define its medium term macroeconomic framework in that country.
  6. The model has been implemented utilizing the software package “Eviews 7” and consists of 10 blocks, namely: (i) Population; (ii) Production; (iii) Income; (iv) Consumption; (v) Prices; (vi) External Sector; (vii) Fiscal Sector; (viii) Public debt; (ix) Monetary sector; and (x) Equilibrium block.
  7. Macro data (statistical information) for the period 1980 – 2015 has been obtained from different government sources. The information received has allowed the implementation of the DCGEM for Jamaica that was used to assess the impact of the incentives and waivers schemes on the Jamaican Economy. In this regards STATIN has been the main source of information together with the MOF and the BOJ.
  8. A first version of the model has been implemented and presented to the Tax Incentives Study Working Group. The model encompasses 10 blocks that interact among them to generate general equilibrium solutions on a yearly basis. The DCGEM has been the main analytical tool used to assess the impact of incentives and waivers on economic growth, unemployment, poverty, and income distribution. The structure and logical framework of each of the 10 blocks of the model is briefly described in the following paragraphs.
  9. Population Block. This component describes population dynamics grouped by age brackets (0 – 4 years, 5 – 9 years, up to 80 to + years) to model evolution of the working age population, the labor force, and total population depending upon net survival rates by age bracket, net fertility rates and expenditure on health.
  10. Production Block. It comprises three Cobb Douglas Production Functions corresponding to the Primary, Secondary, and Tertiary sectors of the Jamaican economy. For each production function, capital stocks and labor employed have been estimated to obtain capital-output and capital-labor ratios. Data for the period 1980 – 2011 has been used to estimate each production function. Factor elasticity for Capital and Labor, and Total Factor Productivity have been estimated and analyzed for each economic sector. This block will determine employment levels at each of the 3 sectors and the economy-wide unemployment level.
  11. Consumption Block. Ten Linear Expenditures System (LES) consumption functions have been estimated corresponding to each of the Quintiles included in the model. Income elasticity for each quintile and price elasticity for each of the 11 categories of consumption reported in the Household Expenditure Survey have been estimated for the period 1989 – 2010. This block enables the measurement of the impact of changes on relative prices (changes of indirect tax rates) and income (changes on direct tax rates) on income distribution.
  12. Income Block. This component describes the income distribution among the quintiles of each of the 9 types of income considered in the model (wages for each sector, operating surplus for each sector, pensions, remittances and other income). Income distribution for each quintile has been obtained from the expenditure distribution of the Jamaica Survey of Living Conditions and adding savings estimation for each quintile. These values have been reconciled with the values of each category of income so as to obtain data consistency between the expenditure side (consumption) and the National Income side. This block is crucial to study the impact of removing preferential tax treatments on poverty and income distribution.
  13. Prices Block. This block comprises price indices for each of the 11 categories of consumption, for each of the 3 GDP deflators (primary, secondary and tertiary), deflators for investment, exports, and imports. This component also describes the exchange rate, average wage for each sector, and interest rates. The price indices of the 11 categories of consumption are explained in terms of international price indices (USA price index), exchange rate, and domestic public sector borrowing requirements (public sector credit). Nominal exchange rate is adjusted to maintain purchasing power parity (PPP). Average wages and interest rates are exogenous to the model. GDP deflators are weighting averages of the 11 consumption categories of price indices and adjustment factors to preserve equilibrium conditions between nominal supply and demand.
  14. Fiscal Sector Block. It describes each of the government receipts by tax type and the main items of government expenditures to explain the financing gaps (surplus/deficit) and the nature of financing requirements (domestic/external debt). It also encompasses the fiscal expenditures by Ministry to discriminate the allocation of public capital expenditures to the three different economic sectors of the model. It also takes into account expenditures on education and health that link improvements in the Total Factor Productivity parameter of the three Cobb Douglas production functions and on the net survival rates of each of the age brackets of the population component of the model.
  15. (vii) External Block. This component covers both exports and imports of goods and services and the main items of the Balance of Payments. Exports and Imports of goods and services are modeled on current and constant terms to link with the demand side of GDP. The exchange rate and terms of trade play an important role in the dynamics of this component.
  16. Monetary Block. This comprises the Net International Reserves linked to the BOP block, the Public and Private Credit aggregates and other items of Total Liquidity including the Monetary Base, M1, M2 and M3.
  17. Debt Block. This block links with the Fiscal Sector Block to describe the debt dynamics, both external and domestic, and including amortization, interest payments, and new loans. It allows for estimation of debt/GDP ratios and its impact on risk levels.
  18. Equilibrium Block. This component encompasses three different equilibrium conditions that guarantee a consistent closure of the model making possible the conditions of a general equilibrium model. The first condition is the equilibrium between total investment and savings. This condition guarantees that the level of total investment is equal to the three different sources of savings, namely external, fiscal and private savings. The second equilibrium condition is the equilibrium between the Real GDP on the production side and the Real GDP on the demand side. This equilibrium is realized at the level of each of the economic sector contemplated in the model. The equilibrium is guaranteed by the Capital Utilization factor in each of the three Cobb Douglas Production Functions. The third equilibrium condition is the equilibrium between nominal GDP on the production side and nominal GDP on the demand side. This equilibrium is realized through the adjustment of the price deflators of the three economic sector of the model.
  19. REFERENCES: (i) [White, H. (2006) Impact Evaluation: The Experience of the Independent Evaluation Group of the World Bank, World Bank, Washington, D.C., p. 3](http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/35BC420995BF58F8852571E00068C6BD/$file/impact_evaluation.pdf); (ii) [Ravallion, M. (2008) Evaluating Anti-Poverty Programs](http://siteresources.worldbank.org/INTISPMA/Resources/383704-1153333441931/Evaluating_Antipoverty_Programs.pdf); (iii) [Bamberger, M. and White, H. (2007) Using Strong Evaluation Designs in Developing Countries: Experience and Challenges, Journal of MultiDisciplinary Evaluation, Volume 4, Number 8, 58-73](http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=EJ800319&ERICExtSearch_SearchType_0=no&accno=EJ800319)
  20. **Reporting evaluation results.**
  21. The team will evaluate the achievement of the objectives of the program, using as a reference the targets and indicators set in the Policy Matrix and Results Matrix. Monitoring of the goals included in the Policy Matrix will be carried out by the project team with input from an independent consultant, whose services will be financed with budget for the preparation of the last operation of the programmatic series (see draft Terms of Reference in Annex I below).
  22. The means of verification (MOVs) matrix will be the source of information that determines compliance with the policy goals. The consultancy will begin two months after the disbursement of the final operation by the Bank.
  23. The consultant will assess compliance with the policy goals and their sustainability over time, as well as the outcome targets included in the Program’s Results Matrix. The consultancy will begin once the program is completed.
  24. Performance goals will be monitored by the MOF’s Program Coordinator (PC) using the information established in the Results Matrix. The evaluation of the program will be input for the project completion report of the operation (PCR).
  25. **Evaluation coordination, work plan and budget**
  26. The total cost of the evaluation plan is US$65,000. The IDB will hire an independent consultant for preparing the Project Completion Report (PCR), which will be validated by the MOF. The borrower is responsible for cooperating with the IDB team and the consultant(s) hired by the IDB in all the matters related with the Evaluation of this program.
  27. The IDB Project Team will be from the Fiscal and Municipal Management Division based in Washington, DC (IFD/FMM) and the Country Office in Jamaica (CCB/CJA), which will be responsible for the follow-up of the Program.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4: Evaluation Work Plan** | | | | | | | | | | | | | |
| **Activity** | **2014** | | **2015** | | **2016** | | **2017** | | **2018** | | **Resp.** | **Costs**  **US$** | **Funding** |
| **Jun** | **Dec** | **Jun** | **Dec** | **Jun** | **Dec** | **Jun** | **Dec** | **Jun** | **Dec** |
| Progress Reports |  |  |  |  |  |  |  |  |  |  | BID/  MOF | 20,000 | BID |
| Evaluation Report |  |  |  |  |  |  |  |  |  |  | BID | 10,000 | BID |
| Ex-Post Financial Evaluation |  |  |  |  |  |  |  |  |  |  | BID | 10,000 | BID |
| Impact Evaluation |  |  |  |  |  |  |  |  |  |  | BID | 15,000 | BID |
| Project Completion Report (PCR) |  |  |  |  |  |  |  |  |  |  | BID | 10,000 | BID |
| **Total** |  | | | | | | | | | | | **65,000** |  |

**ANNEX I**

**REFLECTIVE EVALUATION CONSULTANCY**

**DRAFT TERMS OF REFERENCE**

1. **OBJECTIVE OF THE CONSULTANCY**
   1. Prepare a program evaluation report using Reflective methodology and an ex-post Financing Evaluation for review and submission to the Division. This report will be an input to the Project Completion Report (PCR) program.

**II. ACTIVITIES**

2.1 In direct coordination with sector specialists, review the documentation for the execution of the three operations of the program. In particular, assess the scope and impact achieved according to the targets and indicators in the Policy Matrix and the Results Matrix using as reference the Bank's Independent Macroeconomic Assessment.

2.2 In direct coordination with the sectorial specialists, meetings with major stakeholders in the design and execution of the operation, both the IDB and the Government of Jamaica.

2.3 Review documentation of the implementing agencies and other stakeholders to complete the required information for the preparation of PCR.

**III. EXPECTED OUTPUTS**

3.1 Intermediate Evaluation Report, with text and graphics, to be reviewed by the sector specialist who oversees the project. The report should include all areas specified in the format, with special emphasis on the project results and lessons learned.

3.2 Final Evaluation Report, incorporating comments made by the sectorial specialists.

IV. CHARACTERISTICS OF THE CONSULTANCY

4.1 *Consultancy type:* Individual.

4.2 *Duration:* from the signing of the contract until March 31, 2017 for a period of 12 non-consecutive days.

4.3 *Place of work:* Place of residence and Jamaica.

4.4 *Qualifications:* The consultant must have an advanced degree in Economics, Public Policy or a related field and at least 8 years of experience working in the preparation and monitoring of projects in the public sector. Fluency in English required; knowledge of Dutch would be an asset.

4.5 *Payment:* the consultant will be paid in the following manner: A first payment of 15% of the contract amount 15 days after signing it, upon delivery of the first report to the satisfaction of the IDB. A second payment 15% upon delivery and approval of the interim report to the satisfaction of the IDB. A third payment 15% upon delivery and approval of the EX-post Financing Evaluation to the satisfaction of the IDB. A final payment of 55% upon delivery and approval of final report to the satisfaction of the IDB.

*4.6 Budget:* the total cost of the consultancy should not exceed US $20,000, including all travel and other expenses incurred by the consultant.

**V. SCHEDULE**

5.1 The consultant will be responsible for delivering the following products within the time framework described below.

5.2 The consultant will deliver the following products:

1. Intermediate evaluation report detailed in 3.1 submitted for consideration by the team by November 30, 2015.
2. Ex-post Financial Evaluation submitted to the project team by March 31, 2017.
3. Final version of the evaluation report detailed in 3.2 submitted to the project team by March 31, 2017.

**VI. SUPERVISION**

6.1 The consultancy will be coordinated by Gerardo Reyes-Tagle, Fiscal and Municipal Management Division (IFD/FMM), Team Leader of the operation.

**ANNEX II**

**IMPACT EVALUATION CONSULTANCY**

**DRAFT TERMS OF REFERENCE**

1. **OBJECTIVE OF THE CONSULTANCY**
   1. The objective of the consultancy is twofold: a) To propose and seek approval of a methodology for the ex-post evaluation of the Tax Reform programme; and b) to carry out the ex-post evaluation of the Tax Reform programme

**II. ACTIVITIES**

* 1. Prepare a methodology proposal to carry out the ex-post evaluation of the Tax Reform in Jamaica.
  2. Make the required adjustments to the methodology to align it to the ex-post evaluation guidelines of the Bank.
  3. Assist the Bank in the coordination with the GOJ to compile and process all data required to monitor and evaluate the Tax Reform.
  4. Implement a Dynamic Computable General Equilibrium Model (DCGEM) that will be used to carry out the ex-post evaluation of the Tax Reform.
  5. Define and calibrate the Baseline scenario of the DCGEM for the ex-post evaluation of the Tax Reform.
  6. Define the Counterfactual scenarios to assess the impact of each of the tax policy measures contemplated in the Tax Reform.
  7. Simulate the counterfactual scenarios with DCGEM and carry out the impact evaluation on economic growth, unemployment, income distribution, poverty, and fiscal stance of the Tax Reform.

**III. EXPECTED OUTPUTS**

* 1. Intermediate Impact Evaluation Report, with text and graphics, to be reviewed by the sector specialist who oversees the project. The report should include all areas specified in the format, with special emphasis on the project results and lessons learned.
  2. Final Impact Evaluation Report, incorporating comments made by the sectorial specialists.

IV. CHARACTERISTICS OF THE CONSULTANCY

* 1. Consultancy type: Individual.
  2. Duration: from the signing of the contract until March 31, 2017 for a period of 12 non-consecutive days.
  3. Place of work: Place of residence and Jamaica.
  4. Qualifications: The consultant must have an advanced degree in Economics, Public Policy or a related field and at least 8 years of experience working in the preparation and monitoring of projects in the public sector. Fluency in English required; knowledge of Dutch would be an asset.
  5. Payment: the consultant will be paid in the following manner: A first payment of 15% of the contract amount 15 days after signing it, upon delivery of the first report to the satisfaction of the IDB. A second payment 15% upon delivery and approval of the interim report to the satisfaction of the IDB. A third payment 15% upon delivery and approval of the Impact Evaluation to the satisfaction of the IDB. A final payment of 55% upon delivery and approval of final report to the satisfaction of the IDB.
  6. Budget: the total cost of the consultancy should not exceed US $20,000, including all travel and other expenses incurred by the consultant.

**V. SCHEDULE**

* 1. The consultant will be responsible for delivering the following products within the time framework described below.
  2. The consultant will deliver the following products:

1. Intermediate Impact evaluation report detailed submitted for consideration by the team by November 30, 2015.
2. Ex-post Financing Impact Evaluation submitted to the project team by March 31, 2017.
3. Final version of the Impact Evaluation report detailed in 3.2 submitted to the project team by March 31, 2017.

**VI. SUPERVISION**

* 1. The consultancy will be coordinated by Gerardo Reyes-Tagle, Fiscal and Municipal Management Division (IFD/FMM), Team Leader of the operation.

1. SMART Indicators are Specific, Measurable, Achievable, Relevant, and Time bound. [↑](#footnote-ref-1)