

## Open Data Sector Initiatives - Scope Summary

Visualizing the structure and linkages in the Jamaican economy using National Statistics

| Open Data Sector Studies - Strategic Initiatives                                     |   |          |                        |          |                                  |          |                            |          |                     |          |
|--|---|----------|------------------------|----------|----------------------------------|----------|----------------------------|----------|---------------------|----------|
| <b>TITLE</b>   | Visualizing the structure and linkages in the Jamaican economy using Official Statistics (Administrative Data)  |          |                        |          |                                  |          |                            |          |                     |          |
| <b>SECTOR RELEVANCE</b>  | Agriculture   |          | Tourism                |          | Education                        |          | Fisheries/MPAs             |          | National Statistics | <b>X</b> |
| <b>DESCRIPTION</b>   | <p>The sectors of the economy are all linked together as portions of the output in one sector is consumed in another. The Input-Output (IO) Table analyses the Jamaican economy by showing the value of goods and service that are produced within each sector and how much of that which is produced is consumed locally in production and by consumers and that which is exported. The table also distributes the total import bill to the various sectors of the economy. Other "Supply and Use tables" collected from surveys and administrative sources, such as Labour Force, Education, Census, Housing and Trade collectively reflect the structural dynamics of the Jamaican economy. However much of this statistical information only presented as tabular data in a highly aggregated format, and in some cases and is only produced periodically (eg. the last I/O Table was produced in 2007).</p> <p>Making this source data openly accessible and combined with visualization techniques can make this information much more impactful, accessible and with greater utility for business decision-makers and policy makers. This initiative will use these various sources of statistical data to create a visual map representation of the structural dynamics of the Jamaican economy that enhances the visibility and utility of this data and also creates additional re-use opportunities for other innovators through open APIs. This creates opportunities for a deeper examination of Linkages between key sectors (Tourism / Agriculture / Manufacturing).</p> <p>The Initiative will also explore the potential of "big data" sources such as anonymized electricity consumption and mobile traffic / location data as a basis for proxy indicators to augment official statistics.</p> |          |                        |          |                                  |          |                            |          |                     |          |
| <b>IMPACT CATEGORIES</b>   | 1. Improving Government   | <b>X</b> | 2. Empowering Citizens | <b>X</b> | 3. Creating Opportunity          |          | 4. Solving Public Problems | <b>X</b> |                     |          |
| <b>EXPECTED IMPACT</b>   | <p>This initiative will seek to increase the accessibility, understandability &amp; re-usability of national statistics through integrated visualizations that present a statistical representation of the national economy, and open APIs that encourage other researchers and innovators to make more effective use of statistical data.</p> <p>It is also anticipated that the initiative will encourage greater use of statistical data in business and policy decision-making.</p>   |          |                        |          |                                  |          |                            |          |                     |          |
| <b>KEY ENABLERS</b><br><i>significant variables that positively determine impact</i> | Partnerships  | <b>X</b> | Public Infrastructure  | <b>X</b> | Policies And Performance Metrics | <b>X</b> | Problem Definition         | <b>X</b> |                     |          |
| <b>Partnerships</b>  | STATIN is the key partner in this initiative, both in terms of the sources of data, as well as the interpretation, validation and promotion of the visualization artifacts. We will also seek to engage with the Standing Committee of Caribbean Statisticians as well as the Regional Statistics unit of the CARICOM Secretariat (Dr. Philomen Harrison) to expand the reach of this initiative  |          |                        |          |                                  |          |                            |          |                     |          |
| <b>Public Infrastructure</b>   | The National Statistics System is a key pillar of the national information infrastructure. By developing an open data platform that integrates these key statistical data sources into a dynamic, visual representation of the Jamaican economy, this initiative will facilitate access to, and encourage greater re-use of national statistics.  |          |                        |          |                                  |          |                            |          |                     |          |

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| <b>Policies And Performance Metrics</b>   | The effects of Government policies that impact on sector performance, trade, employment, etc. are manifested in data and statistics about the performance of the national economy. By using existing statistical data to create a visual representation of the structural dynamics of the Jamaican economy, this initiative can help to drive the performance metrics that foster greater visibility and accountability of policy impact   |   |  |   |           |   |                      |   |  |
| <b>Problem Definition</b>   | <p>Several important data sources, collected for the purposes of official statistics, could be of value in re-use by businesses, media, analysts and academics. However these data sources are often not readily accessible or comprehensible by non-statisticians. For instance, data used to produce the Input/Output Tables are collected on a regular basis by STATIN but these tables are only produced periodically (~ every 5 years after the economy has been rebased) because of the resource effort required to conduct this activity on a continuous basis.</p> <p>The specific goal to be addressed by this initiative is to enhance the visibility, relevance, re-use and utility of national statistics and related data in data-driven engagement/assessment and policy/decision-making, with a specific focus on the Input-Output Table and other related Administrative data.</p> |   |  |   |           |   |                      |   |  |
| <b>CORE CHALLENGES</b><br><i>significant variables that adversely affect impact</i> | Readiness  | X | Responsiveness                         | X | Risks     | X | Resource Allocation  | X |  |
| <b>Readiness</b>  | The ODRA and related activities currently being carried out by the World Bank and the GOJ, provides a window of opportunity to engage with Government agencies like STATIN that are actively involved in the Open Data conversation. This initiative is designed to address capacity issues on both Supply/Demand side through collaboration/partnerships  |   |  |   |           |   |                      |   |  |
| <b>Responsiveness</b>   | STATIN's active engagement and support is critical to the success of this initiative. The engagement with the various other stakeholders in the public/private sectors and academia will help to facilitate the requisite interest and responsiveness to the initiative.   |   |  |   |           |   |                      |   |  |
| <b>Risks</b>  | As this is based primarily on Administrative data, privacy risk is considered to be moderate, but will still need to be managed.   |   |  |   |           |   |                      |   |  |
| <b>Resource Allocation</b>  | We believe that the aggregate value that will derive from expanding the utility and utilization of official statistics, will significantly outweigh any incremental resources/effort required to open up access to the data. This will also broaden the resource base of "data scientists" that understand and can make use of the underlying data.  |   |  |   |           |   |                      |   |  |
| <b>CORE ACTIVITIES</b>  | Design & Administer Survey   | X | Capacity building (training/workshops) | X | Hackathon | X | Software Development | X |  |
| <b>PRIMARY ACTIVITIES</b>   | <ol style="list-style-type: none"> <li>1. Conduct a Survey of key business decision-makers, policy-makers and researchers to determine the current level of access, use and utility of national statistics;</li> <li>2. Engagement &amp; work with STATIN as the key partner in this initiative to source the data, as well as the design, interpretation, validation and promotion of the visualization artifacts</li> <li>3. Design &amp; Development of the visualization artifacts and open APIs</li> <li>4. Engagement Workshops with academia, media and technologists to promote and facilitate use of the open statistical data resource</li> <li>5. Conduct a Hackathon or Data Bootcamp to encourage derivative products</li> </ol>  |   |  |   |           |   |                      |   |  |
| <b>KEY DATA SOURCES</b>   | <p>All data sources that feed into the Input–Output Table (to be identified)</p> <p>Other required data sources include:</p>   |   |  |   |           |   |                      |   |  |

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| <b>KEY STAKEHOLDERS</b>  | <p>STATIN</p> <p>We'll also engage with economists at UWI / SALISES for expertise and potential additional statistical data resources (administrators of the Derek Gordon Databank)</p>  |  |   |   |  |  |   |  |   |  |   |   |   |  |  |
| <b>RESOURCE REQUIREMENTS</b>   | <p>Graduate Research Assistant / Economist</p> <p>Business Survey administration</p> <p>Software developers</p> <p>Consultation / Dissemination Workshops</p>  |  |   |   |  |  |   |  |   |  |   |   |   |  |  |
| <b>SCALABILITY</b>   | <p>The approach will be adaptable to (and comparable in) other NSO jurisdictions. We hope to introduce the proof of concept to other regional NSOs (perhaps working through engagement with the Regional Statistics unit of the CARICOM Secretariat, at the next Meeting of the Standing Committee of Caribbean Statisticians) and work with at least one other Caribbean NSO to validate the concept.</p>   |  |   |   |  |  |   |  |   |  |   |   |   |  |  |
| <b>PRIVATE SECTOR ENGAGEMENT</b>   | <p>A survey will be conducted to assess the extent to which key business decision-makers are aware of, and make use of national statistics as a resource, and identify any unmet needs/demand for data. There will also be training / workshops to expose and facilitate the utility and use of the open statistical data resource</p>   |  |   |   |  |  |   |  |   |  |   |   |   |  |  |
| <b>RELATED INITIATIVES</b>   | <p>Consult with Damien King on work done on Social Accounting Matrix for Jamaica, using the data from various sources</p>  |  |   |   |  |  |   |  |   |  |   |   |   |  |  |
| <b>RELEVANT THEORIES OF CHANGE</b>   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Intermediaries will play a significant role both as catalysts and enablers</td> <td style="text-align: center; width: 50px;">X</td> </tr> <tr> <td style="padding: 2px;">Greater impetus and resonance will derive from increased efficiency / innovation ahead of transparency/accountability</td> <td></td> </tr> <tr> <td style="padding: 2px;">Innovation fellowships provide an important mechanism for collaborative government-civil society co-creation in key developmenta</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="padding: 2px;">The value sustainability of the open data initiatives in the region will rely on a vibrant Caribbean open data ecosystem of acto</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="padding: 2px;">Governments role will require active participation on supply and demand sides of the Caribbean open data ecosystem</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="padding: 2px;">Multi-sector approaches will drive the greatest economic returns on open data</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="padding: 2px;">Scale limits and resource deficits will require common resources and shared use i.e. the Caribbean Digital Commons</td> <td></td> </tr> </table> | Intermediaries will play a significant role both as catalysts and enablers | X | Greater impetus and resonance will derive from increased efficiency / innovation ahead of transparency/accountability |  | Innovation fellowships provide an important mechanism for collaborative government-civil society co-creation in key developmenta | X | The value sustainability of the open data initiatives in the region will rely on a vibrant Caribbean open data ecosystem of acto | X | Governments role will require active participation on supply and demand sides of the Caribbean open data ecosystem | X | Multi-sector approaches will drive the greatest economic returns on open data | X | Scale limits and resource deficits will require common resources and shared use i.e. the Caribbean Digital Commons |  |
| Intermediaries will play a significant role both as catalysts and enablers   | X  |  |   |   |  |  |   |  |   |  |   |   |   |  |  |
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| <b>SUPPORTING DOCUMENT</b>   | <p>Statistical structure of the JM Economy</p>   |  |   |   |  |  |   |  |   |  |   |   |   |  |  |

## Input-Output Table 2007 – Jamaican Economy

| Input/Output table - 2007                    |                                      |                    |                |                            |                |                                   |                      |                                    |                              |  |                                  |                |                | \$ Million       |  |   |                               |                        |                              |                  |
|--|--------------------------------------|--------------------|----------------|----------------------------|----------------|-----------------------------------|----------------------|------------------------------------|------------------------------|--|----------------------------------|----------------|----------------|------------------|--|---|-------------------------------|------------------------|------------------------------|------------------|
| Industry                                     | Intermediate Consumption by Industry |                    |                |                            |                |                                   |                      |                                    |                              |  |                                  |                |                | Final Demand     |  |   |                               |                        |                              |                  |
|  | Agriculture, forestry & fishing      | Mining & quarrying | Manufacture    | Electricity & water supply | Construction   | Wholesale & retail trade; repairs | Hotels & restaurants | Transport, storage & communication | Finance & insurance services | Real estate, renting & business activities | Producers of government services | Other services | FISIM          | Total Industry   | Final consumption expenditure - Government | Final consumption expenditure - private | Gross fixed capital formation | Changes in inventories | Export of goods and services | Total Economy    |
| Agriculture, forestry & fishing              | 5,188                                | 6                  | 19,201         |                            | 9              | 0                                 | 6,791                | 1                                  | 1                            | 155  | 462                              | 132            |                | 31,944           |  | 41,384                                  | 120                           | 5                      | 3,609                        | 77,063           |
| Mining & quarrying                           |                                      | 4,598              | 1,561          | 132                        | 1,735          |                                   |                      |                                    |                              |  |                                  |                |                | 8,026            |  |   |                               | -295                   | 90,191                       | 97,922           |
| Manufacture                                  | 12,432                               | 4,219              | 19,400         | 3,826                      | 18,981         | 4,884                             | 16,587               | 3,645                              | 1,355                        | 1,665                                      | 2,994                            | 9,488          |                | 99,476           |  | 84,364                                  | 4,430                         | -261                   | 57,010                       | 245,019          |
| Electricity & water supply                   | 778                                  | 626                | 4,847          | 7,387                      | 379            | 5,123                             | 7,489                | 1,805                              | 1,445                        | 1,415                                      | 6,124                            | 3,489          |                | 40,906           |  | 27,129                                  |                               |                        | 1,288                        | 69,323           |
| Construction                                 | 447                                  | 796                | 1,250          | 756                        | 734            | 972                               | 5,201                | 2,392                              | 1,040                        | 13,662                                     | 2,729                            | 1,142          |                | 31,120           |  |   | 105,955                       |                        |                              | 137,075          |
| Wholesale & retail trade; repairs            | 5,721                                | 7,487              | 17,306         | 4,115                      | 11,101         | 7,890                             | 9,153                | 11,408                             | 1,217                        | 2,362                                      | 4,496                            | 6,282          |                | 88,537           |  | 102,530                                 | 42,959                        |                        | 6,216                        | 240,243          |
| Hotels & restaurants                         | 6                                    | 7                  | 326            | 97                         | 123            | 1,180                             | 336                  | 794                                | 715                          | 243  | 1,020                            | 1,346          |                | 6,193            |  | 101,450                                 |                               |                        | 667                          | 108,310          |
| Transport, storage & communication           | 2,652                                | 3,459              | 9,078          | 554                        | 1,168          | 33,208                            | 2,235                | 23,278                             | 4,996                        | 3,402                                      | 3,874                            | 4,869          |                | 92,773           |  | 49,907                                  |                               |                        | 44,465                       | 187,144          |
| Finance & insurance services                 | 267                                  | 309                | 1,657          | 401                        | 392            | 4,063                             | 1,371                | 2,280                              | 8,708                        | 2,407                                      | 2,579                            | 1,927          | 35,874         | 62,236           |  | 50,112                                  |                               |                        | 5,539                        | 117,886          |
| Real estate, renting & business activities   | 784                                  | 1,835              | 4,485          | 993                        | 4,083          | 10,086                            | 4,587                | 8,178                              | 7,077                        | 6,337                                      | 6,168                            | 5,804          |                | 60,416           |  | 54,084                                  | 153                           |                        | 5,371                        | 120,025          |
| Producers of government services             | 734                                  | 3                  | 117            | 34                         | 563            | 1,603                             | 394                  | 313                                | 1                            | 81   | 127                              | 384            |                | 4,354            | 131,849                                    | 9,698                                   |                               |                        | 14                           | 145,913          |
| Other services                               | 103                                  | 21                 | 1,065          | 46                         | 6              | 625                               | 792                  | 405                                | 941                          | 1,197                                      | 951                              | 2,179          |                | 8,331            |  | 88,209                                  | 1,036                         |                        | 2,014                        | 99,590           |
| <b>Imports</b>                               | 6,539                                | 41,335             | 94,131         | 25,884                     | 25,251         | 24,872                            | 15,953               | 39,439                             | 10,811                       | 6,128                                      | 17,542                           | 10,416         |                | 318,302          |  | 139,890                                 | 59,106                        | 4,044                  | 2,959                        | 524,301          |
| Direct purchases abroad by residents         |                                      |                    |                |                            |                |                                   |                      |                                    |                              |  |                                  |                |                |                  |  | 20,502                                  |                               |                        |                              | 20,502           |
| Direct purchases by non-residents            |                                      |                    |                |                            |                |                                   |                      |                                    |                              |  |                                  |                |                |                  |  | -131,337                                |                               |                        | 131,337                      |                  |
| Taxes on Products less subsidies on products | 518                                  | 867                | 2,772          | 603                        | 8,723          | 3,611                             | 1,356                | 3,133                              | 337                          | 1,146                                      | 697                              | 2,165          |                | 25,928           |  | 73,490                                  | 17,630                        | 160                    | 1,172                        | 118,380          |
| <b>Total uses at purchasers' prices</b>      | <b>36,168</b>                        | <b>65,568</b>      | <b>177,198</b> | <b>44,828</b>              | <b>73,247</b>  | <b>98,117</b>                     | <b>72,244</b>        | <b>97,070</b>                      | <b>38,643</b>                | <b>40,198</b>                              | <b>49,763</b>                    | <b>49,623</b>  | <b>35,874</b>  | <b>878,541</b>   | <b>131,849</b>                             | <b>711,413</b>                          | <b>231,392</b>                | <b>3,652</b>           | <b>351,850</b>               | <b>2,308,697</b> |
| Taxes less Subsidies on Production & Imports | 281                                  | 778                | 1,882          | 672                        | 2,273          | 4,396                             | 1,328                | 3,517                              | 3,688                        | 3,279                                      | 414                              | 2,543          |                | 25,050           |  |   |                               |                        |                              | 143,430          |
| Other taxes on production                    | 284                                  | 778                | 1,882          | 672                        | 2,273          | 4,396                             | 1,328                | 4,120                              | 3,688                        | 3,279                                      | 414                              | 2,543          |                | 25,656           |  |   |                               |                        |                              | 25,656           |
| Other subsidies on production (-)            | -3                                   |                    |                |                            |                |                                   |                      | -603                               |                              |  |                                  |                |                | -606             |  |   |                               |                        |                              | -606             |
| Taxes less subsidies on Products             |                                      |                    |                |                            |                |                                   |                      |                                    |                              |  |                                  |                |                |                  |  |   |                               |                        |                              | 118,380          |
| Compensation of employees                    | 13,701                               | 10,662             | 27,994         | 7,561                      | 39,762         | 64,100                            | 19,475               | 37,188                             | 34,350                       | 21,887                                     | 95,451                           | 32,643         |                | 404,774          |  |   |                               |                        |                              | 404,774          |
| Consumption of fixed capital                 | 1,562                                | 4,928              | 4,840          | 4,964                      | 1,977          | 7,043                             | 3,658                | 14,430                             | 3,692                        | 20,791                                     | 285                              | 2,209          |                | 70,380           |  |   |                               |                        |                              | 70,380           |
| Operating surplus / mixed income             | 25,350                               | 15,986             | 33,105         | 11,297                     | 19,816         | 66,587                            | 11,606               | 34,940                             | 37,513                       | 33,870                                     | 0                                | 12,572         |                | 302,641          |  |   |                               |                        |                              | 266,768          |
| <b>Gross value added/GDP</b>                 | <b>40,895</b>                        | <b>32,353</b>      | <b>67,821</b>  | <b>24,494</b>              | <b>63,829</b>  | <b>142,126</b>                    | <b>36,066</b>        | <b>90,074</b>                      | <b>79,243</b>                | <b>79,827</b>                              | <b>96,150</b>                    | <b>49,967</b>  | <b>-35,874</b> | <b>766,972</b>   |  |   |                               |                        |                              | <b>885,353</b>   |
| <b>Total Output</b>                          | <b>77,063</b>                        | <b>97,922</b>      | <b>245,019</b> | <b>69,323</b>              | <b>137,075</b> | <b>240,243</b>                    | <b>108,310</b>       | <b>187,144</b>                     | <b>117,886</b>               | <b>120,025</b>                             | <b>145,913</b>                   | <b>99,590</b>  |                | <b>1,645,513</b> |  |   |                               |                        |                              |                  |

Source: www.statinja.gov.jm

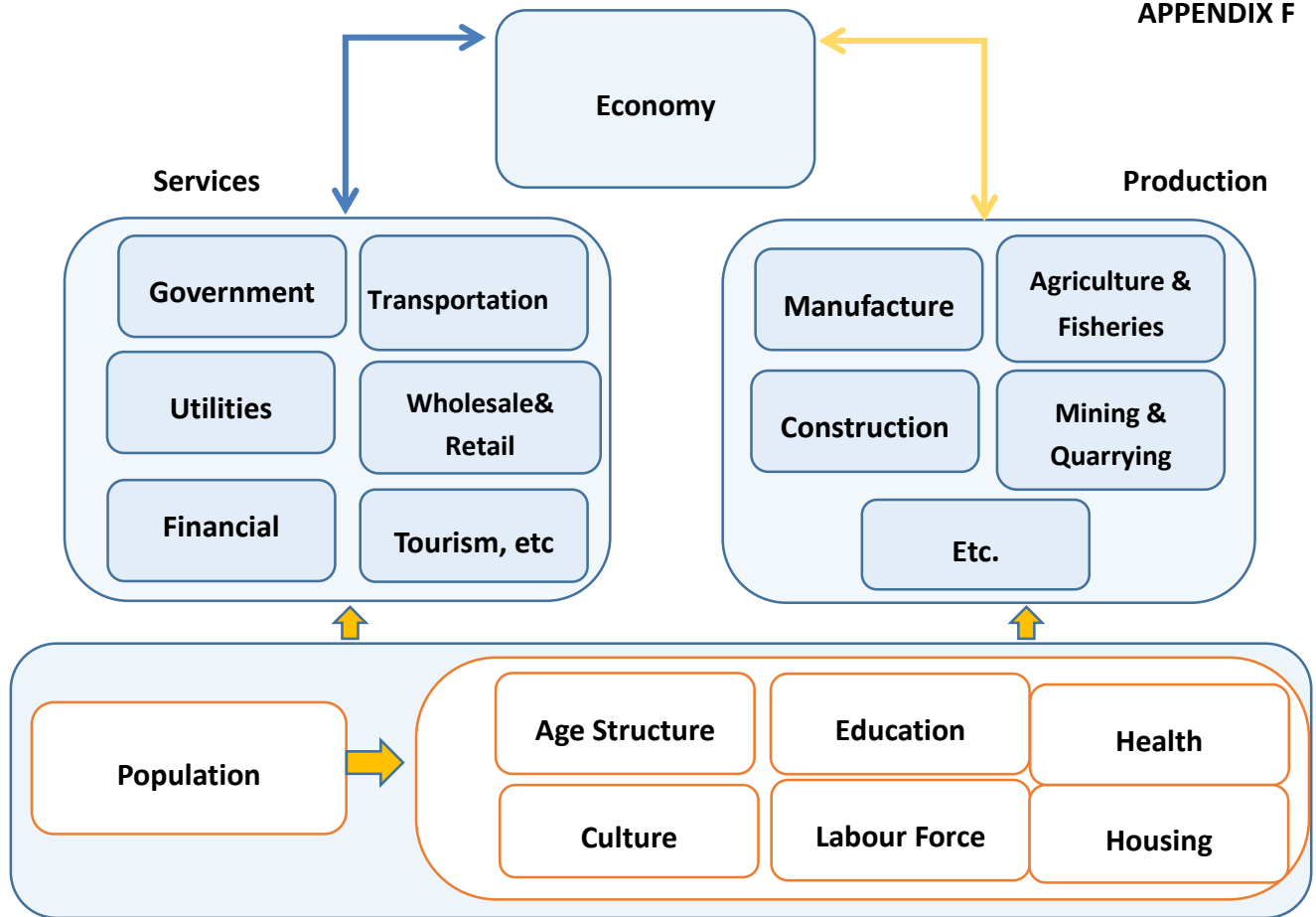


Figure 2. Structure of the Economy