Jamaica's Trade Weights and the Impact on the Real Effective Exchange Rate (REER): A Goods and Services Measure

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September 2014

Abstract

In light of the growing significance of services-based activities in the Jamaican economy, the formulation of a services-based measure of the real effective exchange rate (REER) has been deemed necessary. Such a measure would provide an addition to the Bank of Jamaica's current suite of measures that estimate trade weights for Jamaica's REER. The study computes two additional trade weights, one based on trade in services only and the other based on an aggregation of both goods and services. These weights were then used to re-estimate the REER to provide two additional measures of the REER. The results from both new measures of the REER indicate that there have been higher losses in Jamaica's external competitiveness than suggested by the current measurements. Upon decomposing both measures into their relative prices and relative exchange rates components, most of the variation was due to higher relative prices. There was negligible variation in relative exchange rates.

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[1] The views expressed are those of the author and not necessarily those of the Bank of Jamaica.

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1.0   Introduction

Data on Jamaica's goods and services exports indicate that the services sector has increased its contribution to overall Gross Domestic Product (GDP) since 2000. This assessment is reinforced by data from the Bank of Jamaica (BOJ) which shows that the value of the country's annual services exports increased by 117.6 per cent to reach US$2.6 billion between 1995 and 2013. This performance compares to total goods exports which only increased by 34.2 per cent for the similar period. Furthermore, the services sector continues to be one of the fastest growing and most promising areas of export growth. This growth is in light of new global trends, evidenced in the shift to trade in services, away from the more traditional trade in merchandise under the World Trade Organization (WTO) framework. For Jamaica, it was suggested by the Caribbean Community's (CARICOM) Secretary General, Ambassador Irwin LaRocque, in a visit in 2002, that Jamaica has a comparative advantage in the Caribbean as it relates to trade in services. Additionally, the Private Sector Organisation of Jamaica (PSOJ) asserts that as far as services exports are concerned, tourism and entertainment are the two leading sub-sectors (PSOJ, 2008).

According to a report by the Inter-American Development Bank (IDB), Jamaica has come to rely less on the primary production of crops (such as sugarcane and bananas which has very little prospect for achieving greater value-added within the country), to focusing more on delivering greater value-added products and services, for example, through the offering of unique attractions to tourists (Inter-American Development Bank (IDB), 2012). The World Economic Forum's (WEF) Global Competiveness Report 2011-2012 also echoes the assessment about this progressive movement to trade in services. The report cites Jamaica as a nation currently in transition from being a factor-driven economy to one striving to become an efficiency-driven nation. IDB data also indicate that Jamaica's overall production has become somewhat centered on the services sector which currently encompasses more than 72.0 per cent of GDP. Consistent with data from the Statistical Institute of Jamaica (STATIN), some of the more recognized services industries for Jamaica include *Hotels & Restaurants* and *Financing & Insurance* (IDB, 2012).

Gradually, the services sector has transformed itself into a major foreign currency (FX) earner for Jamaica, with FX earnings surpassing that of the bauxite and alumina mining industry. According to (McCatty & Serju, 2006) Jamaica's tourism industry was the largest foreign exchange earner for the period 1999 to 2005, generating in excess of US$1.0 billion per annum. The industry also provides an important impetus for growth through linkages with other domestic sectors such as agriculture, transportation, retailing and manufacturing. Greater attention is also being paid to the entertainment (e.g. music & film), telecommunications, animation and information technology industries. Globalization and services liberalization has had a big impact in this regard and in so doing the island's economic growth has benefitted. Jessen & Vignoles (2005) indicated that, during the period 1997 to 2002, over 60.0 per cent of all employed persons worked in services-related industries in Jamaica. In fact, the data also reveal that the contribution of goods to overall GDP has been gradually declining while the contribution of the services sector to the economy has been steadily increasing (see **Figure 1A**).

Therefore, with the growing significance of the services sector to the Jamaican economy, and given its significant influence on the foreign exchange market, there is need to estimate the impact of trade in services on Jamaica's REER. The REER is a commonly used measure that provides important information regarding a country's external competitiveness relative to that of its major trading partners. As such, this measure will provide policymakers with an estimate of how Jamaica has competed with its major trading partners in the trade of services. It should be noted that current REER estimates by the BOJ only account for bilateral trade in goods. While this is the general measure used by most countries, it is not representative of the Jamaican economy, which is largely driven by the services sector.

In the context of the foregoing, this paper seeks to do three things: (1) calculate services-based trade weights (STWs), (2) calculate goods and services trade weights and (3) use these weights to re-estimate the REER to provide two additional measures, one solely based on trade in services and another based on an aggregation of goods and services. The methodology to be employed will be that of the Bank for International Settlements (BIS) double weighting scheme, which provides information on both bilateral and third-market competition between trading partners.

The rest of the paper is organised as follows: the subsequent section provides a review of the relevant literature on the calculation of STWs. The data and methodology are discussed in Section 3 while Section 4 presents a discussion of the results. The conclusion and recommendations are presented in Section 5.

2.0   Literature Review

There exists a scarcity of relevant economic literature relating to the computation of STWs. This scarcity has been attributed to the constraints associated with the availability of consistent and reliable services trade data between countries. Notwithstanding, the formulation of such trade weights is necessary for countries with economies that are strongly geared towards providing services-based economic activities. This is particularly true for small island Caribbean states such as Jamaica and Barbados which are heavily dependent on international trade in services, particularly tourism. The literature, however, reveals that in recent times several attempts have been made to formulate STWs for estimating the REER. These attempts included the utilization of bilateral services trade data by (Lynch & Whitaker, 2004) and the inclusion of trade in services by using similar weights as manufactured goods by (Bayoumi, Lee, & Jayanthi, 2005).

Lynch & Whitaker (2004), attempted to include bilateral services-trade into the computation of the Bank of England's trade-weighted REER. They contend that many tradable services are competing with differentiated products just like manufactured goods. However, this type of trade has traditionally been excluded from effective exchange rate calculations. This was due to a lack of available and reliable services trade flow data among countries. Notwithstanding data issues, the study revealed that the United States of America (USA) and other English-speaking countries were relatively more important trading partners for services to the United Kingdom (UK) than for manufactured goods.[2]

Bayoumi, Lee and Jayanthi (2005) formulated a new calculation of trade weights on behalf of the International Monetary Fund (IMF) that accounts for bilateral competition and third-market

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[2] Though the UK publishes detailed information on its bilateral services trade flows, due to the unavailability of comparable details for the other major trading countries, services trade is treated less comprehensively in the proposed index than trade in manufactured goods.

competition as well as the formulation of a services-based trade measure that focuses on tourism. The authors highlighted that previous work done on trade in services tends to show that trade in services respond to the same basic factors such as distance, relative GDP and cultural links that also help to explain trade in manufactures. For that reason, trade in services—except for tourism—is assumed to be distributed in the same manner as trade in manufactures and the same weights are applied. However, for countries in which tourism is a particularly important part of overall trade, separate weights are calculated for trade in tourism. The tourism weights are calculated in the same manner as for manufactures weights. Like manufactures, tourism services are viewed as differentiated products, except that the product is sold by bringing tourists into a country.

Given that the REER is an economic indicator that is not directly observable it must be constructed as an index. In its construction, several factors have to be considered, such as a trade-weighted price or cost deflator, what currencies to include and which weighting methodology to use. Additionally, there are different methods for calculating the appropriate weights. As Ellis (2001) states, the choice of weighting method depends on the purpose of the study. For example, import-weighted indices are generally most appropriate when assessing the effect of exchange rate movements on import prices. However, in trying to assess the effect of exchange rate movements on competitiveness by taking into account third-market effects, a different methodology is required. In this regard, the double-weighted export methodology is useful as it takes into account import competition, bilateral exports competition and third-market exports competition. Hence, the paper adopts a double-weighting scheme proposed by the BIS through their authors Turner and Van't dack (1993). This method was also used by Dacass (2012) in the re-estimation of the BOJ's trade weights.

3.0   Data and Methodology

Measurement of trade in services is inherently more difficult than measuring trade in goods as services are more difficult to define. In fact, services are defined through abstract concepts rather than by any physical attribute or physical function. Unlike trade in goods, there is no package crossing the customs frontier with an internationally recognized commodity code for trade in

services neither is there any description of the contents nor information on quantity, origin, and destination etc. Tourism, for example, is an export industry because foreign visitors who travel to a country purchase the "tourist experience" of that country. The tourists pay for this experience with money from their home country. For example, an American uses his income to purchase a service, (in this case the tourist expenditure = hotels, commodities, activities, car rentals etc.) which is manufactured in the service-providing country e.g. Jamaica. This can be considered to be an export of those Jamaican "tourist services" to the USA. Conversely, a Jamaican who travels to the USA in order to consume services in that country, such as accommodation and transportation, would be classified as engaging in the import of services from the USA to Jamaica.

The STWs will therefore capture competition through imports and exports of services, with the relative importance depending on the relative size of these two flows. Within exports, the weights will reflect both the direct competition with the producers in the destination country and the indirect competition with them in third-country markets. This is usually referred to as the third-market effect. The importance of third-market competition depends on the openness of the countries to which exports are sent.

Given the limited availability of consistent trade in services data, only four of Jamaica's top trading partners were selected. These countries were the USA, the UK, Canada and the Euro area[3]. The reference period of 2007 to 2010 used in the calculation of the STWs was based on data availability from the OECD's online statistical database, which provides a measure of total trade in services by partner country. Specifically, data was obtained from the OECD's Trade in Services Extended Balance of Payments Services (EBOPS) 2002 - Trade in services by partner. Trade in services is comprised of: Transportation, Travel, Communication, Construction, Insurance, Financial, Computer & Information, Royalties & License Fees and Other Business

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[3] European Union (proxy for Euro area) 27 Countries are: Belgium (BE), Denmark (DK), France (FR), Germany (DE), Greece (EL), Ireland (IE), Italy (IT), Luxembourg (LU), Netherlands (NL), Portugal (PT), Spain (ES), United Kingdom (UK), Austria (AT), Finland (FI), Sweden (SE), Cyprus (CY), Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV), Lithuania (LT), Malta (MT), Poland (PL), Slovakia (SK), Slovenia (SI), Bulgaria (BG), Romania (RO). Source: http://unstats.un.org/unsd/snaama/selbasicFast.asp

Services as well as Personal, Cultural & Recreational, Government and Other Commercial Services.

Data on Total Value Added Services were obtained from the *United Nations Statistics Division*.

Total Value Added Services = Sum {(ISIC F) + (ISIC G-H) + (ISIC I)}

where:

(ISIC F) = Construction

(ISIC G-H) = Wholesale, Retail Trade, Restaurants and Hotels

(ISIC I) = Transport, Storage and Communication

where ISIC represents International Standard Industrial Classification of all economic activities

3.1 Calculation of the STWs

Equations used in calculating the subsequent weights are outlined below. Of note, the total services data used in the calculations account for a broad measure of services including transportation, communication, insurance, construction, financial as well as cultural and recreational services among others, at the most detailed partner-country level available.

Computation of the respective weights will be done as follows:

(1) The import weight computes each trading partner's share of Jamaica's total services imports. This weight is obtained using the following equation:

$$\textit{Import Weight:} \qquad w_i^m = \frac{m_j^i}{m_j} \qquad\qquad (1)$$

where m_j^i denotes the services imports to the domestic economy Jamaica j, from economy i for a particular period and m_j represents Jamaica's total services imports from the selected four trading partners. Therefore, the services import weight, w_i^m, highlights the relative importance of each trading partner in Jamaica's total services imports or the competition between country i and other service exporters to Jamaica. The import weight infers that the higher the share of services

imports of a trading partner i in Jamaica's total services imports, the greater the weight of that country's exchange rate in the basket of currencies for the computation of Jamaica's REER.

(2) The computation of services export weights incorporates the effect of competition faced by Jamaica's exporters in foreign markets from their domestic producers and from exporters originating from third-markets. As a result, export weights are double-weighted to account for bilateral as well as third-market export competition (see **Equation 2**).

$$\text{Export Weight:} \quad w_i^x = \left(\frac{x_j^i}{x_j}\right)\left(\frac{y_i}{y_i + \sum_{h=1}^{n} \Box x_h^i}\right) + \sum k \neq i \left(\frac{x_j^k}{x_j}\right)\left(\frac{x_i^k}{y_k + \sum_{h=1}^{n} \Box x_h^k}\right)$$

(2)

where x_j^i represents Jamaica's export of services to country i ,and x_j denotes Jamaica's total services exports. A measure of total value added of services in the economies of each trading partner is represented by y_i, while x_h^i reflects the total services that the foreign country, h, exports to country i. x_j^k captures Jamaica's services exports to foreign markets, k. x_i^k represents the services exports of economy i to foreign market k. The total value added of services in economy k is represented as y_k and x_h^k represents a foreign country's services export to third-markets.

Overall trade weights are obtained by combining the bilateral import weights with the double-weighted export weights. The overall weight therefore represents exports and imports of total services that occur between Jamaica and its selected trading partners. The complete weight for each trading partner is therefore a weighted average of the export and import weights (see **Equation 3**).

$$\text{Overall Weight:} \quad w_i = \left(\frac{m_j}{x_j+m_j}\right)w_i^m + \left(\frac{x_j}{x_j+m_j}\right)w_i^x$$

(3)

4.0   Results and Discussion

This segment of the paper is geared towards providing some intuition behind the weights calculated. In addition, these weights will be applied to the computation of the REER to inform policy on the performance of Jamaica's services sector on a bilateral and third market basis.

4.1   *Services-based Trade weights (STWs)*

In Table 1, the overall weights assigned to the respective countries under study are shown. Recall that due to the unavailability of data, the STWs were computed using only four trading partners. In descending order of rank, the USA, Euro area, the UK and Canada were assigned weights of 0.63, 0.23, 0.09 and 0.05, respectively.

**Table 1: STWs using the Double Weighted Methodology**

Trading Partners	Services-based Trade Weights
UNITED STATES	**0.628 (1)**
EURO	0.232 (2)
UNITED KINGDOM	0.087 (3)
CANADA	0.051 (4)

As previously mentioned, the overall weight is comprised of three components; import weights, bilateral export and third-market export weights. However, the decomposition of the overall STWs identifies the country that provides Jamaica with the most competition with respect to the above-mentioned components. This is also useful in helping to explain the weights observed.

As it relates to import competition, the USA provides Jamaica with approximately 79.0 per cent of overall services imports which makes the USA the most competitive amongst the trading partners under study (see **Figure 1**). This suggests that most of the services imported by Jamaica (or services outflows) are largely associated with the USA, when compared with the other

trading partners. The USA and the Euro area combined accounted for approximately 93.0 per cent of total services imports to Jamaica over the review period.

Figure 1: Decomposition of STWs
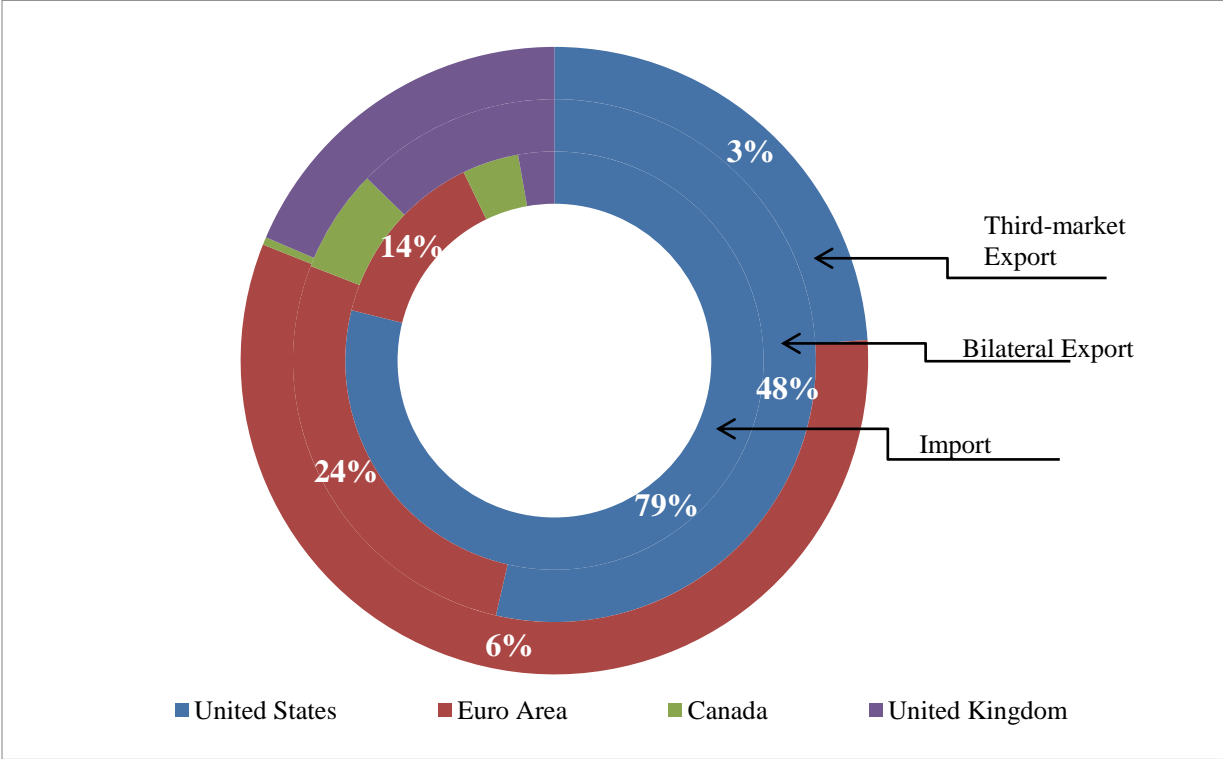
As it relates to the export weights, Jamaica received most of its bilateral services export competition from the USA as approximately 48.0 per cent of Jamaica's total services exports originate from that country, followed by the Euro area at approximately 24.0 per cent. Conversely, the least amount of services exports originates from Canada relative to other trading partners. This suggests that Jamaica's services exports faces the least amount of bilateral export competition from Canada relative to the other trading partners.

In terms of third-market export competition, the Euro area emerged with the highest weight at approximately 6.0 per cent (see **Table 1A**). This indicates that of the four trading partners, the Euro Area is the largest exporter of services to third-markets which are key destinations for Jamaica's exports. In addition, this weight suggests that Jamaica receives most of its third-market competition from the Euro area when it exports services to the UK, Canada and the USA.

In its application to travel services, the result suggests that the Euro area acts as the main rival to Jamaica for tourists coming from the USA, UK and Canada. The USA ranked second with a weight of approximately 3.0 per cent, while Canada was found to be the least competitive in this category. It is important to note, however, that countries within the Latin American and Caribbean region, which were excluded due to data limitations, could provide more third-market competition for Jamaica, particularly as it relates to tourism for the Bahamas, Cayman Islands, Mexico and Brazil.

For comparative purposes, a re-estimation of Dacass (2012) results was conducted using the four countries utilized in this study. This was done to observe how differentiated the results would be when comparing weights using data on goods only relative to data on services only.[4] The re-estimated results indicated that over the review period, the USA accounted for approximately 72.0 per cent of the total weight. The Euro area was ranked second having accounted for approximately 14.0 per cent while Canada and the UK accounted for approximately 7.0 per cent and 6.0 per cent, respectively. When compared to the STWs the USA and the Euro area remained as the top two ranked countries. However, the countries ranked third and fourth switched positions (see **Table 2A**).[5]

As it relates to import competition, **Table 3A** shows that the USA supplies approximately 83.0 per cent of the total goods imports compared to 79.0 per cent using the STWs. In this regard, the USA remains the country with the highest rank as it relates to overall imports to Jamaica. Analysis of the double-weighted export weights reveals that under the goods-based trade weights, Jamaica receives most of its bilateral as well as third-market export competition from the USA. This result is not surprising as it only underscores the significant economic linkages that exist between both countries as it relates to trade.

4.2   *Aggregated Trade Weights (ATWs) using Goods and Services Data*

To attain a more representative estimate of Jamaica's external competitiveness, the study was extended to calculate weights based on both trade in goods and services. Data on goods were

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[4] Dacass' paper utilizes *merchandise* trade flows as bilateral trade in merchandise goods from the International Trade Centre, the Bank of Jamaica and the United Nations
[5] These remaining countries are ranked third and fourth as there are no other countries included in the study.

added to that of services to provide an estimate of total trade in goods and services, termed as the Aggregated Trade Weight (ATW). For comparative purposes, the BIS methodology was used with the same four countries over the same period, 2007 - 2010. Table 2 provides a comparison of the overall weights assigned to the respective countries using the different weighting schemes.

Table 2: Comparison of Trade Weights using the Double Weighted Methodology

Trading Partners	Goods-based Trade Weights	Services-based Trade Weights	Aggregated Trade Weights
UNITED STATES	**0.720 (1)**	**0.639 (1)**	**0.734 (1)**
EURO	0.140 (2)	0.221 (2)	0.138 (2)
CANADA	0.073 (3)	0.050 (4)	0.069 (3)
UNITED KINGDOM	0.060 (4)	0.084 (3)	0.064 (4)

In descending order, the USA, Euro area, Canada and the UK obtained weights of 0.73, 0.14, 0.07 and 0.06, respectively for the ATWs. The results indicate that with the aggregation of the goods and services data, the overall ranking of the countries remain the same when compared to the ranks achieved using the goods-based trade weights.

The decomposition of the overall ATWs provides meaningful insight regarding the weights observed. In regards to import competition, the USA is Jamaica's leading import competitor among the trading partners under study, accounting for approximately 84.0 per cent of overall goods and services imports (see **Figure 2**). This suggests that most of the goods and services imported are primarily associated with the USA, when compared to the other trading partners. The USA and the Euro area combined account for approximately 92.0 per cent of total goods and services imports to Jamaica over the review period.

Figure 2: Decomposition of ATWs
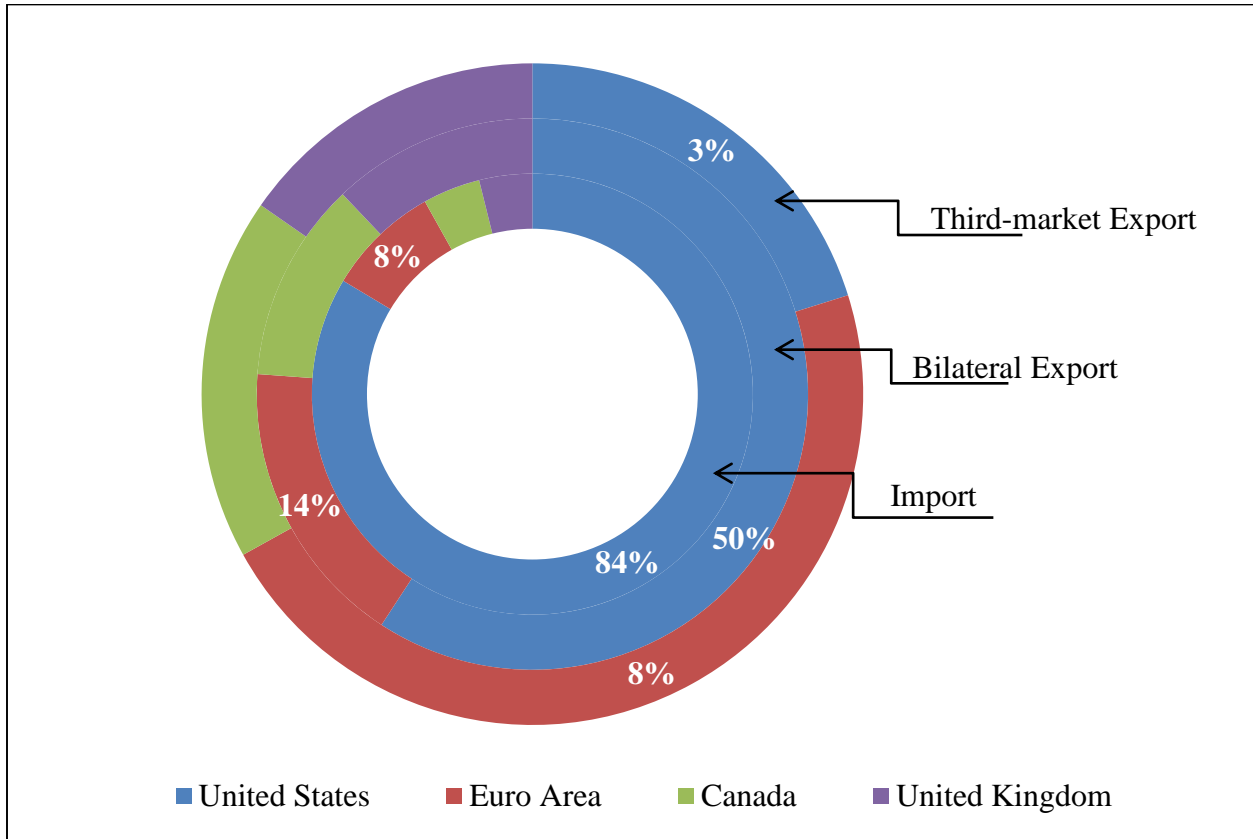
As it concerns the export weights, Jamaica received most of its bilateral export competition from the USA as approximately 50.0 per cent of Jamaica's total exports competition originates from that country, followed by the Euro area with about 14.0 per cent. The least amount of exports competition originates from the UK. This indicates that Jamaica's goods and services exports face the least amount of bilateral export competition from Canada relative to the other trading partners.

In terms of third-market export competition, the Euro area again emerged with the highest weight at approximately 8.0 per cent. It can therefore be surmised that the Euro area provides the greatest third market export competition to the countries under study. For example, if goods and services were being exported to Canada from Jamaica, the USA, the UK and the Euro Area, then the exports from Jamaica would receive the most competition from Euro area exports to Canada.

4.3   *The Impact of New Trade Weights on Jamaica's REER*

The new trade weights are now applied in computing the REER. Recall that the most popular computation of the REER is the nominal effective exchange rate (NEER) deflated by domestic consumer prices relative to those of a country's major trading partners. On this premise, **Figure 3** highlights the results of the REER STWs and the REER ATWs plotted against an estimate of the REER based on bilateral trade in goods, which are the Bank's existing trade weights (ETWs).[6]

Figure 3
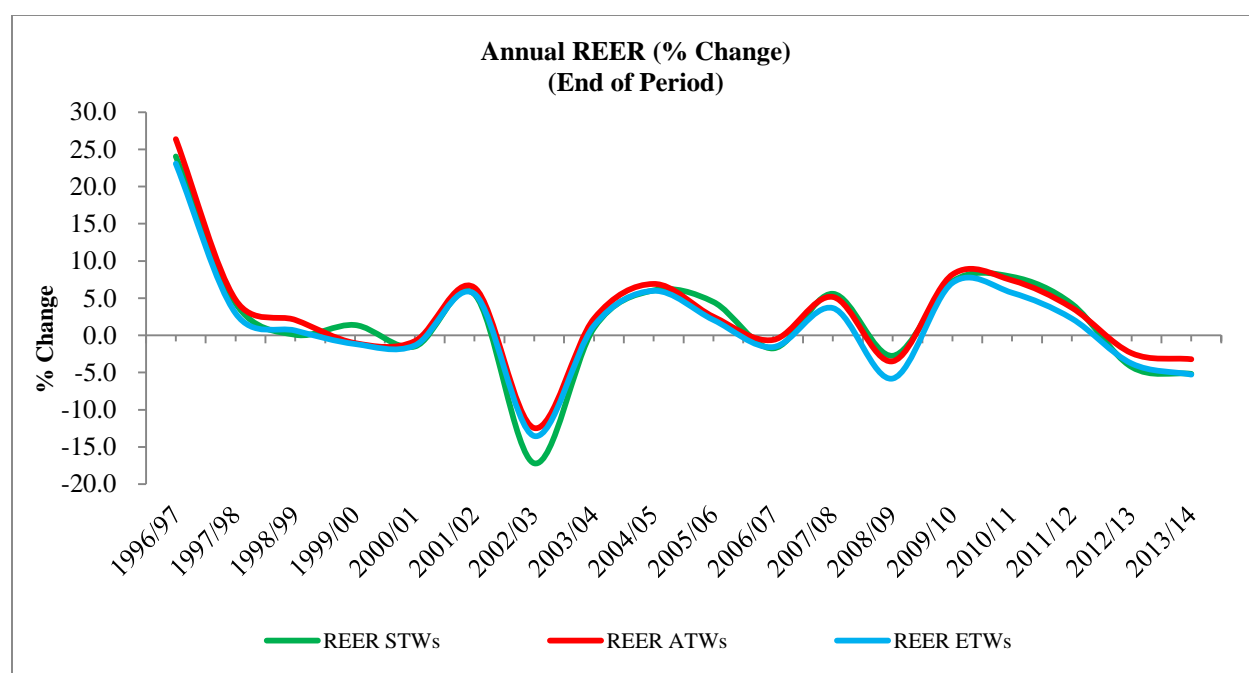
Note: An increase in the REER indicates deterioration in Jamaica's external competitiveness while a decline in the REER indicates an improvement in external competitiveness.

From **Figure 3**, it is evident that the new measures of the REER indicate higher losses and lower gains relative to the existing REER estimates.

A more detailed analysis reveals that the REER ETWs would have recorded an average loss of 1.5 per cent over the period 1996/97 to 2013/14 compared to an average loss of 2.2 per cent for

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[6] The BOJ uses the consumer price index (CPI) as the deflator in its calculation of the REER.

the REER STWs and 2.9 per cent for the REER ATWs. This indicates that both new measures of the REER have recorded higher losses in Jamaica's external competitiveness than the REER ETWs estimates. Overall, the result suggests that when import competition, bilateral export competition and third-market export competition are all taken into consideration, Jamaica experiences higher losses in external competitiveness under the STWs and ATWS relative to the estimate observed under the ETWs.

Generally, fluctuations that lead to an increase or decrease in the REER may arise from a change in the NEER, a change in the level of domestic prices or costs relative to those abroad or some combination of the two. In order to determine the source of the change, further investigations were carried out by decomposing the REER into its relative exchange rates and relative price components. Both components were assessed in order to gain a greater understanding of the underlying reason for the slight deviations that were observed in the REER estimates shown in **Figure 3**.

Figures 2A depicts the NEER with the use of the STWs and ATWs compared to the ETWs. The graph indicates that the NEER estimates have trended largely in line with those derived under the ETWs. This suggests that with the new trade weights, the rate of change in the Jamaica Dollar was relatively similar to the estimate of the change in the NEER as calculated under the existing trade weights, when compared with Jamaica's top four trading partners.

Most of the deviation, however, is captured in the index for relative prices (see **Figures 3A**). The graphs reveal that relative prices under the STWs and ATWs were consistently higher than under the ETWs. This is supported by the fact that foreign inflation under the STWs and ATWs was lower when compared to the ETWs (see **Figure 4A**). This outcome was consistent with expectations as the new trade weights would have excluded the high inflation of countries such as Venezuela, which is captured in the ETWs. Notably, inflation in Venezuela over the period 2007 to 2010 averaged 26.4 per cent. This compares to an average inflation of 2.2 per cent for the USA, Canada, UK and the Euro area, as well as an average inflation of 13.9 per cent for Jamaica for the similar period. Notably, the exclusion of Venezuela's high inflation facilitated higher relative prices for Jamaica and as such higher losses in external competitiveness when compared to the current estimates of the REER. This indicates that under the new set of trade

weights, most of the variation in the REER estimates can be attributed to movements in the relative price index.

5.0   Conclusion and Recommendations

Current price estimates of Jamaica's external competitiveness fail to capture the services sector of the Jamaican economy, which has been found to be the largest contributor to domestic GDP over the past decade. In this context, this paper aimed to do three things: (1) calculate services-based trade weights, (2) calculate goods and services trade weights and (3) use these weights to re-estimate the REER to provide two additional measures of the REER, one solely based on trade in services and another based on an aggregation of goods and services. Annual data on trade in goods and trade in services over the period 2007 to 2010 was used within the double weighting BIS methodology in the calculation of the weights. Due to the limited availability of services data, only four countries were included in the study, namely the USA, UK, Euro area and Canada. Furthermore, in light of the fact that Dacass' paper looked at ten countries while this paper focuses on four, a re-estimation of Dacass' (2012) results was carried out. This re-estimation facilitated a better comparison of the weights using the same four countries.

Results confirm that the USA was Jamaica's highest ranked trading partner under the STWs and the ATWs, followed by the Euro area. The study also revealed that of the four trading partners, Jamaica received the majority of its import and bilateral export competition from the USA with most of the third-market competition primarily emanating from the Euro area.

The application of the new weights to the REER indicated higher losses in Jamaica's external competitiveness than under the current measures. A decomposition of the REER indicated that higher relative prices stemming from lower foreign prices accounted for the lower level of competitiveness. It can therefore be posited that an improvement in Jamaica's external competitive position would require a deceleration in domestic inflation. This can be done through increased levels of macro-economic stability and lower input costs in production processes as well as lower energy costs for the manufacturing sector. In this regard, lower domestic prices for Jamaica would make the country a more attractive location for foreign investors and visitors.

As a policy recommendation, the Government of Jamaica should continue to implement the structural reforms necessary to place Jamaica on a path of sustainable growth through increased competitiveness. As demonstrated in this paper, there is also an increased need to lower domestic prices in order to achieve these gains in competitiveness. This supports the drive towards an inflation-targeting regime currently being explored by the BOJ. Notwithstanding, in order to undertake a more fulsome analysis of this issue, it is suggested that a larger sample of Jamaica's trading partners be used to compute trade weights. A more accurate proxy for bilateral trade in services is also suggested in order to counteract the data unavailability as it relates to Jamaica's trading partners.

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7.0 Appendix

Figure 1A

Goods & Services as a % of Total GDP

Goods as a % of Total GDP — Services as a % of Total GDP (RHS)
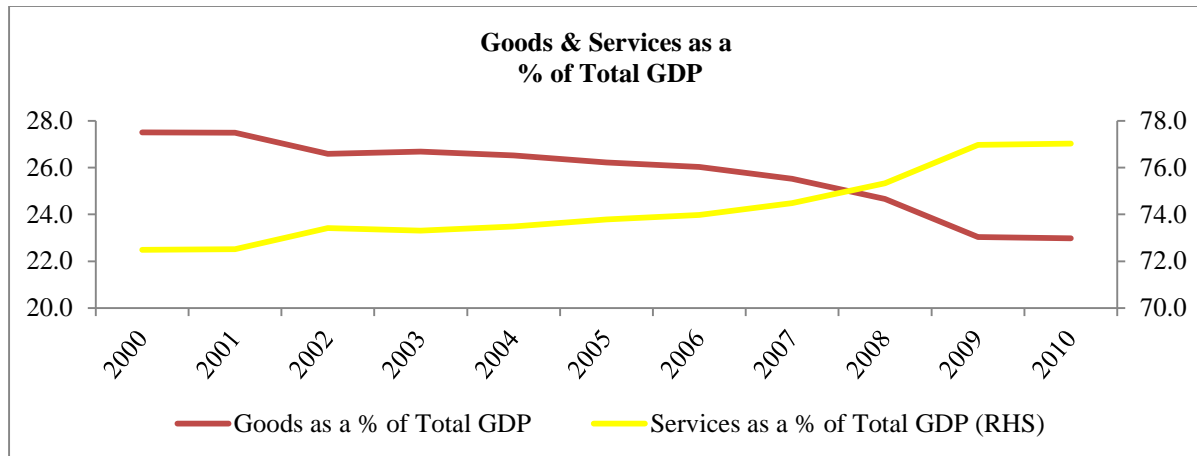
Table 1A: Decomposition of Services-based Trade

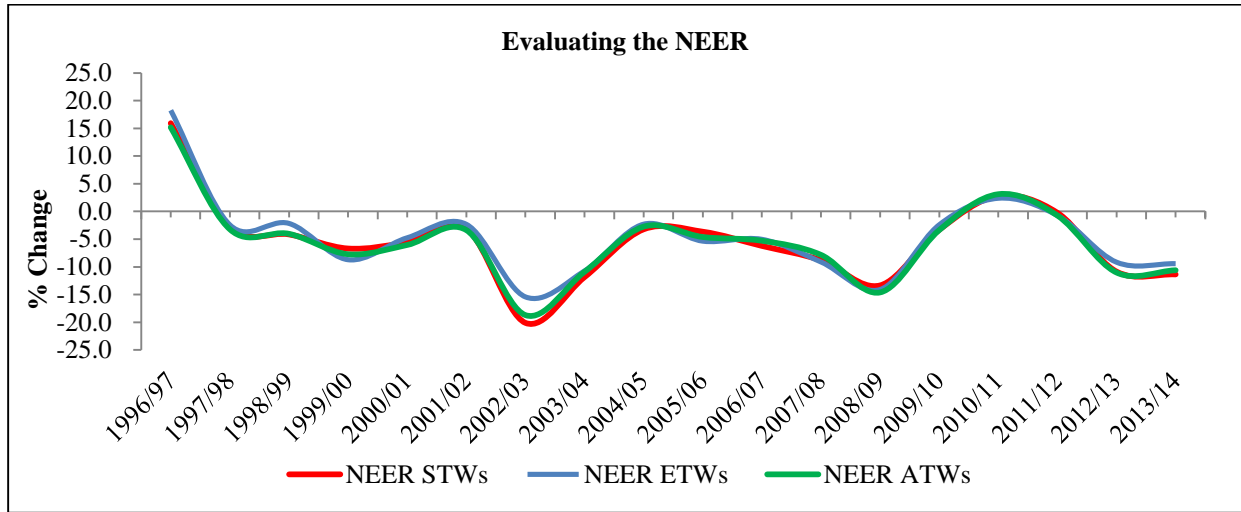|	Weights (%)		
	Imports	Bilateral Exports	Third Market Exports
United States	79.0	48.0	3.0
Euro Area	14.0	24.0	6.0
Canada	4.0	6.0	0.0
United Kingdom	3.0	11.0	2.0
	100.0	89.0	11.0

Table 2A: Comparing Goods-based Trade Weights with STWs under the Double Weighted Methodology

Trading Partners	Goods-based Trade Weights	Services-based Trade Weights
UNITED STATES	**0.720 (1)**	**0.639 (1)**
EURO	0.140 (2)	0.221 (2)
CANADA	0.073 (3)	0.050 (4)
UNITED KINGDOM	0.060 (4)	0.084 (3)

Table 3A: Decomposition of Goods-based Trade Weights

	Weights (%)		
	Imports	**Bilateral Exports**	**Third Market Exports**
United States	83.0	50.0	3.0
Euro Area	10.0	14.0	8.0
Canada	4.0	10.0	3.0
United Kingdom	3.0	7.0	2.0
	100.0	**82.0**	**16.0**

Figure 2A

Evaluating the NEER

Figure 3A

Evaluating Relative Prices

Figure 4A

Foreign CPI

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
STW	2.4	1.3	1.5	3.0	2.5	1.7	2.8	1.6	2.7	2.9	2.6	3.6	0.2	2.2	2.8	2.7	1.6	1.3
ETW	5.2	3.1	3.0	3.4	3.3	2.5	4.2	2.6	3.8	3.5	3.7	5.2	2.5	3.3	4.4	4.1	3.0	3.7
ATW	2.5	1.3	1.6	3.3	2.7	1.7	2.9	1.6	2.9	3.0	2.7	3.7	0.1	2.2	2.8	2.7	1.6	1.4