Impact of Tourism on the Economy of Rwanda: Tourism Collective Consumption Multilier Effects

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ABSTRACT

The primary objective of this study was to evaluate the economic impact of tourism collective consumption by the government for the year 2013/2014. The input-output/SAM models were used to estimate the impacts and effects. Data for analysis was sourced from EORA multi-region input-output table (MRIO) database. All impacts have a starting point in the economy, defined as the direct effect. The direct effect sets off iterations of indirect (inter-industry production) and induced (household purchases) spending. There are several different types of multipliers depending on the secondary effects included and the measure of economic activity used. The common multipliers computed were associated with output, income, value addition and employment in the economy. Multipliers were decomposed into their associated effects: initial, production and consumption effects. Tourism collective consumption of US$ 9 million created 79 thousand jobs, generated $4.7 million labour income, and added $11 million to total value in the economy and $23 million to total output. This shows the extent to which government expenditure on tourism collective services can stimulate the economy in terms of employment creation, value addition, income generation and output production. However, ways of apportioning public shared services to a particular sector in the economy are still inconclusive. This study could be the first to assess the economic impacts of tourism collective consumption. Future studies may re-estimate the multipliers by adopting Computable General Equilibrium (CGE) models and more advanced statistical methods of apportioning shared collective services to a particular sector of the economy.

Key Words: Tourism Satellite Accounts, Total Tourism Internal Demand, Input Output Table, Social Accounting Matrix, Collective Consumption, Rwanda

INTRODUCTION

Rwanda GDP at current market prices was estimated to be RWF 5,837 billion in 2015, up from RWF 5,395 billion in 2014 (National Institute of Statistics of Rwanda, NISR). The services sector contributed 47% of GDP while the agriculture sector contributed 33% and the industry sector 14 per cent. Estimates calculated in 2011 prices show that 2015 GDP was 6.9% higher in real terms than that of 2014. In 2015, "agriculture sector" increased by 5% and contributed 1.5 percentage points to the overall GDP growth, "industry sector" increased by 7% and contributed 1 percentage points while the "service sector" increased by 7% and contributed 3.7 percentage points. Over the same year, private final consumption expenditure was 78% of the GDP while government final consumption expenditure was 12 per cent. In this year, imports of goods and services increased by 9% at constant 2011 prices while exports of goods and services increased by 10%. A summary of the percentage contributions of the three sectors to the country's GDP from the 2010 to 2015 is as shown in Table 1.

Table 1: Rwanda GDP Decomposition

	Current Prices					
Year	2010	2011	2012	2013	2014	2015
GDP (RWF bn)	3,323	3,846	4,435	4,864	5,395	5,837
Taxes less Subsidies on Products (RWF bn)	209	258	237	239	293	328
GDP at constant 2011 Prices	3,566	3,846	4,184	4,380	4,687	5,011
Implicit GDP Deflator	93	100	106	111	115	116
GDP per Capita (000's RWF)	333	376	423	453	491	518
GDP per Capita (Current US$)	572	627	689	701	719	720
SECTORS (% GDP)						
AGRICULTURE	33	32	33	33	33	33
INDUSTRY	13	14	14	15	14	14
SERVICES	48	47	47	47	47	47

Source: NISR

On average, the Service sector contributed 47% to GDP while the Hotel and Restaurants sub-sector contributed about 2.5% to GDP. Various services and their contribution values to the country's GDP are presented in Table 2.

Table 2: The Contribution of the Service Sector

	Percentages (Current Prices)					
SERVICES	2010	2011	2012	2013	2014	2015
Wholesale and retail trade	12	13	13	13	13	12
Hotels and Restaurants	3	3	2	2	2	2
Transport, storage & communication	3	3	3	3	3	3
Finance, insurance	3	3	3	3	3	3
Real estate, business services	8	7	6	6	6	6
Public administration	3	3	3	3	3	3
Education	3	3	3	4	4	4
Health	1	1	1	1	1	1
Information and Communication	3	2	2	2	2	3
Professional, Scientific and Technical Services	3	3	2	2	2	2
Administrative and Support Services	3	3	3	3	2	3
Cultural and Domestic Services	4	4	4	4	4	4
TOTAL	48%	47%	47%	47%	47%	47%

Source: NISR, 2015

Tourism Internal Demand

Rwanda TSA was constructed in accordance with recommended methodological frameworks and statistical requirements (UNWTO various issues). Total tourism internal demand consists of the sum of internal tourism consumption, tourism gross fixed capital formation and tourism collective consumption (TSA: RMF 2008). In the TSA RMF 2008, "total tourism internal demand" (TTID) is captured under various TSA Tables: Internal Tourism Consumption (TSA Table 4), Tourism Gross Fixed Capital Formation (TSA Table

8) and Tourism Collective Consumption (TSA Table 9). Internal tourism consumption is the central aggregate that describes the size of direct visitor acquisition within a country of reference. On the other hand, gross fixed capital formation and collective consumption enter the equation from the supply side. Collective consumption on tourism by the local, regional and national governments was estimated at RWF 7 billion during 2014/15 financial year (TSA Table 9).

The value of these government services can be established along the same parameters of measurement as any other collective non-market services - that is, through their cost of production. The value of consumption is, by convention, equal to the value of production. Production is measured by using the costs of production, including the consumption of fixed capital as a component of these costs (the case for non-market services in the *System of National Accounts, 2008)*.

Although collective non-market services are excluded from tourism consumption, this does not mean that the measurement of the expenditure by public administration in the tourism-related fields of market promotion, information, planning, etc. is not relevant and that it does not have its place in the aggregate measurement concerning the economic importance of tourism. The public sector plays an important role in the development of tourism activities in many countries (TSA: RMF 2008). The sector establishes the legal framework for the tourism activity and puts in place certain controls on the production of services i.e. guarantees the quality of services provided through licensing and codes of conduct. The government regulates private investment and additionally sets norms for the preservation of environment and cultural/historical heritage. In certain cases, it organizes and controls the financing of required investments for tourism.

Objectives of the Study

The primary objective of this study is to evaluate the economic impact of tourism collective consumption on Rwanda's economy for the year 2014. The specific objectives are to estimate the impacts of tourism in terms of output, employment generation, labour income and total value generation. The current study is applicable to policy formulation, implementation, monitoring and evaluation.

METHODOLOGY

The economic impacts of tourism can be estimated using economic models that identify and quantify the linkages between different sectors of the economy. The relationship between expenditure and output on one hand, and income and employment on the other hand can be described by multiplier effects. The standard approach is to estimate the economic impacts of tourism by using an input-output (1-0) or SAM models in order to derive appropriate multipliers (Hara, 2008; Brassoulis., 1991; Flechtling, 2013; Fletchtling and Horvath, 1999; Flechtling and Smeral, 2010; Jones and Munday, 2004; Kumar and Hussain, 2014; Miller and Blair, 2009; Song et al. 2012; Surugiu, 2009; Stynes, 1999; Blake, 2009).

Tourism Satellite Accounts (TSAs) provide input data for entry into an economy's input-output model (Hara, 2012). TSAs are constructed to aggregate a country's tourism activities into a single industry. The intermediate and final consumption (demand) vector based on tourism expenditure is extracted from the TSA. The aggregated tourism industry is inserted as one explicit industry in the I-O table, thus avoiding double counting.

Data from Rwanda TSA (2014) and NISR were used for estimation.

Data Sources

The Input-Output Table was sourced from *EORA multi-region input-output table (MRIO) database:* http://www.worldmrio.com/

Data for the direct impacts of tourism on the national economy of the country was extracted from the Rwanda Tourism Satellite Account (TSA) for the year 2014.

Software Package for Analysis

This study used the IMPLAN (Impact analysis for PLANning) software to evaluate the economic impact of tourism sector on Rwanda's economy. IMPLAN economic analysis framework is comprehensive and adaptive. For a complete description of sources and methodology for construction of the IMPLAN database please refer to the IMPLAN Pro User's, Analysis and Data Guide.

RESULTS

The results in this section (Table 3) cover direct, indirect and induced effects arising from government demand for inputs that are used in the production of collective services (Ivandic and Sulato, 2018; Michalkova *et al.,* 2018; Pratt, 2015). Direct effects refer to changes associated with variations in the supply of public services by the government; it is an initial impact on the economy (Dwyer *et al.,* 2004). Indirect effects are caused by changes in the level of production by directly affected industries (e.g., additional input purchases to produce additional output). Induced effects are caused by changes in household spending due to additional employment generated by direct and indirect effects (Archer and Fletcher, 1996).

Output

Direct effects refer to the initial impact of the supply of public services worth $9.1 million for collective consumption by the tourism sector. In order to produce the extra units of collective services, the tourism industry increases its purchase of intermediate inputs from other industries and from itself (first-round effects). Other industries in turn increased indirect purchases of inputs in order to expand their output (industrial support effect). Therefore, the production/indirect impact of $6.6 million are a combination of first-round and industrial support effects. During the production of direct and indirect output, households earn extra income of which they spend on commodities produced by all industries in the economy. This spending induces further production and consequently output by all industries amounting to $7.1 million (consumption/induced impact). The total output of $22.8 million was the amount produced by all industries, through total effects, in order to supply collective services worth $9.1 million to the tourism industry, $6.6 million demand for intermediate inputs and $7.1 million demand by households.

Table 3: Impact Indicators- Tourism Collective Consumption (US$)

	Effects	US$
Employment	Direct	73 860
	Indirect	1 327
	Induced	3 852
	Total	79 040
Labour Income	Direct	1 161 636
	Indirect	1 668 066
	Induced	1 866 697
	Total	4 696 398
Total Value Added	Direct	4 041 498
	Indirect	3 504 702
	Induced	3 600 724
	Total	11 146 925
Output	Direct	9 148 058
	Indirect	6 628 140
	Induced	7 060 636
	Total	22,836,834

Source: Compiled from IMPLAN OUTPUT, 2014

Total Value Added

About $4.0 million worth of value was added at factor cost, through direct effects, in producing $9.1 million worth of collective services for the tourism industry. Almost $3.5 million worth of value was added at factor cost, through indirect effects, in producing intermediate inputs valued at $6.6 million. Nearly $3.6 million worth of value was added at factor cost, through induced effects, in producing consumption-related output of $7.1 million. Approximately $11.1 million worth of value was added at factor cost, through total effect, in producing total output of $22.8 million.

Labour Income

Nearly $1.2 million worth of labour income was generated, through direct effects, in producing $9.1 million worth of collective services for the tourism industry. Almost $1.7 million labour income was generated due to the purchase of intermediate inputs of $6.6 million through indirect effects. Nearly $1.9 million labour income was generated through the production of consumption-related output of $7.1 million due to induced effects. Up to $4.7 million labour income was generated through the production of total output of $22.8 million due to total effects.

Employment

About 74 thousand jobs were created, through direct effects, in producing $9.1 million worth of collective services for the tourism industry. Almost 1.3 thousand jobs were created due to the purchase of intermediate inputs of $6.6 million through indirect effects. Up to 3.9 thousand jobs were created through the production of consumption-related output of $7.1 million due to indirect effects. Almost 79 thousand jobs were created through the production of total output of $22.8 million due to total effects.

Policy Scenario

Employment creation was as a result of 93.4% direct effects, 1.7% indirect and 4.9% through induced effects. Therefore, if the target is to increase employment by 100,000 jobs, the tourism sector needs to create 93,400 direct jobs. Labour income generation was a combination of 24.7% direct effects, 35.5% indirect and 39.7% induced effects. If labour income was to increase by $1,000,000 then the tourism sector should generate $247,000 through direct effects. Total value addition in the economy was generated through 36.3% direct effects, 31.4% indirect and 32.3% induced effects. If value added in the economy was to increase by $1,000,000 then the tourism sector should generate $363,000 worth of value addition through direct effects. Total output of tourism goods and services in the economy was derived through 40% direct effects, 29% indirect and 30.9% induced effects. If required increase in economy's total output is $1,000,000 then the tourism sector should generate $400,000 worth of output through direct effects.

CONCLUSION

This paper covered general multipliers (direct, indirect and induced) in the economy of Rwanda applicable to the public service sector. Tourism collective consumption of US$9 million created 79 thousand jobs, generated $4.7 million labour income, and added $11 million to total value in the economy and $23 million to total output. This shows the extent to which government expenditure on tourism collective services can expand the economy in terms of employment creation, value addition, income generation and output production. As mentioned in UNWTO TSA-RMF (2008), ways of apportioning public shared services to a particular sector in the economy are still inconclusive. This study may be the first to make an attempt in assessing the economic impacts of collective consumption for a particular sector, in this case, tourism.

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