



DATA FOR MONITORING AND EVALUATION OF THE CARNIVAL INDUSTRY

[Document subtitle]



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1 INTRODUCTION

This annex provides data collection and computational guidelines for evidence-based causal analysis, monitoring and evaluation of the carnival industry and of policies used to stimulate its development. The analytical framework for causal analysis and the basket of experiments, quasi-experiments and instruments for random allocation to which it responds are set out in Annex II. Carnival as masquerade is street theatre culminating costume parading on the two days preceding Ash-Wednesday. The two day festival has given rise to the production of a range of cultural products and services including cultural events in the weeks and months leading up to the celebration of the festival of Carnival. Some producers in the Carnival-related Industries produce Carnival related products and services exclusively. Others produce general use products and services that have wide general usage across all Industrial groups and are not exclusive to the Carnival related Industries. This industry brings economic and social benefits, both of which we will seek to measure. Most of the assessments of these benefits are mainly anecdotal. This project pursues numerical measurement, partly by developing a suitable evidence base on which the policy agenda can rest. Regarding the economic benefits, there is potential for job creation and career paths; input development and use, development of technologies, and inter-industry linkages and spillovers to other sectors; wealth creation; value-added; intellectual property; product testing; trade; and the entrepreneurship development. Regarding the social benefits, there is likely to be effects in the following areas, at least: (i) poverty reduction; entrepreneurship development; improvements to mind, body, and spirit; development of team spirit and synergy; learning accountability, learning of dedication, learning of goal-setting; learning of leadership; scholarly gains in memorization, repetition, and learning; development of skill-sets directly related to education and industry; value of volunteerism; community spirit and the fight for common good - other players, masqueraders; section leaders; managers, musical directors; effective communication skills; optimal problem solving; health and fitness and weight consciousness; promotion of healthy decisions related to sex; smoking or drinking; self-esteem from 'freeing up'; from successful participation and production of bands; networking and social integration.

This report begins with a definition of carnival sector for the purpose of measurement consistent with the needs of sound causal analysis. The definition of Carnival-related Industries used in the Aide Memoire will be based on the Satellite approach of the System of National Accounts. Producing Units will have been classified to some type of economic activity sectors in the International Standard Industrial Classification ISIC Rev4. Selected Activities taken from the ISIC Rev4 will be regrouped and reclassified to a new classification structure developed for the Carnival-related Industries. Next, the report identifies the economic data required, usually provided in income statements, balance sheets and associated data on instruments needed to understand them. The report then provides broad guidelines for sector aggregation, which are also useful in defining and measuring the carnival sector.

2 DEFINITION OF CARNIVAL INDUSTRIES

An industry consists of a group of establishments engaged in the same or similar kinds of activity. The establishments may be producing output for sale on the market with the expectation of covering their costs of production and returning a profit (Market Producers) or they may be producing output which are supplied free of charge or at prices that are not necessarily intended to cover costs. (Non-Market Producers). The International Standard Classification ISIC Rev 4 is the internationally recognized standard for classification of establishments into industry groupings. Countries often develop their own classification systems derived from or related to the ISIC Rev4. For the purpose of the Aide Memoire, a definition of the **Carnival Sector** is needed, combining industries as defined. Economic activity of business establishments and business enterprises engaged in the production of carnival related goods and services can be found in several industry groupings of the ISIC. The aggregation of all establishments and Enterprises involved in the production of carnival-related products and services results in the formation of a Carnival Sector comprising of a heterogeneous classification of industries. The **Carnival Sector** is therefore a grouping of carnival related Industries where the producing units are Establishments and Enterprises producing carnival related output for Intermediate Use or for Final Consumption.

In turn, each industry refers to a selected set of establishments and enterprises engaged in the production of closely related carnival-related products, which are the goods and services, to be used and consumed in connection with Carnival Activities and related festivities in the domestic market or for sale to the Export Market. Carnival and other establishments and enterprises involved in the production of goods and services to be used as input in the production of carnival related products are also included as part of the Carnival-related Industries. Production of the Carnival-related cultural products and services may commence immediately after Carnival for use and consumption at any time in the roughly 12 month period leading up to the following year's Carnival, though several of the cultural products tend to be consumed closer to the Festival. The producing units in the Carnival-related industries include Non-Financial Corporations such as Public and Private Companies; Unincorporated Enterprises including Own-Account operators, Central Government and Government enterprises and Non-Profit Institutions.

3 INDUSTRY DATA – THE BASELINE ECONOMIC

Carnival is risky, yet can be highly profitable. In particular, every operating establishment and firm is subject to business risk and represents risk to lenders. A major consideration of modern policy design is how these forms of risk should be modeled and measured. The secrets of business risk, like their profitability, lies in the accounting data exhibited in financial statements of the enterprises of the industry, as well as in industry-wide and economy-wide conditions. These data must be used to monitor both risk and profit. Even though not the only ones that matter, three key financial statements are always needed: the income statement, the balance sheet and the cash-flow.

3.1 Income Statement

Consider **Table 1**, a model of an income statement of an establishment, with relevant metadata. The primary goal is to understand the earnings before income and taxes and net income (EBIT), with care to

distinguish routine and non-routine earnings. Routine earnings are the earnings arising from the standard production function – application of capital and manpower, without use of intellectual property. The non-routine earnings are intellectual property earnings, which are the one generated by patents, copyright, industrial designs, geographical indications, and other intellectual property assets. In very successful companies, these are usually significantly more profitable than the routine earnings. This type of distinction also requires corresponding disaggregation of operating expenses. Here, expense means an outflow of money to others to pay for an item or service. Operating expenses cover the cost of goods sold, the research, experimentation and development expenses, selling and general expenses, depreciation and other expenses. Operating income is the difference between all revenues and operating expenses. EBIT is crucial because it mostly emerges from, and is determined mainly by, the capital structure of the operating unit. Investors consider the EBIT as the basis for choosing whether or not to invest and how to balance their portfolios, especially whether to finance through debt or equity, local or foreign.

Table 1: Income statement of an establishment		
Category	Data	Metadata
Revenue		Income from business activity (sales of goods and services to customers); donations received, interest, royalties, fees – time bound
Sales		Price*quantity (Sales of goods and services to customers), less discounts, returns and allowances
Operating expenses		Ongoing costs for running a business and generating its products; contrasts with capital expenditures to provide the non-consumable inputs for production; vary with the quantity produced and include materials and components purchased
Cost of goods sold		All costs involved in carrying the goods sold; contrasts with cost of goods not yet sold (deferred costs of inventory in hand). Includes costs of purchase, conversion and related, and covers materials (intermediate), labour and overheads.
Selling, general and administrative expenses		Accounting fees, licenses, maintenance and repairs, advertising, office expenses, supplies, attorney fees/legal fees, utilities, insurance; property management; property taxes; travel and vehicle; leasing commissions; wages and salaries related to sales and administration
Research and development expenses; experimentation expenses		Expenses to create and discover new knowledge/ideas in science or culture; for the purpose of developing valuable new goods, processes and services. Might take time and differs from other expenses in that the outcomes are longer term and are very uncertain ; often focuses on meeting unmet needs.
Depreciation and amortization		An expense (allocation) to cover decrease of asset value from use; applied to recover the cost of the asset being depreciated.
Other expenses		Any expense other than those listed above – a not elsewhere classified category
Operating income		Difference of sales and operating expenses
Non-operating Income		Other gains or losses not accounted for by core product sales, except financial; including asset sales or asset write-downs, foreign currency value adjustments; unusual capital gains and losses, or profit and losses from investments. These are usually non-recurring income

Table 1: Income statement of an establishment		
Category	Data	Metadata
EBIT		Sum of operating income and (other) non-operating income
Financial Income		Dividend income from stocks, bonds and real estate
Income before Interest Expense		
Financial expense (interest)		Interest payments; bank charges and fees
Earnings before taxes (income taxes)		Difference of revenues and expenses; typically grouped as routine and intellectual property earnings; for success intellectual property earnings and other goodwill are usually high and so can attract high investment
Income taxes		
Net Income (Profit)		

3.2 Balance Sheet

The composition of the EBIT is driven by the use of the assets in the balance sheet. Regarding the balance sheet, the data consistent with the IASB standard are illustrated in **Tables 2 – 4** below. The balance sheet documents in summary form the financial balances of an entity. In particular, it records the assets (in order of liquidity) of an establishment and their decomposition into the (financing) liabilities and the capital (owner equity) that created them. The data inform about the pool of resources useable to create output and the methods of financing that capacity pool. This capacity will normally have to be combined with manpower and skills, including tacit knowledge, to create output.

3.2.1 Assets

Table 2 documents the assets. Intellectual property assets and other **goodwill** such as tacit knowledge feature prominently in this resource pool as crucial keys to high profit and high levels of retained earnings in the capital of the company. These are the secrets to high profit. Goodwill is an important aspect of the asset pool, even though many of its elements cannot be ‘owned’ by an establishment. It describes the human capital, the structural capital, and the relational capital needed to use an establishment’s other assets effectively, especially the intellectual property assets. The **human capital aspects** are well-understood, and covers the skills, know-how and expertise that represent the will and capacity of the establishment to solve business problems, innovate, and thus use and create intellectual property and other assets while regenerating and growing in its own right (Sveiby, 1997¹). This is one of the sets of assets of the company that cannot be ‘owned’ because it is inherent in people. However, it can be retained by building structural and relational (networking) capital. The **structural capital** is the heart of the asset pool, because it embodies most of the value and many of the keys to innovative capacity. It covers all the non-physical supportive infrastructure of the establishments that allow people (employees) to function, and explains much of productive performance: (i) organizational capital, including image, organization, information systems, employee loyalty, philosophy and methods of leveraging organizational loyalty; and including process capital in the form of methods, procedures and programs to enhance production and delivery of goods and services; and (ii) tacit knowledge, theory and talents that run the establishment. The relational or networking capital is the set of customer relationships, supplier relationships, trademarks and trade names, licenses and franchises that tie to

¹ Sveiby, K. E. (1997). The Intangible Asset Monitor. *Journal of Human Resource Casting and Accounting* 2 (1).

customer networks, and allow efficient and dynamic production and marketing of goods and services. A primary feature of goodwill is that it regenerates and grows in its own right through local and global networking.

Table 2: Statement of assets of an establishment		
Category	Data	Metadata
ASSETS		Anything, tangible or intangible, that has positive value and can be owned and controlled for production of value.
Current assets		
Cash and cash equivalents		The most liquid economic resources owned by the entity.
Accounts receivable (debtors)		Legally enforceable claims for payment to the business by its customers; usually invoices sent by the business; money owed to the business.
<i>Less allowances for doubtful accounts</i>		
Inventories		Goods and materials that a business holds for the purpose of resale (or repair).
Prepaid expenses		Claims in the form of expenses (pre)paid for future services that will be used during the year.
Investment securities (held for trading)		
Non-current assets		Fixed assets, tangible or intangible
Property, plant and equipment		Fixed Assets - property, plant and equipment, including office equipment, computers, vehicles; assets not directly sold to consumers or other end-users; takes time to convert to cash
<i>Less accumulated depreciation</i>		Decrease in the value of assets at fair value; using some formula to allocate the cost of assets to periods when the assets are used; allocated as an expense over the period of expected use.
Investments securities (held to maturity / available for sale)		
Investments in associates		Value of minority shares owned in other companies; also called fixed financial assets. Dividends normally accrue from these assets.
Intellectual property assets		The innovation capital of the establishment, defined by patents, trade secrets, copyright, trademarks, geographical indications, industrial designs, computer programs, etc.; often seen as components of structural capital in goodwill
<i>Less accumulated amortization</i>		
Other Goodwill		Describes and values aspects such as human capital, managerial efficiency; brand value, customer loyalty, tacit knowledge and other 'intellectual capital'.
Other non-current assets		Deferred tax assets; lease receivable

3.2.2 Liabilities

The liabilities are described in **Table 3**. The major issue that usually arises from the table is the structure of the liabilities, which goes a long way to clarifying the structure of capital. The debt-related elements include senior debt such as secured and unsecured loans. These must be distinguished from the equity components of the obligations, which refer to ownership interests and claims that are not shared by debt holders. These are documented claims that match the funds put into the business by the owners that create liability in the form of share capital. Common stock differs from this by being shares that are sold to interested parties who were not involved in the creation of the company and hold the most junior interest in it. Note that share (equity) can be sold for cash or any other exchangeable item, including real property. Shares can also be sold to venture capitalists, in return for dividends.

The capital structure refers to the way the unit finances its assets – equity vs debt; local vs foreign – and points to the structure of the liabilities (hence the assets and the capital) and the nature of leverage

(debt to total financing) (Modigliani and Miller, 1958; 1963; Miles and Ezzell, 1980).² They argued that the structure should not matter (is irrelevant) under conditions of perfect competition. However, if found to matter, then the implication is partly that conditions are imperfect – due to information asymmetry, taxes, agency costs, mismanagement and bankruptcy. The Modigliani-Miller concern with the debt-equity structure is only one classification for the definition of structure. Another is the domestic-foreign capital structure, which was shown to be relevant Annex I and in James (2013).³

This leads to the question of what is the optimal capital structure, on each interpretation, that would maximize value (discounted value-added) over time (discounted value-added) and what imperfection causes it? Several options are considered in the literature. The first is that there is a cost to increasing debt relative to equity, which is to say bankruptcy and financial distress, to be matched against the benefit of financing with debt (D/E or D/A), which are mainly tax benefits. Is there any associated additional cost if the debt is foreign versus local? The differences in the impact of D/E may explain the differences in the capital structure of industries, apart from other factors, not differences within an industry. The second factor is the cost of information asymmetry, which leads to a ‘pecking order’ of financing (Myers, et al., 1984).⁴ Companies prioritize their financing according to the ‘law of least effort or least resistance’, and so prefer to raise equity as a last resort, especially equity from international sources. In any event, equity costs loss of some control over the company, so the order is internal (and domestic) debt, then internal (and domestic) equity, then foreign debt then foreign equity.

Table 3: Statement of liabilities of an establishment		
Category	Data	Metadata
LIABILITIES		Obligations of the business to pay debt arising from past transactions. Settlement may result in transfer (outflow) or use of assets, or creation of other economic benefits – borrowing, obligations to provide economic benefit to others, duty (ethical or legal) to settle claim on business.
Current liabilities		Amounts falling due within a year
Accounts payable		Money owed by the business to suppliers – excludes notes payable (legal debt).
Current income taxes payable		
Current amount of loans payable		
Short-term provisions		IFRS - Present liability of the business to another or to a person whose amount and timing are uncertain but within the year; may also show up as an expense in the income statement in some accounting environments
Other current liabilities		Unearned revenues (over payments, deposits)
Non-Current liabilities		Amounts due (to creditors) after more than one year
Loans payable		Debt designated through a note specifying principal, interest and dates of obligation to repay
Issued debt securities		Notes and bonds payable; debentures, outstanding stocks; derivative contracts

² Modigliani, F. and Miller, M. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review* **48** (3): 261–297; Modigliani, F. and Miller, M. (1963). Corporate income taxes and the cost of capital: a correction. *American Economic Review* **53** (3): 433–443.

³ James, V. (2013). Exchange Rate and Economic Growth in Jamaica. Unpublished report prepared for the Edward Seaga Research Institute, University of the West Indies, Mona.

⁴ Myers, S. C. and Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* **13** (2): 187–221.

		such as forward and future contracts to buy in specified future time
Deferred tax liabilities		Arise when tax relief is provided in advance of an accounting expense; or income accrues but not taxed until the income is received.
Provisions for the future		Such as pension obligations
Other non-current liabilities		Such as lease obligations and other long term commitments

3.2.3 Capital (Owner's Equity)

Formally, because of double-entry bookkeeping, the balance sheet of an establishment really has two elements – assets and liabilities. However, liabilities really have two sets of components: (i) obligations to creditors who are *non-owners* of the business, and (ii) obligations to creditors who are owners of the business. After payment of all obligations to non-owners, the funds remaining are labeled as capital or owner's equity. This leads to the fundamental equation of financial position linked to establishment activity, the golden rule of accounting, which is also the statement of equality of debits and credits:

1. Capital = assets - liabilities.

The balance sheet is fully described by this mathematical structure. The components of this capital are described in **Table 4**. While labeled capital, these components are in fact part of the liabilities of the establishment. The central issue is usually the role of retained earnings in the capital defined and the growth of share capital and premiums. These are dependent on the capital structure on one hand the asset structure, as defined by the share of intellectual property and goodwill. The higher the share of retained earnings and share capital after meeting obligations on dividends, the less risky a company is likely to be.

Category	Data	Metadata
Other non-current liabilities		Such as lease obligations and other long term commitments
Capital		Owner's equity
Paid in capital		Made up of share capital (ordinary and preference) and share premiums, less required stocks.
Retained earnings		The portion of net income retained rather than paid in dividends to shareholders; note that it can be negative and have the effect of reducing capital. Inform about how a company has managed its profits and in particular whether it has re-invested them in the business
Revaluation reserves		Revaluation of cash, capital and statutory reserves, aimed at bringing the fair market value of reserves into the financial statements
Accumulated other comprehensive income		Gains or losses not represented in the income statement – related to securities, derivatives, foreign exchange transactions or holdings, and actuarial adjustments
Minority interest held by other companies		In the US, this is reported as a liability

3.3 Consolidated Balance Sheet of SMEs

Small and medium enterprises may not have the elaborate information records needed to prepare detailed balance sheets. However, most of the information can be captured by a more summary balance such as in **Table 5**. The basic entries are assets represented are cash, accounts receivable and equipment and tools. The basic liabilities documented are notes payable, accounts payable and the owner's equity in the form of capital stock and retained earnings. The target remains measurement of capital in the latter sense. Again, the higher the share of capital in the resource pool, the less risky the enterprise.

Category	Data	Metadata
Assets		
Cash		
Accounts receivable		Claims held on others, especially other businesses; invoices sent to other businesses for payment
Machinery, equipment and tools		
Land and buildings		
Intellectual property		Mostly copyright, image rights, and trade secrets
Liabilities		
Notes payable		Debts (such as loans; mortgages) created by formal legal contracts
Accounts payable		Money owed to suppliers of goods and services (usually paid after receipt of the goods and services)
Owner's Equity		
Capital stock		Shares held on account of funds put into the business or new injections that increase investment on machinery, equipment and other profit-making assets
Retained earnings		Profits no distributed to shareholders

3.4 Cash Flow

The net cash-flow of an establishment is an important source and measure of its financial risks, and is considered here as a factor underlying business risk (**Table 6**). Cash-flows document how money moves into and out of the establishment during some given period, say a quarter, and are indicators of the existence of its liquidity problems, even if the company is profitable. Net cash flows summed over a sufficiently long period, say summation of monthly cash-flows to get a yearly flow, can also measure profitability if the accrual accounting data do not adequately capture the dynamics of the economy over that longer period.⁵ A major aspect of the cash-flow, highlighted in **Table 6**, is the cash-flow from investments. This must be treated with care because the scale and nature of these investments might worsen the quality of the cash flow in the current period but will boost them in the future. Planners tend to exclude these and instead consider them against a long period discounted cash flow when

⁵ Recall that accrual accounting provides for a mismatch between delivery of goods and services and payment for goods and services, hence for periodic operational credit and debit. For example, sales commissions 'earned' during a month might be paid at the end of a year. The commission is an accrued expense recorded as a liability on the balance sheet during the work period before payment is made; it ceases to be a liability on the balance sheet when the cash is used to pay the commission at the end of the year.

considering the internal rate of return or the net present value of the projects defining the establishment.

Table 6: Summary statement of cash-flow of an establishment		
Category	Data	Metadata
Cash flow from operations		
Cash sales		Price*quantity sold; cash inflows usually disaggregated by the product lines of the establishment.
<i>Minus materials</i>		Unit cost*quantity; cash outflows usually disaggregated by type of material input and cost-accounted by product lines
<i>Minus Labour</i>		Wage rate*amount of labour used; cash outflows usually disaggregated by product line and type of labour
Cash flow from financing		
Proceeds from loans		Cash and spending capacity inflows from loans and other sources
<i>Minus loan repayments</i>		Cash outflows to meet obligations that come due during the period
<i>Minus taxes</i>		Cash outflows to government to meet statutory obligations
Cash flow from Investment		
<i>Minus Purchase of Capital</i>		Cash outflows to pay for the investments in equipment and tools that are added to the asset pool during the period.
<i>Net Cash Flow</i>		The sum over all sub-entries

3.5 MAIN AGGREGATES FROM DATA - SECTOR VALUE-ADDED – LEVEL, GROWTH AND STRUCTURE

Apart from its use in causal analysis, the micro data can be used to generate the value added that the carnival-related industries contribute to the Gross Domestic Product (GDP) of Trinidad and Tobago and its direction and percentage change over time. The potential for resource mobilization and allocation are key variables of interest for sector planning. The concept of sector value-added is set out in **Table 7** below, with metadata. Using data as conceived in the table, one can also compute the contribution of the carnival sector to national GDP, employment and trade, and net taxes, both in terms of its share and the growth of its share. The net contribution to trade allows a computation of the productive generation of foreign exchange and the saving of foreign exchange. It would be necessary to collaborate with the monetary authorities to pursue computation of the capital flows for investment in the sector. Set in the context of the computation in **Table 7**, it would be useful to generate a set of “carnival product price indexes” – retail prices and producer prices – which can be reported along with the standard price indexes of the country.

Table 7: The concept of sector value-added - level, growth and structure		
Indicator	Data	Metadata
Sector value-added	= value of output minus intermediate consumption	By definition, value of output equals price*quantity produced; Intermediate consumption equals accounting flows of expenditures on goods and services <i>used up as inputs in production</i> by establishments, including raw materials, services and other operating expenses.
Gross income	=compensation of employees + consumption of fixed capital +operating surplus + net indirect taxes	This is the sum of all claims on output. Compensation of employees is the wage rate*employment; consumption of fixed capital is the allocation for depreciation and amortization; net indirect taxes is taxes on production minus subsidies to production; operating surplus is the residual income after all the other commitments are made.
Gross expenditure	=consumption + investment + exports - imports	Consumption covers government and private expenditure; investment is gross fixed capital formation; exports is the values of output sold to the rest of the world; imports is the value of supplies purchased from the rest of the world.
Growth of value added	$\left(\frac{value - added_2}{value - added_1} - 1\right) * 100$	Percentage change of value-added from period 1 to period 2
Structure of value-added	$\frac{industry_i}{value - added}, i = 1 \dots n$	Share of each carnival industry in carnival sector value-added

4 MONITORING BUSINESSES EFFICIENCY

Apart from monitoring the sector and the industries in it, it is also necessary to monitor the extent to which the businesses make the best use of the resources. This amounts to measuring its efficiency or inefficiency, and the impact on its creditworthiness.

4.1 Efficiency and Inefficiency

It is expected that businesses in carnival will suffer losses or make profit resulting from shocks to volume, price, costs, and associated margins. Development of the industry will require monitoring of the businesses in the industry to upgrade and address their efficiencies/inefficiencies, risks, development needs and the related targeting of microeconomic policies. This will also help with targeting of specific groups in the industry, including the primary stakeholders. To make policy that is applicable in an industry development setting, in a way that targets all firms in the competitive market, it must be possible to define standards of performance from the data available and relate any firm, group of firms or regions to that standard. This would allow distance from the defined standard to be linked to profitability, resiliency, and thus to risk or the likelihood of loss. For measurement and analysis in this regard, we will use the dynamic efficiency and inefficiency indicators of stochastic frontier modeling.⁶ Crucial here are tools developed to take advantage of panel/longitudinal data and allow the target measures of inefficiency and hence risk to adjust over time⁷ and to be functions of firm-specific characteristics, such as ownership form, international capital structure, age, experience, location, schooling and capacity to influence technology trends.

⁶ The method of stochastic frontier modeling was pioneered by Aigner, Lovell and Schmidt (1977) and Meeusen and van den Broeck (1977) and Jondrow, et al (1982).

⁷ (Battese and Coelli, 1992; 1995; Kumbhakar and Lovell, 2000).

5 Survey Design and Data Collection for Establishments

It was emphasized in **Annex I** that randomized selection is crucial to causal analysis. This section clarifies the methods that are applicable to collection of data from establishments.

5.1 Sampling Methods, T&T

Structural differences in the economies of Trinidad and Tobago will require that sampling of establishments be handled separately for each island's peculiar economy. This approach to establishment survey in Trinidad and Tobago is consistent with the current design of the Continuous Sample Survey of Population-Labour Force Survey. For the island of Trinidad, the plan will call for the stratification of establishments, firstly by industrial sector and secondly, within industrial sectors, stratification of establishments by employment size-groups.

For each industrial sector (16 in total), an establishment will be assigned to one of four employment size groups according to the total number of persons on its payroll. The employment size groups proposed are as follows as follows: small (under 10 employees); medium (10 to 44 employees); large (45 to 100 employees); and mega (over 100 employees). In the case of Tobago, similar employment size-groups will be used. However, an additional feature of the survey design for the island of Tobago will be an initial stratification of establishments by geographic areas, namely Parishes or combination of Parishes, according to population size of the Parishes.

5.2 Sample Size

The determination as to what will constitute adequate sample size for Trinidad and for Tobago will be based on the following: Firstly, the sample size must be large enough to facilitate the levels of stratification, bearing in mind that at each level of stratification, estimates of statistics would be important. Secondly, the sample size must be adequate enough to compensate for non-response rates which will be expected to be high for this kind of economic investigation. Based on the foregoing, sample sizes for Trinidad and Tobago are estimated to be 550 and 600 respectively. The larger sample size for Tobago is due to the fact that higher levels of stratification will be required and to make allowances for inaccuracy of Tobago's sampling frame.

5.3 Allocation of Samples to Strata

Allocation of samples to strata (n_h) should be based on proportionate contribution of stratum to total employment (w_h). However, since estimates at the levels of the industrial sectors and geographical areas would be equally important, and bearing in mind that the distributions of establishments by employment sizes are usually skewed, proportionate allocation would yield samples in small industrial sectors and geographical areas that may be too small to allow for reliable estimates. Let H be the total number of strata. In order to maintain sampling precision and assure adequate samples for estimates in small domains, proportionate allocation weights should be based on the following (Kish, 1976 and 1988):

1. $n_h \propto \sqrt{w_h^2 + \frac{1}{H^2}}$

and therefore,

2. $n_h = k \sqrt{w_h^2 + \frac{1}{H^2}}$, c being a constant.

The adjustment of $\frac{1}{H^2}$ for small stratas would have a significant effect on their representation relative to the effects on the representation of large strata. By summing both sides of Equation (2) and re-expressing terms, we can obtain a solution for k as:

3. $k = \frac{\mathbf{n}}{\sum \sqrt{w_h^2 + \frac{1}{H^2}}}$, where \mathbf{n} is the allocation of establishments to the domain in question.

6 SOCIAL MONITORING

Carnival is a unique blend of activities of varying quality and quantity ranging from visual arts and crafts, to literature, music, film and video, drama and dance. At minimum, and in the first instance, monitoring of the social benefits and costs of carnival will require monitoring of the impact on poverty and equity of access, linked to the two central human rights of the Millennium Declaration of the United Nations. Here, equity of access relates to the main issues of education, health, housing, energy and other social benefits, and even social inclusion and satisfaction by the participants in the industry. The main question is whether the industry provides avenues to improve access to these benefits while reducing social costs.

6.1 Social Benefits of Carnival

Usually, in considering the social benefits, scholars look for access, networking, educational, health, psychological/psychometric, and community networking inflows and outputs, outcomes, and impacts, along with benefits in poverty reduction and equity. Scholars also look for gains in the form of spillovers of many sorts. In these senses, there are a number of significant social benefits from carnival.

1. Carnival is the ultimate in creativity activity – in music, in industrial activity, and in art and artistic expression. Thus, while it provides economic space for industrialists and their social network to produce output that is both valued, admired and marketed, it also provides:
 - a. Social space for persons to explore
 - i. Their own motivations.
 - ii. The motivations of others.
 - b. A social environment that supports and facilitates personal development.
 - c. A social environment for personal and group therapy.
 - d. A social and economic space for networking, cooperation, and the development of social skills.

2. Most of the industrial and artistic carnival activities are 'adult education' programmes.
 - a. In preparing steelbands for Panorama, players learn musical skills of various sorts.
 - b. Participants are fully involved in making decisions and choices about performances, and therefore in taking responsibility for their actions and outcomes.
3. At core, all carnival activities double as industrial and recreational activities. It appears to be this blend that explains much of its tendency to produce large amounts of goodwill – offering opportunity for pleasure at each step, alongside and the products and services that can be sold, exchanged, and accumulated by the creators as valuable intellectual property and other goodwill.
4. Carnival is the ultimate in social production, hence a major generator of social cohesion that transcends races, color and creed.
5. Desire to participate and to identify socially with risqué behavior without reducing the will to 'free-up' also produces a tendency to reduced offensive behavior during carnival.
6. **Branding and rebranding –**
 - a. Carnival promotes international interest in the local environment, in as much as people seek to understand and experience the type of social framework that produces this explosion of creativity.
 - b. Many aspects of carnival directly improve the image of Trinidad and Tobago.
 - i. The greatest show on earth.
 - ii. The phenomenal capacity to produce a crime-free carnival.
7. Through its 'free-up' phenomenon, carnival is a major stimulant of self-expression and thus a source of self-confidence for locals and foreigners alike, especially as therapy for persons prone to being anxious, self-doubtful and excessively reserved. It enables all participants to explore the limits of their identity and redefine the origins and nature of their self-confidence.
8. Historically, carnival has been a major promoter of private and public sector partnerships, which is now increasingly recognized as an important principle in the development of private and social capital.
9. Carnival enhances community organizational capacity,
 - a. It encourages independent community spirit to act without government assistance if necessary.
 - b. It enhances the capacity of the citizen to network in the community in order to explore visions of the future.
 - c. It enhances local community renewal efforts by providing ways to engage popular creativity.
 - d. It stimulates dialogue between individuals and social groups.
 - e. It encourages transparency through open questioning.
10. Carnival can have a transformative effect on environmental initiatives, through both its music and its art.
11. Carnival can be a means to incorporate poor households and neighborhoods in business development efforts, and through this can maximize the impact of government spending and policies on arts, sports and leisure, and on community renewal and regeneration programs.

6.2 Poverty and Inequity

Carnival emerged from the culture of the poor and the rich, and one of the main priorities of the development of the industry is to ensure that local communities and populations are able to use the industry as a pathway to both economic and social benefits. Of specific concern are:

- i. Creation of employment opportunities and new activities related to carnival that the underprivileged can exploit.
- ii. Improvement in the satisfaction and material living conditions and social services.
- iii. Improvement of the satisfaction and confidence of participants in the industry.
- iv. Stress reduction.

6.3 Social Threats and Costs

However, carnival also has social threats and costs, which government wants to monitor. The NCC holds the view that it is not sufficient to measure the benefits. Indices are required to monitor:

- i. Community dissatisfaction.
- ii. Noise pollution and the related disruption of the social rhythm (time of fetes or practice related to carnival, as compared to normal schedules of work and life).
- iii. Disruption of the traditional use of roads and spaces because of the routes used by carnival.
- iv. Sexual promiscuity and threat of HIV/AIDS.
- v. Drug use and crime.
- vi. Disturbance of eating habits and other aspects of everyday life as a result of carnival.
- vii. Other environmental costs.

6.4 Monitoring the benefits and costs

Two types of instruments are needed that can capture the net benefits and costs:

1. The first is a measure of the welfare status of households participating in the carnival industry as compared to others who do not.
 - a. Multidimensional objective measures are needed, along the lines recommended by the UNDP/Oxford
 - b. Multidimensional subjective measures are also needed.
2. The second is a 'welfare map' of the communities that are major centers of carnival industrial activity, as compared to communities that are not.
 - a. Again, multidimensional mapping is the norm.

6.5 Basic Social Indicators - Poverty and Equity

The basic indicators of poverty and equity are as follows:

- Proportion of population below \$1 (PPP) per day
- Poverty gap ratio
- Share of poorest quintile in national consumption
- Growth rate of GDP per person employed

- Employment-to-population ratio
- Proportion of employed people living below \$1 (PPP) per day
- Proportion of own-account and contributing family workers in total employment
- Prevalence of underweight children under-five years of age
- Proportion of population below minimum level of dietary energy consumption
- Ratio of share in national income of highest quintile to share of lowest quintile.
- Proportion of population using improved sanitation facilities.
- Proportion of population using an improved water source.
- Proportion of households without electricity or other modern energy services.
- Proportion of urban population living in slums.
- Ratio of share in national income of highest quintile to share of lowest quintile.

Rio+20 agrees that development for poverty reduction must pay more adequate attention to getting the sustainability issues right, and hence to getting the resource and environmental conservation issues right, through a process of international cooperation for domestic capacity-building. Such capacity building will affect all key dimensions of the human development process, and hence all of the broad contextual aspects of the MDGs that underlie poverty reduction monitored through indicators as specified above: income growth, education, longevity, and democracy. Accordingly, it is important to ensure that suitable underlying analysis of this human development process be undertaken before deciding how to adjust the poverty indicators themselves, in anticipation of the post-2015 agenda.

6.6 Social Indicators - Education

Table A-4 presents a comparison of the MDG indicators and other UN Indicators of progress in education. Rio+20 recommends as follows:

“62. We note the importance of ensuring that workers are equipped with the necessary skills, including through education and capacity-building.

88(e). Disseminate and share evidence-based environmental information, and raise public awareness on critical, as well as emerging, environmental issues.”

Table A-5 suggests that it may therefore be appropriate to adjust the other UN education indicators to include progressive adjustment in the ability to develop and technology use for sustainability in all societies:

1. Adult secondary skill-based (technical/vocational) education attainment level.
2. Adult tertiary skill-based (technical/vocational) education attainment level

The adjustments suggest that, in the first place it is not sufficient for sustainable development that the work force be able to work smart rather than work hard. Increasingly, it is also necessary to be able to work smart and creatively, and that capacity rests of the knowledge of technology and the skills to use it creatively. Earlier thinking focused on the knowledge of technology and the skills to use it, without specific regard to creative use. This adjustment must begin in basic education and extend into tertiary education, much as is already done for traditional technical-vocational professions such as medicine, law, and engineering.

Table A-1: MDG Indicators vs other UN Indicators of Progress in Education	
General UN Education Indicators	MDG Education Indicators
2. Net enrolment rate in primary education.	2.1 Net enrolment ratio in primary education
1. Gross intake ratio to last grade of primary education.	2.2 Proportion of pupils starting grade 1 who reach last grade of primary
3. Adult secondary education attainment level.	
4. Adult tertiary education attainment level	
5. Adult literacy rate	2.3 Literacy rate of 15-24 year-olds, women and men
	3.1 Ratios of girls to boys in primary, secondary and tertiary education

Table A-2: Adjusted General UN Education Indicators versus MDG Indicators of Progress in Education	
CSD Indicators	MDG Indicators
2. Net enrolment rate in primary education.	2.1 Net enrolment ratio in primary education
1. Gross intake ratio to last grade of primary education.	2.2 Proportion of pupils starting grade 1 who reach last grade of primary
3. Adult secondary education attainment level.	
Adult secondary skill-based (technical/vocational) education attainment level.	
4. Adult tertiary education attainment level, of which	
Adult tertiary skill-based (technical/vocational) education attainment level	
5. Adult literacy rate	2.3 Literacy rate of 15-24 year-olds, women and men
	3.1 Ratios of girls to boys in primary, secondary and tertiary education

6.7 Social Indicators – Health and Longevity

The basic indicators for monitoring sustainable longevity in countries are reported in **Table A-6** along with the internationally agreed MDG indicators.

Rio+20 recommends as follows:

“58(h) ensure that environmental measures addressing trans-boundary or global environmental problems, as far as possible, are based on international consensus;

58(o) Promote sustainable consumption and production patterns;

62. We note the importance of ensuring that workers are provided with the necessary social and health protections. In this regard, we encourage all stakeholders, including business and industry, to contribute, as appropriate.”

In this light, the basic health indicators can be updated as in **Table A-7**.

Table A-3: Adjusted General UN Indicators versus MDG Indicators of Progress in Health and Longevity	
CSD Health Indicators	MDG Health Indicators

Table A-3: Adjusted General UN Indicators versus MDG Indicators of Progress in Health and Longevity	
CSD Health Indicators	MDG Health Indicators
1. Under-five mortality rate.	4.1 Under-five mortality rate
2. Life expectancy at birth.	4.2 Infant mortality rate
4. Immunization against infectious diseases.	4.3 Proportion of 1 year-old children immunized against measles
	5.1 Maternal mortality ratio
3. Percent of population with access to primary health care facilities.	5.2 Proportion of births attended by skilled health personnel
	5.3 Contraceptive prevalence rate
	5.4 Adolescent birth rate
5. Nutritional status of children	5.5 Antenatal care coverage (at least one visit and at least four visits)
	5.6 Unmet need for family planning
	6.1 HIV prevalence among population aged 15-24 years
	6.2 Condom use at last high-risk sex
	6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS
	6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs
6. Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis	6.6 Incidence and death rates associated with malaria
	6.7 Proportion of children under 5 sleeping under insecticide-treated bednets
	6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs
	6.9 Incidence, prevalence and death rates associated with tuberculosis
	6.10 Proportion of tuberculosis cases detected and cured under directly observed treatment short course

Table A-4: MDG Indicators versus other Adjusted UN Indicators of Progress in Health and Longevity	
CSD Health Indicators	MDG Health Indicators
1. Under-five mortality rate.	4.1 Under-five mortality rate
2. Life expectancy at birth.	4.2 Infant mortality rate
4. Immunization against infectious diseases.	4.3 Proportion of 1 year-old children immunized against measles
	5.1 Maternal mortality ratio
3. Percent of population with access to primary health care facilities.	5.2 Proportion of births attended by skilled health personnel
	5.3 Contraceptive prevalence rate
	5.4 Adolescent birth rate
5. Nutritional status of children	5.5 Antenatal care coverage (at least one visit and at least four visits)
	5.6 Unmet need for family planning
	6.1 HIV prevalence among population aged 15-24 years
	6.2 Condom use at last high-risk sex
	6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS
	6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs
6. Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis	6.6 Incidence and death rates associated with malaria
	6.7 Proportion of children under 5 sleeping under insecticide-treated bednets
	6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs
	6.9 Incidence, prevalence and death rates associated with tuberculosis
	6.10 Proportion of tuberculosis cases detected and cured under directly

Table A-4: MDG Indicators versus other Adjusted UN Indicators of Progress in Health and Longevity	
CSD Health Indicators	MDG Health Indicators
	observed treatment short course
	8.13 Proportion of population with access to affordable essential drugs on a sustainable basis
7. Proportion of population using solid fuels for cooking	
8. Prevalence of tobacco use	
9. Generation of hazardous waste	
10. Wastewater treatment	
11. Waste treatment and disposal	
12. Percentage of population living in hazard-prone areas	
13. Consumption of ozone-depleting substances	
14. Ambient concentration of air pollutants in urban areas	
15. Presence of faecal coliforms in fresh water	
16. Exposure to agricultural pesticides	
17. Life satisfaction/happiness indicator – suicide rate	

6.8 Governance Indicators

The combination of issues discussed so far reflects fairly long-standing advances in thought about how to decisively address the essential needs of the poor, in each country and globally. The idea has long been that poverty eradication is the world's urgent social need and the MDGs capture the initiatives required, as understood in the 1980s. In addressing this problem, it is recognized that there are two basic sets of underlying economic and ecology-related issues. The first is to address the limitations and constraints imposed by the direction, scope and rate of development of technology and cultural development in countries and globally. Here, science and culture are the inseparable twins of technological and cultural development driving economic and ecological progress. The second is to address how the path of institutional development in support of country-specific capacity-building impinges on the path of technological/cultural progress and hence the capacity to treat poverty, in countries and globally. Within countries, Indigenous People are dealt with as marginalized groups.

The question naturally arises: how about the good governance issues – especially the matter of widespread public participation in decision-making as prerequisite for effective poverty eradication? Should the notion of social development be extended to 'socio-political' development to bring in the governance dimension?

Table A-8 sets out the MDG indicators of good governance compared to other UN Indicators. Some of these governance issues are already addressed in the MDGs, especially as related to gender. The findings will also guide how the issues are treated in the framework being developed. The adjusted indicators are reported in **Table A-9**:

Table A-5: MDG Indicators versus other UN Indicators of Progress in Governance	
General UN Governance Indicators	MDGs Governance Indicators
1. The percentage of population having paid bribes	
2. The number of intentional homicides per 100,000 population	
3.3 Proportion of seats held by women in national parliament	

Table A-6: Adjusted UN versus MDG Indicators of Progress in Governance	
General UN Governance Indicators	MDGs Governance Indicators
1. The percentage of population having paid bribes	
2. The number of intentional homicides per 100,000 population	
	3.3 Proportion of seats held by women in national parliament
3. Institutional facilitation of participatory decision-making	
4. Percentage of decisions participatory decision-making	

6.8.1 Multi-dimensional Poverty

For an inclusive approach to social benefits, the best option might be the multidimensional index developed by the UNDP and Oxford University.⁸ The Multidimensional Poverty Index (MPI) seeks to reflect the multiple properties of poverty (Alkire, et al, 2011). It is based on ten (10) broad indicators, which are themselves elaborated aspects of the general Human Development Index of the UNDP. However, the indicators also reflect all the dimensions and guidelines of the MDGs. These are:

1. Education (each indicator is weighted equally at 1/6)
 - a. Years of schooling, with deprivation defined as failure to complete at least five years of schooling.
 - b. Child school attendance, with deprivation defined as child of school age not attending school up to class 8.
2. Health (each indicator is weighted equally at 1/6)
 - a. Child mortality, with deprivation defined as a child having died in the family.
 - b. Nutrition, with deprivation defined as a child or adult being malnourished (based on data).
3. Standard of Living (each indicator is weighted equally at 1/18), moderately reflective of sustainability
 - a. Electricity, with deprivation defined as a household having no electricity
 - b. Sanitation, with deprivation defined as a household's whose sanitation facility is either not improved or is improved but is shared with other household.
 - c. Drinking water, with deprivation defined as either a household with no access to safe drinking water or a household with safe drinking water more than a 30-minute walk from home, roundtrip.
 - d. House floor, with deprivation defined as a household with a dirt, sand or dung floor.
 - e. Cooking fuel, with deprivation defined as a household that cooks with dung, wood or charcoal.

⁸ The MPI was developed in 2010 by the UNDP and Oxford Poverty & Human Development Initiative.

- f. Asset ownership, defined as deprived if the household does not own more than one radio, TV, telephone, bike, motorbike or refrigerator and does not own a car or truck.

In the MPI, an individual is poor if deprived in at least 33.33% of the weighted indicators. The intensity of individual poverty measures the proportion of the selected indicators in which that individual is deprived. Let H be the extent of poverty as defined and A be the intensity of poverty as defined. Then the MPI of a country is measured as

1. $MPI = H * A$.

It is worth noting here that the indicators call all be adjusted to reflect the sustainability issues raised by Rio+20. If such an overall index of achievement on poverty reduction is available (constructed), which fully embraces the multidimensional character of the MDGs, including the role of sustainability, then each MDG indicator could be properly viewed as a likely contributor to what was achieved.

7 Survey Design and Data Collection for Social Monitoring of Carnival

It was emphasized in Annex I that randomized selection is crucial to causal analysis. This section clarifies the methods that are applicable to collection of data from establishments.

7.1 Purpose

A significant amount of household data will be needed for monitoring carnival and for shaping related policy, with particular regard to the social benefits and costs of carnival. Information will be needed on:

- a) Household well-being, multidimensional
 - a. Carnival household well-being, multidimensional
- b) Income
 - a. Carnival income
- c) Specific aspects of the carnival experience
- d) Expenditure
 - a. Carnival expenditure

To collect these data routinely, it will be necessary to construct appropriate surveys that yield data that can answer causal questions as if from a randomized experimental process – say a randomized clinical trial. This would allow collection of data and prepare estimates related to households involved in the Carnival Industry. These ‘Carnival Industry Households’ would feature at least one household member who is involved in the Carnival Industry. Involvement may be as an Owner/Manager or Employee of an enterprise that produces Carnival products or as a Consumer of carnival products or as a supplier of goods and services to carnival Industry producers. With certain basic modification for the purpose at hand, the CSSP of the Central Statistical Office provides the ideal model of the type of survey required, from the standpoints of design and cost. The CCSP is a robust scientifically designed randomly selected

cluster sample survey of households. It is conducted on a continuous basis by a team of experienced survey interviewers. (Reference)

7.2 Primary Adjustments Needed

7.2.1 Update of the Sampling Frame

For the purpose of adequate representation of the carnival industry households, the sampling frame of the CSSP will have to be revised and updated. The relevant frame must be based on on the latest data available from the 2011 Population and Housing Census.

7.2.2 Sample Size

The size of the CSSP sample will have to be increased from the current size of 3500 per quarter to a larger that can ensure adequate representation of the Carnival Industry Households.

7.2.3 Adjustment of PSU and the EDs

The existing PSUs and EDs are based on a geographical definition of the country in terms of countries. The administrative definitions are now Tobago, the Municipalities and Regional Corporations. Bearing in mind the need for consistency with past estimates from the CSP, the definitions of the PSUs and EDs must be updated to reflect the new administrative boundaries.

7.2.4 Method of Data Collection

Two observations are required. First, intra-household details matter the understanding of the carnival industry, just as for the understanding of the labor of the economy. The methodology must be realigned with the emphasis on obtaining data about each relevant member of the household, either direct from the member or from a person qualified to speak on the member's behalf where a direct interview is not possible. Second, the C.S.S.P. now collects data using enumerators with pen and paper. It is now necessary to update from this to the use of ICT supports, such as handhelds and relevant software that also speed up the data capture and cleaning process.

7.2.5 Periodicity of the Survey

The CSSP is conducted in quarterly rounds, each of 3500. The duration of the quarterly survey is fixed to last exactly three (3) months with each month consisting of two (2) periods of a fortnight's duration. Each period comprises two (2) consecutive weeks - one week for listing and one week for enumeration. The Carnival Industry Survey will have to be conducted in an appropriate quarter, but executed in a way that does not reduce the quality of the CSSP itself.

7.3 Survey Instrument for the Carnival Industry Household Survey

For the purpose of the Carnival Industry Survey, a special survey instrument must be designed. This must be done in collaboration with all the key stakeholder institutions, especially the academy. For this purpose a specific program of institutional strengthening for survey design and questionnaire development will be needed that targets the following:

- a) CSO
- b) University of the West Indies and University of Technology

- c) CITT
- d) The stakeholder interest groups
- e) NCC
- f) Line Ministries

7.4 Data Management and Storage

The most important aspect of the process is data management and archiving. In addition to the strengthening of the CSO in this regard, efficient scientific work will be facilitated by:

- a) Creation of an external depository at the CITT, complete with full versions of the survey
- b) Maintenance of depositories in at least one international development partner interested in the analysis of the carnival industry.
- c) Training for data analysis and modeling using the data.

Given that the data to monitor the industry will come from several domains, the CITT will need a basic repository that can hold and integrate information from several disparate sources. These would include archived data as well as current data, which would be hosted in a system that allows for a range of efficient queries and reports of trends and comparisons to be generated for the use of the management and board of the NCC.