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Featured Articles

Short Articles

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The MMA Research Papers explores topics on contemporary fields from the domestic and global economy, presenting analysis on economic and financial issues and their policy implications. The main aim of the publication is to stimulate policy relevant debate while providing the general public with an accessible source of information about key economic issues. The articles in this compilation are of two categories, namely "featured articles" and "short articles". The former are geared towards providing more in depth analyses, while "short articles" provides a selection of articles that are targeted towards a broader readership and which may have already been published in MMA's Quarterly Economic Bulletin. The views expressed in this publication are those of the authors, and do not necessarily represent those of MMA or its policy.

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MMA Research Papers

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Featured Articles

CHANGING DYNAMICS IN THE MALDIVIAN TOURISM INDUSTRY: CHINESE TOURISTS AND AVERAGE LENGTH OF STAY

*by: Azeema Adam and Aishath Zara Nizar**

Abstract

This paper attempts to analyse the changes in the seasonality of tourism activity caused by the surge in Chinese tourist arrivals; examine and identify the possible reasons why Chinese tourists spend a relatively shorter period in Maldives; and discuss the effects of this on the revenue earned from tourism. Simple analytical tools were used to study changes in tourist arrivals, seasonality and average stay over the past decade. The peak season for Chinese tourists in Maldives was identified as the first quarter and third quarter of the year, thus softening the high level of seasonality prevalent in the industry. Meanwhile, the cost of travel and the level of repeat visitors were found to influence the average stay of Chinese tourists in the case of Maldives as well. Finally, a strictly non-negative impact of a shorter average stay on tourism expenditure was found, although there is very little data on tourism expenditure in Maldives to come to any conclusion.

1. Introduction

The tourism sector in the Maldives has developed rapidly since its inception in the early 1970s. The sector has transformed the economic structure of the country from primarily a fishing community to a world-class service industry. While the tourism sector continues to perform well, there have been some significant changes in the dynamics of the industry. One important change is the transformation of the market composition of the tourism in the Maldives, with China becoming the single largest source market overtaking the traditional European markets such as United Kingdom (UK) and Italy. In conjunction with this, a marked change in the average stay of the tourists has been observed. Although the number of tourists visiting the Maldives has been increasing,

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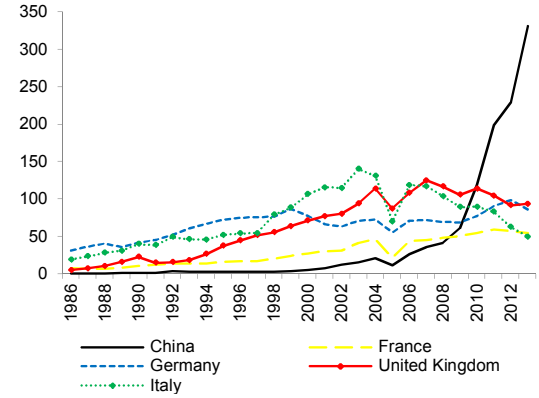
there has been a significant decline in the average stay of the tourists in recent years. This has important implications for the industry, in terms of earnings and capacity utilisation in the industry. The average stay is an important determinant of the overall expenditure of the tourists in a country, which ultimately influences the income earned from the tourists. In this context, it is important to study these changing dynamics in the Maldivian tourism industry and its implications.

This article begins with a brief review of the recent trends in tourist arrivals and composition of the Maldivian inbound tourism market. This is followed by an analysis of the changes in the average stay of tourists in the Maldives and its relationship with the rapid increase in tourist arrivals from China in the last 2–3 years. The main determinants of average stay of international tourists found in the literature are also highlighted. Finally, this article also briefly discusses the impact of changes in average stay on the earnings of the tourism industry and revenue of the government.

2. Developments in Tourist Arrivals and Market Composition

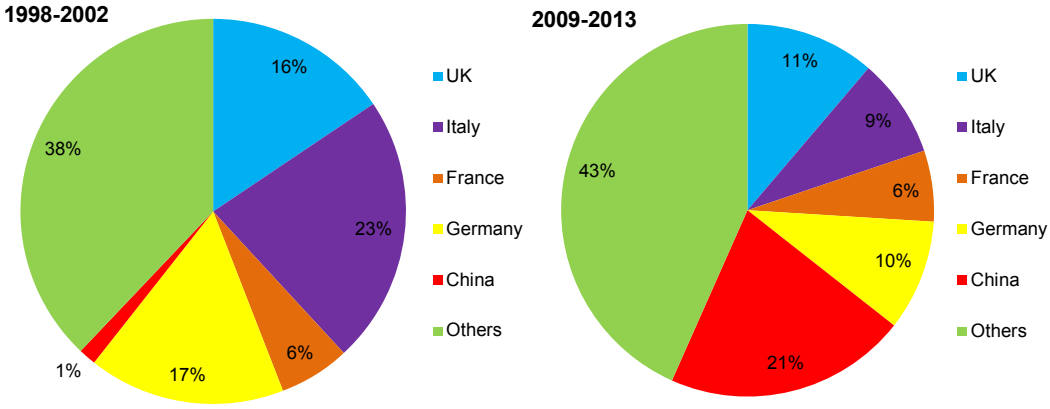
Since its inception in 1972, tourism in the Maldives has mostly attracted Europeans seeking the tropical "sun-and-sand" holidays. The first group of tourists to a resort came from Europe, and over the next three decades tourists from the region grew impressively with Italy, UK and Germany becoming the top markets for Maldives' inbound tourism.

Figure 1: Arrivals from Major Markets, 1986–2013
(in thousands)



Source: Ministry of Tourism

Figure 2: Changes in Market Composition between 1998–2002 and 2009–2013



Source: Ministry of Tourism

However, as seen in Figure 1, the market composition has begun to change significantly since 2008, with arrivals from the major European countries stagnating as the global financial crisis contracted the economies of these countries. This period, however, coincided with a massive increase in tourists from China, which has grown exponentially since 2008. For instance, the number of tourist arrivals from China in 1998[1] was less than 4000 compared to 331,719 tourists from the country in 2013. Given these changes, China has now become the leading inbound tourist market for the Maldives since 2010.

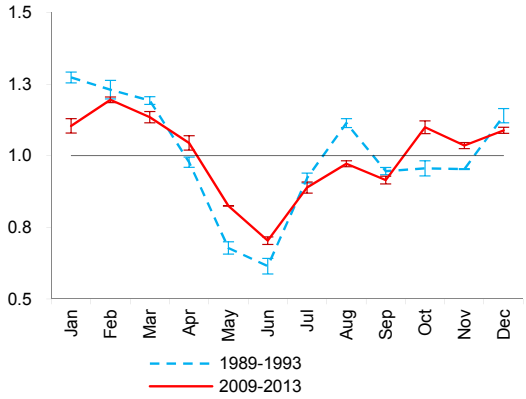
In terms of market composition, as seen from Figure 2, Chinese arrivals accounted for a mere 1% of total arrivals during the period 1998–2002. During this period, the dominant market shares were captured by Italy (23%), Germany (17%) and the UK (16%). This composition has changed significantly when compared to the last five years; China accounted for 21% of total arrivals, whereas the market share for UK, Germany and Italy dwindled considerably, accounting for 11%, 10% and 9% of the total arrivals, respectively.

2.1 Seasonality

The changes in market composition of the tourism industry experienced in recent years have lessened the strong seasonality of the industry. The tourism sector in the Maldives

1 Tourists from China were first recorded in 1998, whereas in previous years, they were classified under "Other Asia". The number of tourists from China has been extrapolated for the previous years in Figure 1.

Figure 3: Seasonal Factor, 1989–1993 and 2009–2013



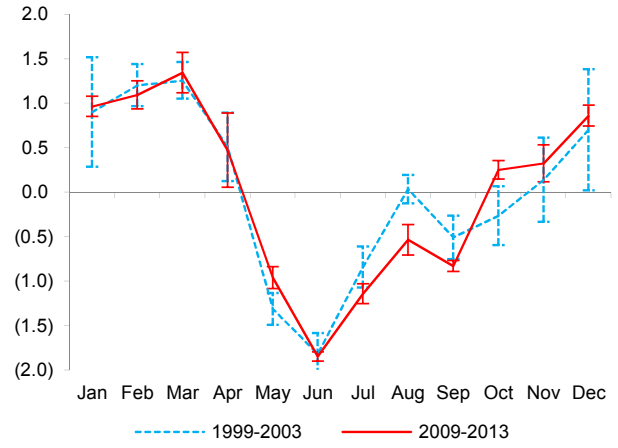
Source: Ministry of Tourism

Note: In the above graph, the total arrivals for the two periods have been adjusted to capture only the seasonal factor. A seasonal factor of 1 describes no seasonal trend whereas a factor greater (less) than 1 implies a positive (negative) seasonal trend. For instance, a seasonal factor of 1.2 implies that tourist arrivals have increased by 20% at that particular point due to the seasonal pattern of arrivals. These numbers have then been averaged to capture the mean for the two periods. The vertical lines at each point represent the standard deviation of each seasonal factor for the month over the respective period.

used to have very significant peak and off-peak seasons, with tourist arrivals peaking towards the beginning of the year and at the end. Given the strong European dominance of the industry before the 2000s, the peak season coincides with the winter months in Europe especially the months from December to February which include Christmas and New Year holidays. The months of May, June and July are meanwhile traditionally off-peak months, with the lowest number of tourist arrivals observed during these months.

As evident from Figure 3, the expansion of the Chinese market has softened the seasonality of the tourism industry considerably. This is indicated by several changes in the seasonal trend between the two periods, complemented by relatively small standard deviations for these changes. The small standard deviations imply that the change in seasonality has been consistent throughout the respective periods, thus being statistically significant. The analysis of seasonal factors shows two important observations in the months of August and October. August used to have a very strong seasonal factor during the early 1990s due to a large number of Italians taking their vacation during this period two decades ago. However, this trend has become less pronounced later on, due to the share of Italians as a percentage of total tourists being relatively small. In contrast, the seasonal factor for the month of October has strengthened during the past five years due to the large influx of Chinese tourists during October. This is attributed to October being a holiday season for Chinese tourists. (This will be explained later).

Figure 4: Seasonality of European Arrivals, 1999–2003 and 2009–2013



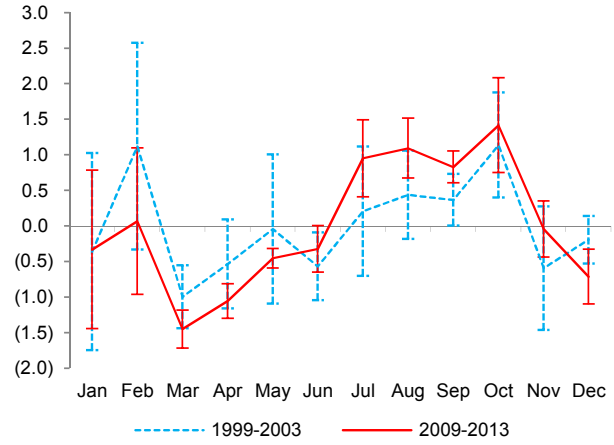
Source: Ministry of Tourism

Note: The above graph shows the average tourist arrivals from Europe for two different periods – 1999-2003 and 2009-2013, and the standard deviation of each averaged data point. The arrival numbers have been normalised to 1, to depict the seasonal movements with respect to the annualised mean of European tourist arrivals. Data points above the x-axis represent arrivals higher than the average of the year, and data points below represent arrival numbers lower than the average of the year.

Figure 4 analyses the changes in the seasonal patterns of the Europeans overtime, by considering the monthly arrival numbers of European tourists for two distinct periods. It can be seen from this figure that the seasonal pattern of Europeans has not changed significantly over the decade. Moreover, it can be observed that the standard deviation (as indicated by the vertical lines at each data point) for the past five years (2009–2013) has shrunk significantly compared to the standard deviation of the data points a decade ago (1999–2003), indicating that the variability of arrivals in the respective months has decreased and that the overall arrival patterns have strengthened with respect to seasonality. These trends confirm the findings that the high season of the calendar year for the Europeans is still from December to February, while the low season takes place around June.

In contrast, the seasonality of Chinese tourist arrivals varies markedly compared to the arrival pattern of European tourists. As seen from Figure 5, the peak season is seen to be around July to October, although this is less pronounced in the period 1993–2003. However, large standard deviations are associated with these seasonal patterns, which

Figure 5: Average Chinese Arrivals for 1999–2003 and 2009–2013



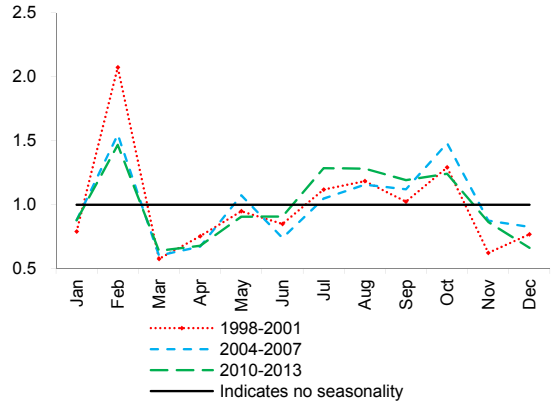
Source: Ministry of Tourism

Note: The above graph shows the average tourist arrivals from China for two different periods – 1999-2003 and 2009-2013, and the standard deviation of each averaged data point. The arrival numbers have been normalised to 1, to depict the seasonal movements with respect to the annualised mean of Chinese tourist arrivals. Data points above the x-axis represent arrivals higher than the average of the year, and data points below represent arrival numbers lower than the average of the year.

imply large fluctuations. As a result, the change in seasonality between the two periods, although discernible from the graph, may not be statistically significant. The large variations observed for the month of January and February particularly, can be explained by the Chinese New Year holidays falling in either of the months for the years. However, the fluctuations observed in the July to October period are less pronounced, and it can be inferred that the shift in seasonality during this period is likely to be statistically significant.

Although the standard deviations have become relatively smaller in the latter period (2009–2013), the variability observed in arrivals is nevertheless stronger for Chinese tourists than their European counterparts. This reinforces the notion that while European tourists have firmly established their seasonal patterns, the arrival trends for the Chinese are not as distinct, due to their emergence as a relatively new source market for Maldives.

Figure 6: Seasonal Factor of Chinese Tourist Arrivals, 1998–2013



Source: Ministry of Tourism

Note: The graph above shows the seasonal factor for Chinese tourist arrivals from 1998 to 2013

2.2 Chinese Outbound Market

In general, the Chinese outbound market has seasonal patterns that are closely linked to the two major holidays received by its residents (Wang and Wei, 2010): the Chinese Spring Festival Holiday (in accordance with the Chinese New Year) and the National Day Golden Week (marked together with the national day of China). On each occasion, Chinese residents receive seven days of public holidays, which result in large numbers of Chinese travelling, both within China and outside. The first holiday—Chinese New Year holiday—is marked based on the lunar calendar and usually falls in the month of January or February. As for the National Day Golden Week, it has consistently been marked in October.

As such, these periods of high outbound tourism for China is replicated in the arrival patterns of Chinese tourists in Maldives as well. As seen in Figure 6, which depicts the seasonal factor of Chinese tourist arrivals, there is a significant spike during the first quarter of each year. This is attributed to the influx of tourists experienced in Maldives associated with the Chinese New Year. Towards 2013, this seasonal factor has become more stable, as is expected as a market develops. The second positive seasonal factor is seen from July to October and as mentioned earlier, has softened overtime. Still being a portion of the off-peak season of the traditional tourism calendar, the high arrival of

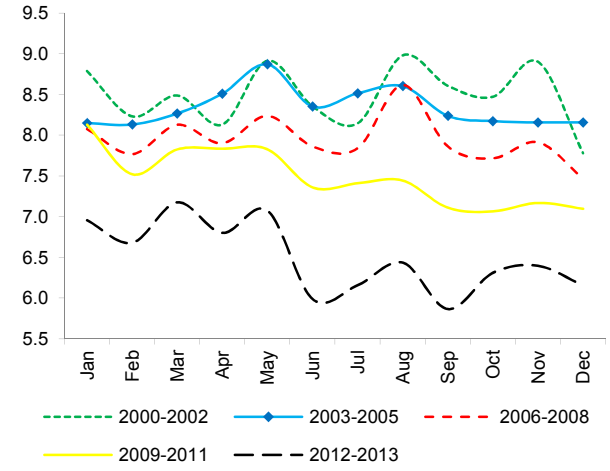
Chinese during this period could be due to low room rates and discounted packages offered in this low season. While consistently high Chinese tourist numbers in October can be attributed to the National Day Golden Week, high arrivals from July to September could also be attributed to families taking their vacation in the summer, as this period also coincides with the school vacation period for China.

According to Wang and Wei (2010), destinations such as Thailand, Singapore and Australia received the largest number of Chinese tourists during the month of February in 2009 and 2010. Meanwhile, most Chinese tourists visited South Korea and Canada during July and August. Although it is believed that the 'steady state' or the stable level of Chinese arrival trends have not been established in the context of Maldives, it appears that the same trend for most Asian countries also holds for the Maldives.

The increase in the number of Chinese who vacation abroad may also be a result of some loosening of travel restrictions that were placed by the government of China on its citizens. Before the 1990s, Chinese citizens were only allowed to visit specific nearby countries such as Thailand, Malaysia and Singapore; even then, there were several restrictions placed on the conditions of travel in order to maintain the outflow of foreign currency. Liberalisation of outbound travel gained much improvement with the formal implementation of the Approved Destination Status (ADS) policy in 1995. The ADS scheme is a bilateral agreement between the government of China and other destinations, which permits travel in organised groups to visit only approved countries. The number of countries that received ADS increased rapidly from 2000 onwards, allowing greater choice for Chinese citizens when travelling abroad. As such, Maldives received ADS in 2003, being the 22nd country to be granted this status.[2] Based on a study comparing growth rates of Chinese tourists pre- and post-ADS, Arita et.al (2011) concluded that, the granting of ADS in general, spurred travel to ADS countries, although this was not guaranteed in every case. For instance, in the Maldives, the effect of ADS did not immediately reflect in significantly improved growth rates of Chinese arrivals, which may be due to the unfamiliarity of Maldives to the Chinese market at that time and also due to the Indian Ocean tsunami in 2004. However, in the years that followed, tourists arrivals from China started growing rapidly, and ADS is believed to have been a

2 China National Tourism Administration – (translated webpage) http://www.cnta.gov.cn/html/2009-5/2009-5-13-10-53-54953.html

Figure 7: Evolution of Average Stay, 2000–2013
(average stay in days)



Source: Ministry of Tourism

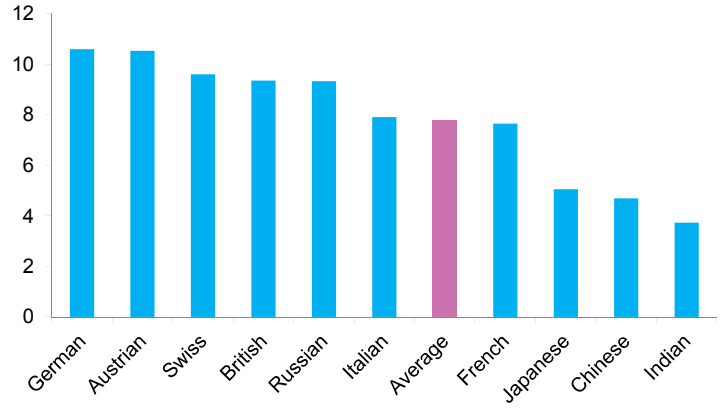
welcome policy that has increased both the number of outbound tourists and the choice of outbound destinations.

Another interesting feature that has affected Chinese outbound travel is the arrangement of annual paid leave granted by the government. The labour law that was first introduced in 1995 did not stipulate any specific provisions for employers to grant paid leave to their workers. New labour laws that took effect in January 2008 explicitly states that employees who have worked more than a year are entitled to paid leave. This was described to be 5 days (for workers served between 1–10 years), 10 days (for workers served between 10–20 years) and 15 days (for workers served more than 20 years). Thus, although there are still hindrances faced in the implementation of the rule, the formalisation of annual paid leave is widely believed to have been an impetus to increased outbound tourism from China.

2.3 Average Stay by Chinese tourists

One trend that has become ubiquitous in global tourism today is that, while international trips being taken are increasing, tourists are taking shorter trips (ITB World Travel Trends Report, 2011/2012). This trend has been observed in the Maldives as well,

Figure 8: Average Stay by Nationality
(average stay in days)



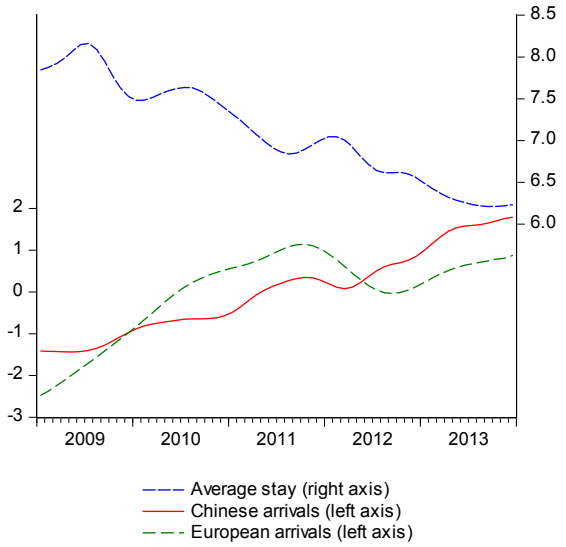
Source: Maldives Visitors Survey 2013 February

Note: This graph uses data obtained from the Maldives Visitor Survey 2013 February, to estimate the average stay of the interviewees. Thus, these estimates will not be consistent with the official data for average stay, as published by the Ministry of Tourism.

though only becoming more marked since the late 2000s. The average stay has declined considerably by 26% from 2000 to 2013, as evident from Figure 7. In 2000, the average length of stay of a tourist was 8.4 days. On the other hand, the average stay of tourists visiting Maldives at the end of 2013, stood at 6.3 days, compared to 6.7 days and 7.0 days for 2012 and 2011, respectively. In international tourism, the shorter length of stay mainly reflects increased constraints on time. In Maldives, the reduction in the duration of stay of tourists in recent years has coincided with the rapid growth in the Chinese market, showing a strong negative correlation between the two.

It is seen from Figure 7 that the average stay of tourists has been on a declining trend since 2000, and that it naturally varies with the different seasons along with fluctuations in the number of bednights. Further, the decline in average stay has become more pronounced in the last four years, and industry experts have attributed this to the relatively short average length of stay by Chinese tourists. Results obtained from the Maldives Visitor Survey 2013 February, shown in Figure 8, conducted by Ministry of Tourism, Arts and

Figure 9: Average Stay by Nationality
(average stay in days)



Source: Ministry of Tourism

Culture confirm these assertions. It was found that an overwhelming majority of Chinese tourists (87%) spent 4–5 days in Maldives, in stark contrast to most European tourists spending up to seven days during their holidays. Thus, the recent decline in average stay has been considerably affected by the surge in Chinese tourists and their shorter average stay, contributing to the recent downward trend in the national average stay of a tourist's visit to the country.

A further analysis of the relationship between the average stay and the number of Chinese tourists is depicted in Figure 9. It can be observed that, over the past five years, there has been a clear and gradual decline in the average stay. Conversely, the trend of Chinese arrivals has been on a steady increase. In particular, it can be observed that slumps in the average stay, especially in mid-2011 and 2012 correspond to peaks in tourist arrivals from China, explaining the noticeable decrease in the average length of stay to well below seven days over the past few years.

With regard to quantifying this relationship between Chinese tourist arrivals and the average length of stay, the correlation coefficient[3] between these two variables shows that the relationship has strengthened considerably overtime. In the five year period, 1999–2003, the correlation coefficient between the aforementioned two variables was -0.32; this value stood much lower for 2009–2013, at -0.87, indicating that the relationship has become much stronger over the past decade. Moreover, there is a considerably strong and negative relationship between the level of Chinese tourists and the average length of stay.

3. Determinants of Average Stay

There have been several studies undertaken to identify the main determinants of average stay by tourists in a particular destination. Unsurprisingly, nationality appears frequently in literature as a significant attribute that determines the length of stay; in addition to this, cost of travel, repeat visitor behaviour, age, occupation and social attitudes have been highlighted as other variables that affect the length of stay.

Mak (2004) identifies the cost of travel to be one of the main factors that determine a person's length of stay in a tourist destination. It is believed that the higher the cost incurred to reach a destination, the longer the trip duration is likely to be. This is because cost of staying an additional night is deemed a small amount for tourists who spend a relatively high amount for their flights (greater proportion of fixed cost), compared to tourists who spend a relatively small amount for international travel. In Mak's (2004) study, Japanese visitors to Hawaii in 2001 were observed to have an average stay of 6.0 days whereas for visitors from Europe and eastern United States, who travel a longer distance and thus experience a higher cost, this figure is much higher—at 12.1 and 10.4 days, respectively.

This holds in the context of Maldives as well; European tourists, who naturally incur higher costs due to longer distances travelled (up to eighteen hours), are observed to spend an average of seven days. This contrasts with Chinese tourists who on average travel ten hours to reach Maldives, and have greater access to direct flights to Maldives with fewer stopovers. Their relatively lower cost for travelling combined with the

3 The correlation coefficient is a statistical measure of strength and direction between two variables. It takes a value strictly between or equal to -1 and 1 where values closer to -1 or 1 represent a stronger relationship, and the sign of the coefficient represents whether or not the relationship is positive or negative. Monthly data has been used for this analysis in this context.

likelihood of them combining several destinations in a single trip, may also reduce the length of stay in each destination.

A study on the Chinese outbound market (Wang and Wei, 2010) relays similar findings: the length of stay for destinations in Asia are reported to be generally shorter compared to long haul destinations. Statistics for 2009 on the average length of stay shows that for Hong Kong it was 3.4 nights, Thailand 7.5 nights, and for Singapore 4.1 nights. In stark contrast, the average length of stay for UK was 13 nights.

Duval (2004) looked at the Caribbean islands as holiday destinations and found that Europeans stay a longer period in general (two weeks) compared to Americans (one week). This is attributed to the fact that Europeans have more paid holidays, travel further and airfare is a greater proportion of their vacation costs than for Americans.

A number of studies also observe that repeat visitors spend on average a longer duration on their holiday. In both models used in his parametric survival analysis, De Menezes et al. (2009) find that, repeat visitors are associated with a higher probability of experiencing a stay of a longer period. Artal Tur et al. (2008) support this finding as well, citing "sun-and-sand" tourists visiting Murcia, Spain, for the first time tends to stay for a shorter time than those previously acquainted with the destination. In the context of the Maldives, looking at repeat visitor statistics as per Maldives Visitor Survey 2013 February, 29% identified themselves as having visited Maldives before. Among this, repeat visitors were generally high from European countries such as Switzerland, Italy, UK and Germany. Conversely, Chinese tourists were observed to have the lowest repeat visitors (5%) among the major nationalities noted in the survey. Other Asian countries including India and Japan had a relatively lower level of repeat visitors as well. This disparity in repeat visitors between European and Asian countries could be attributed to the fact that Maldives may still be a relatively new tourist destination for the Asian countries, especially China. Therefore, it is too early to infer that the Chinese market will continue to have lower repeat visitors to the Maldives.

Regarding the determinants of length of stay in 'sun-and-sand' tourism, Artal Tur et al. (2008) identify accommodation as a significant factor. The authors find that tourists staying at a rented apartment or villa stay significantly longer than those staying at a high class hotel. However, this conclusion cannot be directly applied to the context of Maldives, as the range accommodation facilities are rather limited in the Maldives, restricted mainly to serviced luxury hotels.

With regard to other variables, De Menezes et al. (2009) find age to be statistically insignificant in his analysis, and assert that this may be owing to the inclusion of other covariates closely related to age.[4] Besides this, although Mak (2004) identifies a positive correlation between the cost of travel and length of stay, he recognises that higher destination prices reduce a visitor's length of stay. Moreover, he highlights that the availability of a wider range of tourism products and services can entice visitors to spend a longer period.

4. Average Stay and its Implication on Earnings

A longer average stay is generally associated with higher expenditure, as higher the number of days that a tourist spends at a holiday destination, the higher his spending will be on accommodation, food and recreational expenses. However, the relationship between the average stay of a tourist and tourist expenditure is not very firm as international research carried out in this field shows mixed results. Further, without comprehensive data on tourist expenditure and research, it is difficult to ascertain the relationship between average stay and expenditure in the Maldives.

In his research, Mak (2004) analyses the tourism expenditure of Japanese tourists in Hawaii in relation to tourists of other nationalities. He finds that although Japanese tourists have the highest daily spending rates per person, their total expenditure for the trip is lesser than most tourists due to their shorter stay. Delving into specific categories, he found that tourists from Japan spent significantly less for food and beverages, transport and entertainment. On the other hand, they outspend American visitors for shopping—as much as 3.0 to 3.5 times more. Mak (2004) cites several possibilities for the higher shopping culture for the Japanese. He noted that social customs dictate returning tourists to bring home gifts for their family and friends, especially those who gave them send-off money for the trip. Additionally, he identified that western branded goods, which symbolise social status are hard to come by in Japan, and even then, may not entirely be authentic. It has been widely observed in global tourism that Chinese tourists as well, spend a large amount on western name-brand goods when they visit America and Europe. The lack of shopping avenues for tourists in Maldives, however, may then be of relevant concern; the tendency of Chinese tourists to spend on branded goods is unlikely to be exploited to obtain revenue for the Maldives.

4 This claim was originally made by Alegre, J. and Pou, L. (2006). The length of stay in the demand for tourism. Tourism Management Vol 27.

Although the average stay of a Chinese tourist is generally shorter, some industry experts believe that the greater number of Chinese arrivals contributes to higher tourism receipts in terms of increased airport transfers to and from the resort; the transfer trips depend on the number of arrivals and not the duration of their stay. Transfer costs, which is usually a sea plane or boat ride between the airport and the resort, are incurred as a per person cost. Hence, there may be some compensation in terms of revenue for the shorter average stay, although there are no data to specifically support this.

According to the balance of payments data on receipts from tourism[5] in the Maldives, receipts from the tourism sector increased by 0.5% in 2012, despite a reduction in bednights of 1.2%. In 2013, following a bednight growth of 9.2%, tourism expenditure is estimated to have grown by a much larger magnitude of 19.0%, reflecting the rebounding of the tourism sector from a year of sluggish growth in 2012. These figures suggest that, although the average stay of tourists declined in both these years, the overall expenditure of tourists rose, and hence there may not be a strictly positive relationship between the average stay and expenditure of tourists. There may be other factors such as those discussed that may have affected the nature of spending by tourists. Nevertheless, the figures from the balance of payments should be used with caution as a comparison on expenditure growth cannot be made for earlier years due to data limitations.

It is difficult to quantitatively assess the impact of shorter duration of stay on tourist expenditure without more comprehensive data and research, specifically on the Maldives. Further, expenditure patterns found in international studies may not be that applicable to the case of the Maldives. This is because tourist expenditure is very much linked to the type of tourism product and also other characteristics of the holiday destination.

5. Conclusion

The role of Chinese tourism, especially as a major international source market, has been expanding rapidly over the last decade. According to China National Tourism Administration, China is expected to overtake the US as the largest tourism market in 2014. Additionally, statistics from the United Nations World Tourism Organisation

5 This is based on tourism goods and services tax (T-GST) data collected by the Maldives Inland Revenue Authority (MIRA).

indicate that China overtook long-time top spenders Germany and the US to become the top global tourism spender in 2012. Chinese travellers spent a record US$102.0 billion on international tourism in 2012, boosted by rising disposable incomes, relaxation of restrictions on foreign travel and an appreciating currency.

In the Maldives, the surge of Chinese tourists and the subsequent transformation of the market composition have had a significant impact on industry dynamics such as seasonality and the average stay. With regard to seasonality, the patterns of traditional 'peak' and 'off-peak' seasons of the tourism calendar have softened due to the emergence of a different seasonal pattern ascribed to the Chinese tourists. This change in the seasonal factor has contributed to changes observed in the average stay of tourists as well, in addition to other factors that were discussed in this article.

It was seen clearly that the average stay of tourists has been on a significant declining trend, and has been augmented by the large arrival numbers of Chinese tourists, particularly in their peak season. Identifying the factors that lead tourists to determine their average stay at a destination, has thus become an interesting topic of research in the context of Maldives. From literature written on the subject, variables such as cost and distance associated with travel, in addition to repeat visitors have been identified as key. These hold well in the tourism trends of Maldives as well, especially as proven by findings from the Maldives Visitor Survey 2013 February.

Understanding the motives behind the length of stay by a tourist is crucial in aiding the design of more effective marketing strategies and tourism policies. This is especially true since the duration of stay largely affects the pattern of tourist expenditure within the destination. It is difficult to assert the directness of the link between average stay and expenditure patterns; a number of other variables such as spending culture of specific nationality of tourists, tourist lifestyle and activities must be taken into consideration. In the Maldives, tourism expenditure receipts which are calculated on the basis of the revenue from tourism goods and services tax may be insufficient to fully understand the effect on tourist expenditure from changes in average stay. The analysis in this article also highlights the importance of further research on the changing tourism dynamics in the Maldives, especially with regard to tourism expenditure and the factors that influence the tourism market. Such research can assist in more effective policy making in areas related to tourism marketing and national planning to further develop and enhance the vibrancy of the tourism sector in the Maldives.

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GOVERNMENT SECURITIES MARKET IN THE MALDIVES

*by: Aishath Sajny**

Abstract

This article outlines a brief overview of the evolution of the government securities market in the Maldives and specifically concentrates on the challenges for further development of a deep and liquid government securities market. It describes the benefits of overcoming these challenges and the measures that could be taken in order to overcome these challenges. It also highlights similar issues faced by other emerging countries and how they were tackled.

1. Introduction

Government securities market, which deals with tradable debt instruments issued by the government for meeting its financial requirements, performs a vital role in the economy and is the base of the financial sector in most countries. Developing a sound and strong government securities market in any country is a challenge that depends on the speed of financial sector development and complexity of the unique characteristics of each country's financial sector.

This article outlines a brief overview of government securities market in the Maldives and specifically concentrates on the challenges for the development of a deep and liquid government securities market, highlighting the benefits of overcoming these challenges.

2. Overview of Government Securities Market in the Maldives

There are two main types of debt securities issued by the government of Maldives: treasury bills (T-bills) and treasury bonds (T-bonds), and the Maldives Monetary

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Authority (MMA) plays the agency role in issuing these debt securities. Currently, all the securities are issued in the primary market. T-bills are issued under auction and tap system (private placements) where all the commercial banks, state-owned enterprises (SOEs), institutional investors and private companies are eligible to buy T-bills.

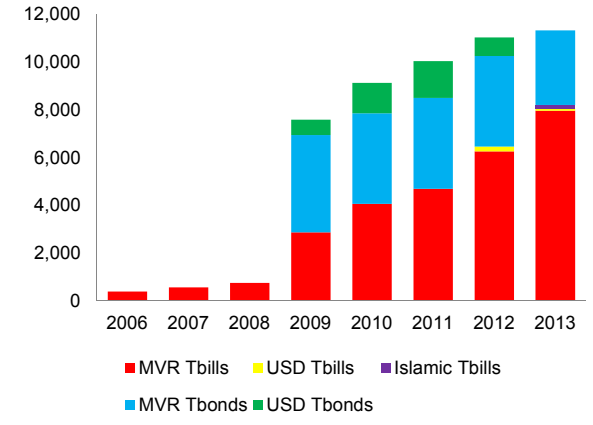
The main aim of issuing T-bills is to raise funds to meet the government budget financing requirements. In addition, the government has issued Maldivian rufiyaa denominated T-bonds (MVR T-bonds) to MMA and a USD T-bond to a commercial bank as a private placement.

3. Evolution of Government Securities Market in the Maldives

MMA introduced T-bills on 10 September 2006, replacing the MMA Certificate of Deposit (CDs), in order to move towards market financing of government deficit. T-bills were initially issued under tap system with a maturity of one month (28 day T-bills) and three months (91 day T-bills) and the investor base was limited to commercial banks and SOEs.

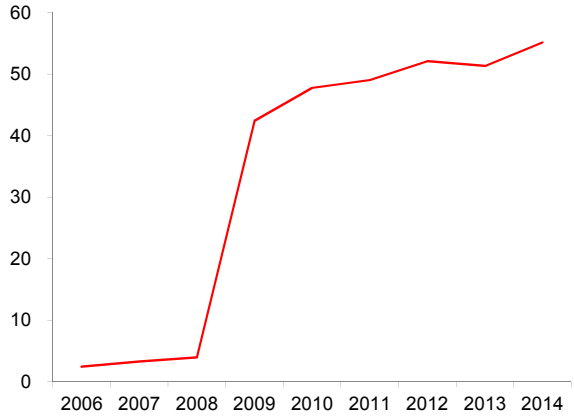
In order to develop government securities market and to finance the government budget deficit with the least possible cost, T-bills auction was introduced on 28 December 2009. After the auction system was established, T-bills maturity was extended to six months

Figure 1: Outstanding Government Securities, 2006 - 2013
(in millions of rufiyya)



Source: Maldives Monetary Authority

Figure 2: Percentage of Government Sector to GDP, 2006 - 2014



Source: Maldives Monetary Authority

and 182 day T-bills was introduced on 5 July 2010 to provide a longer-term investment opportunity for investors, especially non-banks. Moreover, one-year T-bills (364 day T-bills) was introduced on 8 August 2012 with the aim of lengthening the maturity profile of the domestic debt. Furthermore, T-bills market made history on 22 August 2012 by opening T-bills market to private companies, targeting to deepen and diversify the market.

MVR T-bonds were issued after converting the existing debt of the government in 2009. The main objective was to improve the management of government cash flow and to strengthen MMA balance sheet. On 23 November 2009, the first USD T-bond was issued to a commercial bank in two tranches to overcome the economic stagnation and the US dollar shortage in the Maldives. The USD T-bonds was issued with a maturity of two years. Figure 1 and Figure 2 show the growth of the government securities market in the Maldives from 2006.

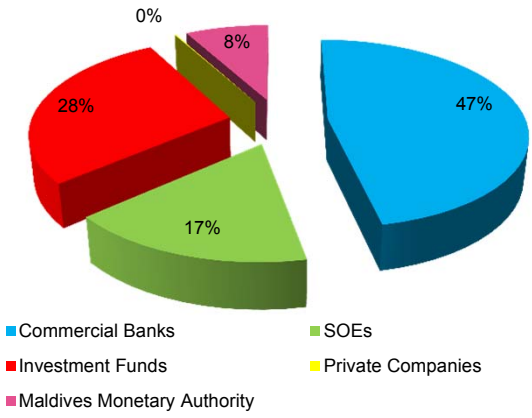
4. Challenges for the Development of Government Securities Market

Government securities market has shown a reasonable growth since the introduction of T-bills. Nevertheless, as experienced by most of the emerging market economies, the government securities market of Maldives also has been facing hindrances in further developments. Some of the major obstacles include having a narrow investor base, low appetite for long-term investments, lack of a market-oriented T-bonds and non-existence of an active secondary market.

4.1 Narrow investor base

Currently, commercial banks and Pension Fund are the main players in the T-bills market. Commercial banks are by far the dominant investors in the market holding

Figure 3: T-Bills Holdings by Participants



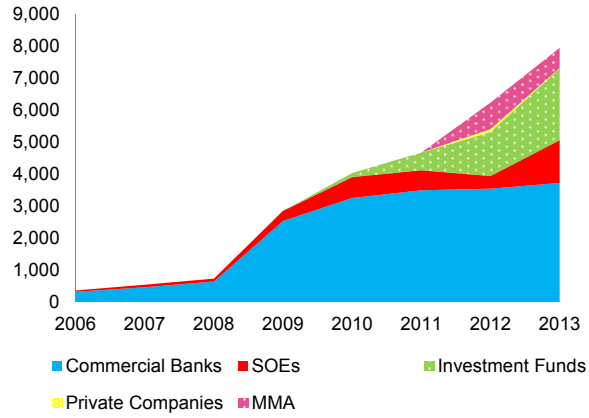
Source: Maldives Monetary Authority

about 50% of the total T-bills stock, out of which the largest two banks are holding more than half of the total supply. Furthermore, the recently introduced Pension Fund's share in the T-bills market is growing enormously; currently holding 31% of the total stock. Although T-bills market is currently opened to private companies, the market did not get enough support; hence unable to diversify the market further. The current holding of T-bills by category is shown in Figure 3.

A wide government securities market will contribute a range of benefits as discussed below.

- A broad investor base will diversify the market with participants of different investment patterns enabling to reduce the risk of reliance on a specific sector.
- High demand from a wider range of investors will enhance competitiveness while promoting competition among the financial institutions and speeding up the development of the overall financial sector.

Figure 4: Outstanding T-Bills by Participants,
(in millions of rufiyya)



Source: Maldives Monetary Authority

- A broad investor base will reduce the concentration of banking sector and the market would include investors of different nature, hence channelling an active secondary market and a money market in the long run.
- A broad and developed government securities market will be an attractive avenue for short-term and long-term investors hence encourage savings and will contribute to the development of the economy as a whole.
- A large investor base generates incentives for financial innovation, leading to greater market dynamism and lower transaction costs.

Therefore, participation of investors with different investment natures is vastly important to reduce the dominance of one sector and for the development of the securities market.

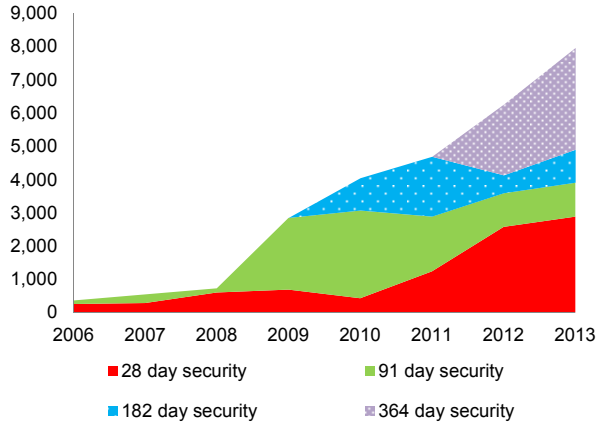
4.2 Low appetite for long term investments

T-bills were initially introduced with a maturity of 28 days and 91 days. Although 182 days and 364 days T-bills are offered every week, majority of the investors prefer short-term maturities. Particularly, it can be seen in Figure 5 that the holdings of 28 day T-bills have grown considerably higher since 2010. Consequently, the average time to maturity (ATM) has reduced and has resulted in bunching the domestic debt portfolio to the short-term period.

Figure 5 shows the diversion of long-term T-bills to short-term T-bills.

The main reasons identified for the funds' diversion are highlighted below:

Figure 5: T-Bills Holdings by Tenor, 2006 - 2013



Source: Maldives Monetary Authority

- Increase in the holding of commercial banks: Since commercial banks are the major investors in the T-bills market, they prefer to invest in short-term T-bills.
- Small variance in T-bills rates: T-bills market has proven that lack of competitiveness for longer maturities has created irrational rates although they are issued on an auction basis. Therefore, it has been observed that non-bank investors have also started diverting the funds from long-term to short-term T-bills.

Increasing ATM is essential to reduce the refinancing risk, interest rate risk and rollover risk, which will result in increasing investor confidence. Moreover, stabilising the

maturity profile is very important in order to develop a healthy T-bills market. Therefore, attracting long-term T-bills and T-bonds is essential for the development of government securities market.

4.3 Non-existence of an active Secondary Market for Government Securities

Currently, all T-bills are issued in the primary market. Although, T-bills are negotiable securities that can be transferred and pledged between the eligible participants, there is virtually no secondary market for T-bills. Only a handful of transactions took place in 2010; hence, the market for T-bills is very illiquid. As a result, most of the T-bills investors are relying on short-term T-bills and an inactive secondary market is also one of the hurdles for the development of T-bills market. The main reasons for the lack of liquidity in the secondary market are discussed below.

- Buy-and-hold strategy of investors: A narrow investor base that has insufficient incentives to actively manage their liquidity and interest rate risks.
- T-bills are held in an investment portfolio: By planning the in- and outflows, commercial banks create a T-bills portfolio that matches their major in- and outflows, reducing their need to actively manage liquidity in the secondary market.
- Dual role of commercial banks as both major investors and intermediaries: These dual roles may conflict in periods of excess liquidity and, as a general rule, the greater the portion of primary issues allocated to the agent bidding, the less are available to source for the bank's own book.
- Lack of a proper legal framework: Although T-bills are covered under the Maldives Securities Act, rules and regulations required for a secondary market are not fully covered in the current legal framework. Therefore, the investors are reluctant to trade the securities.

Box 1

Secondary Market For Government Securities

What is a Secondary Market?

The secondary market for government securities provides a platform for original investors to trade their holdings before maturity. Traditionally, in countries, the trading platform was over-the-counter before the introduction of trading in stock exchange. In an active and efficient secondary market, it is possible for investors to buy and sell existing issues on demand, at mutually acceptable prices, resulting in rapid exchanges with low transaction costs.

Pre-requisites of an active secondary market

In order for the secondary market to be active and efficient, the market requires:

- A clear structure and clearly established rules so that each party will be aware of their responsibilities
- An efficient system by which buyers and sellers can become aware of each other, and through which the prices of securities can be advertised
- An effective settlement system to ensure that the transfer of securities against money market takes place efficiently, at correct time and between correct participants

Benefits of an active secondary market

1. Government Financing

- Ensures stable government financing: In the absence of a deep and liquid secondary market, the government needs to open new issuance very often and is unable to sell long-term securities, hence increasing the frequency of rollover. This will create uncertainty in the debt market. On the other hand, a developed secondary market will reduce transaction costs and increase market liquidity, thus investors gain confidence and this will create demand for long-term government securities.
- Minimising debt servicing cost: Investors will be willing to accept lower yield if they are able to unwind their positions when they wish.
- Fiscal discipline: The market reaction to a newly announced government

budget is most instantly conveyed by the change in secondary market prices of government securities. The change in prices will in turn provide an ongoing disciplining device for government policies

- Government securities will be more attractive with no cost to government: Investors will be less hesitant to invest government securities if they know that their holding can be reduced or increased quickly through secondary market inexpensively and at any time.
- Successful sale of primary issuance: A broad and well-functioning secondary market contributes towards the successful sale of government securities in the primary market easily, hence achieving government financing requirements.

2. Monetary Policy

- Enhance central bank independence: A smooth issuance of government securities will reduce the likelihood of central bank financing to meet government budget requirement, hence allowing central bank more institutional leeway.
- Facilitates the implementation of monetary policy: A liquid secondary market will enable the outright secondary purchase and sale of government securities quickly, for liquidity management purposes and this will develop interbank repurchase market and help to achieve monetary goals.
- Developing the yield curve: A realistic yield curve can be shaped from a deep secondary market, hence providing information regarding future interest rates and inflation, which are key inputs into the setting of the monetary policy stance.

3. Financial Market Development

Apart from the benefits to fiscal and monetary policy, a developed secondary market will contribute to overall financial sector development by providing the institutional infrastructure for capital market, improving risk allocation and fostering the development of a derivative market.

4.4 Non-existence of a market based bond market

Presently, the government bond market is practically inactive although there are outstanding MVR bonds which were issued after converting the existing debt of the government in 2009. Apart from this, the government issued a USD T-bond on a bilateral basis which has matured now. Hence, market based T-bonds have not been issued so far.

Furthermore, MVR bonds are neither listed in the stock exchange nor traded in the secondary market hence, illiquid, despite being negotiable securities. However, MMA uses MVR bonds to conduct open market operations every week.

The government bonds are the backbone of modern securities market and it is beneficial to economic agents ranging from financial institutions to households, especially to the government and the central bank. Some of the main benefits are outlined below:

- Reduces cost of borrowing to the government: If T-bills are the only marketable debt instrument available for the government to raise funds, the entire government debt needs to be refinanced every year, hence increasing the interest rates. In addition, an active bond market allows the government to redeem the bonds and repay the debts during prosperous periods, hence reducing welfare cost of debt financing.
- Devolvement of a yield curve: Introduction of long-term bonds will contribute to the development of a yield curve which acts as a public good in the financial sector. The shape of the yield curve is essential to assess the market reaction to monetary policies and it is an indicator of the expected performance of the economy and inflation. It is also used as a benchmark for pricing other instruments of various maturities as well.
- Benefits to central bank: Most of the central bank's market operation transactions consisting of reverse repurchase and repurchase are conducted using government bonds as collateral. Therefore, an active bond market will make these short-term instruments more liquid, thus facilitating the conduct of effective monetary policy.
- Capital market development: Introduction of a bond market will give an alternative investment opportunity to the long-term investors (investment fund and even the households with long-term investment needs) and help to diversify the investment portfolio. Since they do not have short-term

cash requirements, it is important for them to have long-term investment opportunities instead of rolling over the investments. This will help to execute other related financial transactions such as pledges and collaterals.

5. Country Experiences in Overcoming Similar Challenges

A vibrant government securities market offers a wide range of benefits to the financial sector as well as the economy. Therefore, it is very important to overcome these challenges for further development of this market. Moreover, Maldives is not the only country faced with these issues. Most of the emerging economies face similar problems. Hence, the rest of this article highlights the experiences of other countries.

Reducing the reliance on single sector and diversifying the T-bills market is highly important for the development of the market. Major investors dominating the government securities market is common in many countries. For example, two to three banks account for a market share of over 70% in Iceland, Malta and Sri Lanka.

A key challenge faced by most of the countries is finding means to broaden the investor base. Many countries have minimised the dominance of one sector by promoting institutional investors and attracting foreign investors to the government securities market. It has been observed that institutional investors, such as pension funds, insurance funds and mutual funds of many countries have played a key role in the development of government securities market by promoting wholesale funding. Notably, in countries like Latin America and Singapore, pension and insurance reforms have played a vital role in the development of a domestic bond market in recent years.

Moreover, direct and indirect participation of individuals helps to broaden the investor base of most of the countries. Indirect participation could be through mutual funds. In recent years, many countries have promoted mutual funds to promote small investor base. Mexico is a good example where it relaxed the regulation that restricted mutual fund's investments to be placed in short-term instruments and it has played an active role in government securities market.

Foreign investors can also play an important role in broadening the investor base. Allowing foreign investors to enter into government securities market will increase the participation while increasing competition which will generate incentives for financial innovation. However, this is a controversial issue for some countries, as it is believed

that opening the domestic market to foreigners will make the market more vulnerable to market volatility and also, foreign investors with their enormous resources is a threat to some extent as they may dominate the domestic market. Taiwan is a country which developed capital market by allowing foreign investors to enter into the financial sector.

It is really important to develop a strategy to shift the investments from short-term securities to longer-term investments. Many countries have reversed the short-term maturity profile of government securities market by promoting a liquid bonds market and secondary market.

Developing a sound and liquid government bond market is not an easy task for any country and solely depends on the speed of financial sector development in such a country. Nevertheless, the basic elements for building a strong bond market are similar. And these elements include: number of investors with long-term financing and investing needs, intermediaries to channel these borrowers and lenders, infrastructure to provide a conducive environment for these transactions, and a regulatory body. As discussed above, lack of a broad investor base and low demand for long-term investments and lack of a secondary market are the main challenges for the development of a liquid government bond market in the Maldives. Moreover, underdevelopment of the necessary infrastructure is also a major obstacle.

The experience of Central Bank of Sri Lanka in the development of its T-bonds market is an inspiring one. The development was not easy for Sri Lanka and a series of measures had been taken since 1977. The main focus of these measures was on developing an efficient bond market characterised by a competitive market structure. Hence, market-oriented bonds were issued by gradually increasing the tenor. Furthermore, continuing efforts to develop the domestic bond market, particularly paying more attention to develop a strong legal framework and reliance on market-based borrowing strategy has enabled the remarkable development of the bond market in Sri Lanka.

Consequently, most of these countries have developed a liquid secondary market by widening the investor base and establishing a strong bonds market. The reason being that then only there will be a real need for fund transfers, which will activate the secondary market.

6. Conclusion

This article highlights the challenges in further development of government securities market in Maldives for and benefits of an active secondary market. Although the T-bills market has shown a considerable growth, it has to be noted that in Maldives, the government securities market is not mature enough to utilise the benefits described in this article. Lack of a narrow investor base, low appetite for long-term investments, non-existence of an active secondary market and a lack of market-oriented T-bonds are major hindrances. Therefore, based on the experiences of other countries, government securities market need to pass several stages of development and extensive measures need to be taken gradually to address these issues. Such measures include, developing the infrastructure required for a smooth functioning of a securities market, expanding the investor base, creating a liquid secondary market and promoting long-term securities and introducing new products such as Islamic bonds and other shariah compliant securities to fuel Islamic finance market in the country.

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INFLATION DYNAMICS IN THE MALDIVES

*by: Azeema Adam**

Abstract

The paper examines the factors that drive inflation in the Maldives, with a focus on the relationship between the exchange rate and inflation. Using cointegration and error correction techniques on monthly data from January 1990 to December 2010, the results show that the exchange rate pass through is extremely high in the long run. The long run analysis also demonstrated the neutrality of money in the sense that an increase in money supply leads to an almost proportionate increase in the price level over time. While some degree of price stickiness was found to exist in the short run, the results support the theory of absolute Purchasing Power Parity in the longer run.

1. Introduction

In small and open developing countries, fixed exchange rate policies are often used to stabilise domestic prices and control inflation. In the Maldives too, due to its high degree of openness and the small size of the economy, a pegged exchange rate system has been in place since 1994. To determine the efficacy of the pegged exchange rate regime in controlling inflation, it is important to analyse the dynamics of inflation in the Maldives empirically. Macroeconomic research in the Maldives is extremely limited, with this being the first study to model and analyse the dynamics of inflation in the country.

The paper examines the exchange rate and inflation relationship in the Maldives, while also identifying the factors, other than the exchange rate, that drive inflation in the Maldives. In small open economies, foreign prices also play a significant role in influencing domestic inflation, as these countries are heavily dependent on imports and are price takers in the international market. Therefore, it is important to identify the relative role that the exchange rate plays in influencing inflation, as compared to other factors, such as foreign prices.

* The author is the Governor of the MMA. This article is a chapter extracted from her Doctoral thesis.

In order to understand the relationship between inflation and exchange rates, it is important to identify the degree and speed of exchange rate pass-through (ERPT) to domestic prices. ERPT refers to the extent to which changes in exchange rate are reflected in domestic prices, such as import prices, export prices and consumer prices. If the change in nominal exchange rate (NER) is fully transmitted to the domestic prices, the ERPT is complete. If there is no change in domestic prices from a change in exchange rate, then the pass-through is zero. In most cases, domestic prices respond to a change in nominal exchange, but not by the full extent of the change in exchange rate. This is called incomplete or partial ERPT. The extent of ERPT has important implications for the choice of exchange rate regime. If the ERPT is high or nearly complete, a flexible exchange rate will mean greater exchange rate volatility and higher volatility in inflation.

The paper is structured as follows. Following this introduction, Section 2 reviews the theoretical and empirical literature on the causes of inflation. In Section 3, the ERPT literature is reviewed. The CPI is chosen as the measure of inflation in modelling inflation in the Maldives, as this is the most commonly used measure of inflation in the country. Moreover, it is the only price index available on a monthly basis for the period used in this study (1990–2010). Therefore, to understand the process of inflation in the Maldives, the composition of the CPI is analysed in Section 4. Next, Section 5 describes the developments and sources of inflation in the Maldives. Section 6 outlines the theoretical and empirical framework, description of the data and the methodology used in modelling inflation in the Maldives are presented. The econometric techniques of cointegration and the vector error correction model (VECM) are used to model inflation. This is followed by a discussion of the results from the estimated model. In addition, the relationship between inflation and the exchange rate is further analysed using variance decomposition and impulse response functions. This identifies the extent of ERPT to domestic prices. The last section of this paper, Section 7, is the conclusion.

2. Review of Literature on Inflation

2.1 Theoretical Literature on Inflation

There are a number of theories on inflation. The two most prominent theories are the demand-pull and cost-push theories, with most theories and models of inflation based around these two theories. However, considering that these two causes of inflation are

not always straightforward and it is difficult to identify the actual source of inflation, different approaches of looking at the causes of inflation exist in the literature. The debate on inflation is generally centred on two main schools: Keynesian and Monetarist. An alternative view that is gaining prominence in explaining inflation in developing countries is the structuralist view.

In the simplest terms, demand-pull inflation is caused by 'too much money chasing too few goods'. This creates an increase in demand for goods and services in the economy, leading to an increase in the price level. In contrast, cost-push inflation refers to a general increase in price level associated with a reduction in aggregate supply. A contraction in aggregate supply might result from an increase in the cost of the inputs of production or from a supply shock to the economy, such as a flood or drought. For example, a rise in the cost of inputs for a firm will induce the firm to raise their prices to compensate for the higher costs and maintain their real value of profits. In this situation, workers seeing their real wages fall demand higher nominal wages. This in turn pushes up the cost of production and the general price level in the economy (Ball, 2007). Several factors may cause cost-push inflation, including:

- A rise in prices of non-labour inputs, such as oil prices
- An increase in interest rates (increasing the cost of borrowing, which is also an input price)
- Increases in wages
- An increase in indirect taxes, such as value-added tax or import duties or the removal of subsidies
- An increase in the price of imported raw materials due to changes in exchange rates, international commodity prices or external shocks

Various theories are used to explain the causes of inflation as put forward by different schools of thought. The theory of PPP is the simplest approach to explain inflation for a small open economy. The PPP theory postulates that inflation in one country must equal the inflation of another country when expressed in a common currency. This is expressed in Equation 1:

$$P = E_t + p_t^f \tag{1}$$

where P is the domestic price level, E_t is the NER and p_t^f is the foreign price level. According to Equation 1, on the assumption that PPP holds, under a fixed exchange rate regime, domestic prices will adjust to equalise with foreign prices. If the exchange rate

regime is flexible, the changes in NER will equalise to maintain PPP. However, PPP may not hold in the short run, or sometimes even in the long run (Isard, 1995). Regardless of the validity of the PPP, the above equation can be seen as an equation for imported inflation. Imported inflation is referred to as an increase in domestic prices, due to an increase in the prices of imports. The prices of imports are influenced by changes in exchange rates and foreign prices. Therefore, if the economy is heavily import-dependent, inflation in the country may be determined by the exchange rate and foreign prices.

Following from classical economists such as David Hume, Adam Smith, David Ricardo and James Stuart Mill, and neo-classical economists such as Leon Walras, Alfred Marshal and Arthur C Pigou, inflation was always considered to arise from changes in money supply, based on the quantity theory of money (Trevithick & Mulvey, 1975). Such thinking was later revived by the monetarists and, as famously put forward by the most prominent monetarist of recent times, Milton Friedman, 'inflation is always and everywhere a monetary phenomenon' Friedman argued that there is a stable and positive relationship between inflation and money supply (Friedman, 1963). According to monetarists, inflation is caused by excess aggregate demand in the economy caused by an excess supply of money. This phenomenon in explained by the quantity theory of money, which was originally explained by Fisher's equation of exchange as:

$$MV = PT \tag{2}$$

where M is money supply, V is velocity of money, P is the price level and T is transactions in the economy. As it is difficult to measure T, it is normally proxied by aggregate income, Y. Therefore, the equation is normally stated as:

$$MV = PY \tag{3}$$

Equation 3 is an accounting identity and shows that the nominal expenditure on all goods and services in the economy should equal the value of output in the economy. The above equation assumes that velocity is fixed in the short run. The equation also assumes that the economy is in equilibrium and at full employment, thus giving a constant output. Therefore, the price level P can only rise from an increase in money supply, M. To control inflation, money supply has to be limited, which makes monetary policy the most effective tool to tackle inflation. One of the criticisms of this view is that velocity can vary even in the short run. Consequently, controlling the money supply may not suppress inflation. This has led some monetarists to concede that, while inflation is caused by money growth, this might not always hold true in the very short term (Ball, 2007).

According to the Keynesian approach to inflation, inflation is a result of excess demand in the economy.[1] That is, excess demand in the economy will create an inflation gap, which is the difference between aggregate demand and the potential level of output at full employment. Any of the factors influencing the aggregate demand in the economy can create excess demand. These components are shown in Equation 4:

$$AD = C + I + G + (X - M) \tag{4}$$

where AD is aggregate demand (the sum of all spending in the economy), C is consumer expenditure, I is investment, G is government expenditure, X is exports and M is imports. A rise in consumption due to lower inflation, a tax cut or increased consumer confidence could lead to a rise in aggregate demand. Likewise, higher government spending or increased investments by the private sector or an improvement in exports of the country could cause an increase in aggregate demand. This would lead to a higher equilibrium price level and equilibrium output level.

The relationship between inflation and unemployment was another concept that was used to explain wage and price inflation. Based on an empirical study in the late 1950s, Phillips (1958) found an inverse relationship between inflation and unemployment, which came to be known as the Phillips curve. As this was an empirical model, Richard Lipsey tried to provide some theoretical underpinnings to the model by examining the behaviour of wages in a micro-labour market setting. In the early 1960s, the model was taken further by Paul Samuelson and Robert Solow (Mankiw, 2009). As the Phillips curve model depicts a trade-off between wage inflation and unemployment, this has significance for both the theory of inflation and economic policymaking. The relationship between inflation and unemployment can be expressed in the following equation (see Equation 5):

$$\pi_t = (\mu + z) - \alpha u_t \tag{5}$$

where is π_t the inflation rate; u_t is the unemployment rate; z is a variable that represent all the other factors that would influence wage setting; μ is the mark-up; and α is a parameter to capture the trade-off between inflation and unemployment (Blanchard, 2003).

1 The distinction between Keynesians and Monetarists is not as important as it used to be, and Keynesian also considers the growth of money supply as a cause of inflation. Similarly, structuralist theory of inflation has elements from other theories of inflation.

The empirical analysis of the Phillip curve gave evidence on a short-run trade-off between wages and unemployment, but no conclusive evidence was found on the long-run trade-off between the two (Trevithick & Mulvey, 1975). Both Friedman and Edmund Phelps challenged the validity of the Phillip's curve and proposed a so-called 'expected-augmented Phillip's curve' which incorporates future expectations of inflation. This is expressed in Equation 6:

$$\pi_t = \theta\pi^e + (\mu + z) - \alpha u_t \quad (6)$$

where π^e is the expected inflation and θ is the expectations adjustment parameter. It is argued that workers form their expectation of future inflation based on past inflation. When inflation is persistent and high in the economy, workers would expect inflation to rise further in the future. These inflation expectations would be included when setting their wages. Expectations such as this, based on past behaviour, are called adaptive expectations (Salvatore, 2001).

Another dominant school of thought in explaining inflation, especially in developing countries, is the structuralist view. In contrast to the monetarists' view of inflation, structuralists believe that inflation is caused by non-monetary factors in developing countries, unlike in more developed countries. As such, price pressures mainly emanate from the real sector bottlenecks in the economy (Bernanke, 2005). It is argued that inflation is inevitable in developing countries pursing rapid growth policies, given that these countries have structural bottlenecks in the real sector of the economy. The structuralist's view of inflation is based on three main assumptions. These are '(1) relative prices … change when economic structure changes; (2) [there exists] downward inflexibility of [some] money prices; and (3) [there is] a passive money supply closing the deflationary gap caused by price increases' (Canavese, 1982).

The inflation models of structuralists identify three main factors that may cause inflation in developing countries. The first is the rigidity of food supply in the developing countries due to the bottlenecks in the agriculture sector. This is because, when countries become more industrialised, workers move from the agricultural to the industrial sector. This creates a reduction in supply in the agriculture sector, while at the same time increasing the demand for food as the population urbanises and become more affluent. The rigidity of the food supply and the inability to import food to cater for the market drives up the food prices. As prices in the industrial sector are downwardly rigid, the rise in food prices drives up the general price level in the country (Fischer & Mayer, 1981).

The second factor is the foreign exchange bottleneck, which arises when foreign exchange receipts in the country fall short of financing the high demand for imports. Increased demand for imports may come from both the private sector and the government. Demand can stem from the rapid development of the country, greater industrialisation and the increasing population of the country.

The third factor that causes inflation arises from a financial constraint that developing countries face. That is, developing countries in the process of urbanisation and industrialisation create an increased demand for both physical and social infrastructure facilities, which the government is unable to finance from its revenue. The structure of the revenue and tax systems in most of these countries is inefficient and rudimentary. Governments are therefore unable to access enhanced revenue from the increased wealth resources in the country resulting from the growth and development. Governments faced with such budget constraints often recourse to deficit financing, increasing money supply and creating inflationary pressures in the economy (Kirkpatrick & Nixon, 1976).

Apart from the factors discussed above, there are several other sources of inflation, especially in developing countries. In developing countries, fiscal imbalances are often a major source of domestic inflation, as fiscal deficits can contribute to high money growth and exchange rate depreciation (Montiel, 1989). According to adaptive expectations, people base their inflation expectations on the past behaviour of inflation, which creates inflation inertia. Inflation inertia is considered another important determinant of inflation in developing countries, especially when there is wage indexation and a history of high inflation in the country (Loungani & Swagel, 2001).

2.2 Empirical Literature on Inflation

No empirical studies on inflation have been done so far for the Maldives. This is the first attempt to examine the determinants of inflation in the Maldives empirically. While there is a considerable number of empirical studies on inflation determinants for developed and developing countries, studies on small island developing countries are still very limited. Some general studies on developing countries and the available studies on small island developing countries are discussed below. A review of these studies will help to identify the factors influencing inflation in countries similar to the Maldives and the methodologies used for empirical analysis. This will help to build and estimate a suitable econometric model of inflation for the Maldives, and allow for the comparison of results obtained for the Maldives with similar countries.

Loungani and Swagel (2001), using a sample of 53 developing countries, examined the inflationary process in these countries, focusing on the relationship between sources of inflation and exchange rate regimes. They used VAR models to look at the relationship between the variables and variance decomposition techniques to identify the effect on inflation from a shock to each of the explanatory variables in the model. The study found that the main causes of inflation are money growth and exchange rate changes due to fiscal effects. Regarding inflation inertia, past inflation accounted for about 10–20 per cent of inflation movements. However, the output gap and supply-side cost shocks were not as important in explaining inflation movements. This may be due to the use of annual data, as the influence from these two variables may be short term. The study also found that in Asian and African countries, inflation inertia was more important than fiscal variables, output gap and supply-side shocks. In contrast, in South American countries, fiscal variables were more important. Finally, fiscal variables contribute more to inflation in floating exchange rate regimes, compared to in fixed exchange rate regimes.

In modelling inflation process in Sri Lanka, Cooray (2008) found that inflation is mainly determined by real GNP, exchange rates and import prices. The money supply was also significant, but only in the long run. The determinants of inflation for Mauritius were analysed in a paper by Imam and Minoiu (2005), using quarterly data from 1977 to 2004 in a vector autoregressive framework. Two equations were estimated: a PPP equation and a monetary equation. The results showed that PPP does not hold for Mauritius and that foreign prices influence domestic inflation significantly. Further, ERPT was not very high, due to administered prices. As regards the monetary equation, the price elasticity of money was very high, at around 0.74.

As the Maldives have a pegged exchange rate to the US dollar, it would be interesting to look at inflation determinants in countries with similar exchange rate policies. A study by Kandil and Morsy (2009) on six Gulf countries that have or had pegged exchange rate regimes for a long period, studied the determinants of inflation using cointegration and ECM. The model estimated inflation as a function of NEER, foreign prices, money supply and government spending. Both foreign prices and NEER influence the domestic prices in the long run, with the former more important than the latter in determining inflation in most of the countries. However, in the short run, the external factors were important only in some countries. Monetary growth was inflationary in two countries in the long run and for only one country in the short run. Higher government spending was

disinflationary in all the countries in the long run, as it eased the capacity constraints in the economy. In the short run, a variable reflecting excess demand was included and this was significant for three countries, indicating that real output higher than the potential output is inflationary.

There have been a few studies on inflation for the Caribbean country of Barbados. Downes (1985) examined the factors influencing inflation in the country and found that import prices and interest rates are the main determinants of inflation (contributing 73 per cent and 7 per cent, respectively), whereas wage rate changes were found to be insignificant. Cumberbach (1995) also found similar results for Barbados, with the main determinant of inflation being import prices, although he found that the consumer credit rate, unit labour costs and real national income also contributes significantly to inflation in the country. Using cointegration and ECM, Downes, Holder and Leon (1991) also investigated the long-run relationship and short-run dynamics of inflation in Barbados. Wages, productivity, unemployment, price of tradables and import prices were found to influence the inflationary process in Barbados. Inflation in Barbados has been shown to have a close relationship to the movements in the tourism sector, indicating the importance of demand-side factors in explaining inflation in the country. In most of the studies on small open economies, according to Coppin (1993), the demand-side factors are ignored, with the assumption that inflation is mostly due to external factors. To fill this gap, he examined the determinants of inflation in Barbados, to check whether demand-side effects, such as the level of real tourism activity, or supply-side effects, such as imported inflation and interest rates, are more important in explaining inflation in the country. He also examined the seasonal patterns in inflation in the country. Both demand-side and supply-side factors were shown to influence inflation in Barbados.

Holder and Worrel (1985) analysed whether domestic factors are more important than foreign factors in the inflation process in three Caribbean countries: Barbados, Jamaica and Trinidad and Tobago. Using least square regressions on a log-linear model, they found that foreign prices, exchange rate changes and trade barriers were important sources of inflation in all three countries. Domestic interest rates were important in determining inflation only in Barbados, while wages were important only in Jamaica.

A study by DaCosta and Greenidge (2008) on four Caribbean countries analysed the determinants of inflation in these countries using annual data from 1970 to 2006. Dynamic OLS were used to estimate their model, which included a large number of

variables. They included inflation rate, oil prices, world prices, real national income, interest rates, unemployment rate, money supply and exchange rates. While not all the variables were significant for all the countries, for most of the countries, world prices, real national income, money supply, exchange rates and interest rates were important determinants of inflation.

The causes of inflation in Fiji were studied by Dewan, Hussein and Morling (1999), using a basic mark-up model similar to the model described in Equation 5. The main variables in the model were consumer price inflation, unit labour costs, import prices and output gap. The model was estimated as an unrestricted error-correction model. The results showed that about 75 per cent of the long-run movement in inflation comes from import prices and about 25 per cent from labour costs.

The above discussion on theoretical and empirical literature on inflation shows that there are a number of factors influencing developing countries, and no single theory can explain inflation in a given country. Moreover, the empirical evidence suggests that variables from different theories are important in explaining inflation in different countries. The factors identified by the literature as important determinants of inflation include money growth; exchange rate; fiscal deficit; real output gap; foreign prices; expected inflation; interest rates; nominal wages; unit labour costs; unemployment rates; and tax rates. Several studies model the determinants of inflation, drawing from different theories of inflation and using factors that seem to suit the particularities of the country or countries in focus. In a similar manner, this study will also take both external sector and monetary sector variables to model the inflation process in the Maldives.

3. Review of Literature on Exchange Rate Pass-Through

The effect of exchange rate changes on domestic prices has become an area of increasing interest for both academics and policy makers in developed and developing countries. As stated in the introduction of this paper, the ERPT refers to the percentage change in the domestic prices, generally import prices, from a 1 per cent change in exchange rate. Percentage change in exchange rate to consumer prices or any other domestic prices, such as producer prices or wholesale prices are also referred to as ERPT. When a change in exchange rate is fully transmitted to import prices, then ERPT is said to be complete. In contrast, it can be zero if a change in exchange rate has no effect on import prices. In general, most countries experience incomplete or partial ERPT, which is when some exchange rate changes are reflected in import prices to some extent (Menon, 1995).

The degree and speed of ERPT has important implications for the choice of exchange rate regime. A fundamental argument in favour of flexible exchange rate regimes is their ability to adjust relative prices of a country when there is a country-specific real shock to the economy. This assumes that changes to NERs are quickly transmitted to import prices, leading to an expenditure-switching effect between imported goods and home-produced goods. Therefore, a high ERPT is required for this price adjustment process of flexible exchange rate regimes to work (Bache, 2006). However, as mentioned earlier, a flexible exchange rate regime in a high ERPT environment will mean greater exchange rate volatility and higher volatility in inflation. Therefore, in countries in which price stability is the prime objective, a fixed exchange rate regime is preferred if the ERPT is high.

There are two stages of ERPT: in the first stage, exchange rate changes are transmitted to import prices; and in the second stage, import price changes are transmitted to consumer prices. The extent to which the consumer prices reflect the changes in import prices will depend on the share of imported goods in the domestic consumer basket. In addition, consumer prices in the domestic economy may also rise if higher import prices induce consumers to switch to domestically produced goods, which will increase the aggregate domestic demand in the economy. This will create an upward pressure on the domestic prices as well as on the nominal wages (Bailliu & Bouakez, 2004).

As mentioned previously, ERPT is mostly incomplete and this reflects a departure from the LOP in traded prices. According to LOP, goods that are homogenous must sell for the same price when converted to the same currency, regardless of where it is sold and assuming that there are no transportation costs or barriers to trade. Due to the types of trade costs and pricing to market (PTM) strategies adopted by firms, LOP does not hold in the real world. PTM refers to industry's practice of discriminating price according to different destination markets. This is one of the most important determinants of ERPT. Exporters will be more willing to absorb the costs of exchange rate changes, leaving their prices unchanged, if they believe that other players in the market will not raise their prices and that consumers are relatively price sensitive. This is because they do not want to lose their market share, especially in large and important export markets such as the US. As a result, PTM in such a situation will be high and ERPT will be low. In contrast, when exporters face a highly differentiated market, they will be less likely to adjust their prices to exchange rate changes and importers will bear the costs. In this case, PTM will be low and ERPT will be high (Bailliu & Bouakez, 2004).

The invoice currency of exports is also important for ERPT and the optimal exchange rate regime. According to Devereux and Engel (2002), if exports are invoiced in producer currency, exchange rate changes are fully, or to a large extent, reflected in import prices. In such a situation, ERPT will be high and a flexible exchange rate regime would be beneficial in adjusting to country-specific external shocks. However, if exports are invoiced in local currency, the exchange rate has little effect on the import prices. In this case, the ERPT will be low and no benefits can be attained from having a flexible exchange rate regime.

The inflationary environment in a country, as discussed earlier, is also known to be a key factor in determining the ERPT. According to Taylor (2000), the decline in ERPT in developed countries is mainly the result of the low inflation that these countries have experienced since the 1980s or early 1990s. When inflation is low and stable, there is less persistent inflation, which leads to a reduction in the expected persistence of costs and price changes. Therefore, in a low-inflation environment, producers are more reluctant to pass on the costs to consumers. They fear that the other competitors might not follow the price increase and they might lose their market share. As a result, firms lose their pricing power, leading to a low ERPT.

Taylor's hypothesis of low inflation leading to low ERPT was tested by Choudhri and Hakura (2006) in a cross-sectional study of 71 countries using new open economy macroeconomic models. They found evidence of a strong and positive link between the average inflation rate and ERPT. However, this evidence is far from conclusive, as shown by Campa and Goldberg (2002) in their study of 25 OECD countries. They found that there is only a weak association between high inflation and exchange rate volatility and high ERPT. Moreover, microeconomic factors, such as the composition of imports, are more important in determining the ERPT. In a review of ERPT literature on Asian countries, Ghosh and Rajan (2007) found that pass-through tends to be high in countries that are relatively smaller and more open, and which have higher import content, limited domestic substitutes for imported goods and more exchange rate volatility.[2] Exchange rate misalignment has also been considered as a determinant of ERPT in some studies (Goldfajn & Werlang, 2000).

2 Low ERPT when there is greater exchange rate volatility may also be due to the menu costs faced by firms. Menu costs are essentially costs associated with changing a firm's prices. However, menu costs may also include costs such as updating computer systems, re-tagging items and hiring consultants to develop new pricing strategies when prices changes.

Most of the earlier empirical studies on ERPT are based on developed countries, especially larger economies like the US. However, in recent years, more cross-sectional studies and country-specific studies on developing countries have emerged, as there is now greater interest in the exchange rate issues of these countries. However, there are still not many studies on small island developing countries like the Maldives.

In a comprehensive survey of the literature on ERPT, Menon (1995) found that of the 43 studies that were included in his survey, more than half were on the US and Japan and many of the rest were on developed countries as well. The general conclusion from these studies is that pass-through is incomplete and time or lags taken for the transmission of exchange rate changes to prices are generally extensive. The empirical evidence on ERPT in developed countries shows that the ERPT in these countries has declined substantially since the 1980s and 1990s (Bailliu & Bouakez, 2004). Empirical literature on developing countries indicates that ERPT is very country specific and results cannot be generalised across the developing countries.

In a study of eight East Asian countries, Ito, Sasaki and Sato (2002) found that ERPT to import prices in Thailand was more than complete (over 166 per cent) while pass-through to consumer prices was at 26 per cent. Meanwhile, ERPT to import prices for Korea was not statistically significant, although it showed a 13 per cent pass-through to consumer prices. Ghosh and Rajan (2007) also examined the ERPT for Thailand and Korea and found that ERPT was higher for Thailand than for Korea. They did not find evidence of a reduction in ERPT for either of these countries, and in fact found ERPT to be higher since the Asian crisis. This was largely owing to the greater openness of the economy and greater volatility in exchange rates.

In a study of 25 developing countries, Barhoumi (2006) found evidence of high ERPT in the long-run,[3] but the degree of pass-through was heterogeneous among the countries. He further examined the cross-country differences by taking into consideration the different exchange rate regimes and trade distortions in these countries. He found that fixed exchange rate regimes and lower trade barriers potentially lead to a higher ERPT to import prices in the long run compared to countries with floating exchange rate regimes and higher trade barriers.

3 Long-run is taken as 12 months.

As mentioned earlier, there are only a few studies of ERPT in small countries like the Maldives. Looking at Jamaica, McFarlene (2002) analysed the ERPT to consumer prices in Jamaica, using monthly data from January 1990 to December 2001. He found that the degree of ERPT remains high for the country, but the speed of ERPT has declined substantially when the period 1990–1995 is compared to the latter period, 1996–2001. While the high pass-through is associated with the openness of the economy, the relative size of the economy and the relative elasticities of supply and demand in the country, the reduction in the speed of ERPT may be attributable to the more favourable macroeconomic environment. In particular, the low and stable inflation during the period 1996–2001 compared to the earlier period (1990–1995) may explain the reduction. Wimalasuriya (2007) empirically analysed the ERPT in Sri Lanka into different domestic prices, using monthly data from 2000–2005. She found the ERPT to be high for both import prices and consumer prices, though the pass-through effect is lower for consumer prices compared to import prices. He also found that pass-through to producer prices was complete within six months.

From the above review of the literature on ERPT, the following general conclusions can be made:

- ERPT is incomplete and pass-through decreases along the production chain (such as from import prices to manufacturing or wholesale prices to consumer prices).
- Both microeconomic as well as macroeconomic factors influence the degree of ERPT.
- ERPT has generally declined for developed countries.
- The degree of pass-through shows substantial cross-country heterogeneity. It also varies among different studies and across time horizons.
- Studies on small island economies are scarce.

As regards the extent of ERPT, it is expected to be high if the country has the following characteristics:

- High degree of openness of the economy
- Large share of imported goods in the consumer basket
- Imports invoiced in producer currency prices
- Low PTM
- Low trade barriers

- A fixed exchange rate regime

As the Maldives has most of these characteristics, it is expected that the ERPT to domestic prices will be high.

4. Developments and Sources of Inflation in the Maldives

4.1 Structure and Composition of Consumer Price Index

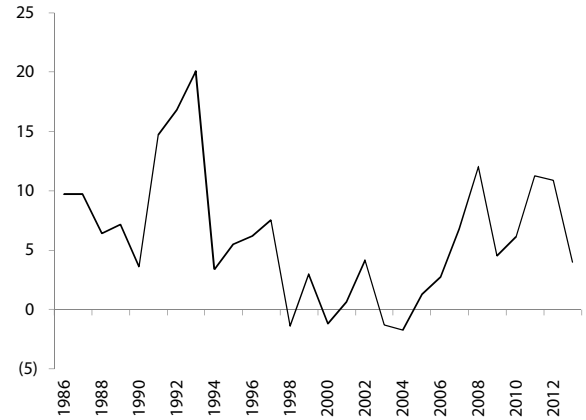
The extent of ERPT and the importance of different factors that influence domestic inflation depend very much on the composition of the CPI. The CPI is compiled on a monthly basis for the whole country (CPI National), for the capital Male' (CPI Male') and for the region, which excludes the capital Male' (CPI Atolls). However, only CPI Male' is available for any considerable length of time, as National and Atoll indices are only available from 2006. The CPI index has 13 categories, with the largest weights allocated for food (31 per cent) and housing, electricity, gas and other fuel (25 per cent).

The exchange rate effect on prices is expected to be very high in the Maldives, as the tradable sector is very large, while the non-tradable sector is very small. An analysis of the consumer basket used for the CPI, which was decomposed into tradables and non-tradables showed that about 90 per cent of the tradable goods in the CPI are imports and about 58 per cent of the total CPI basket comprises imported goods. While the services in the consumption basket were classified as non-tradables, these services are also greatly influenced by exchange rates in the country. Consequently, very few items in the consumer basket in the Maldives are devoid of any influence from foreign factors such as international prices and exchange rates.

4.2 Inflation Developments

Inflation in the Maldives has been volatile in the period under review (1990–2013), with two episodes of very high inflation, as can be seen in Figure 1. Food prices are the main source of inflation in the country, as these constitute about one-third of the CPI basket. Most of the goods in the consumer basket are imported and this makes domestic inflation vulnerable to international prices.

Figure 1: Annual Inflation Rates, 1986–2013
(percent)



Source: Maldives Monetary Authority (2009,2011)

Inflation, which came down from almost 10 per cent in 1986 to about 4 per cent in 1990, increased to a record high of 20 per cent over the following three years. This was a time of serious macroeconomic imbalance in the country, stemming from both external and domestic factors. On the external front, the tourism and fisheries sectors, which were the dominant sectors in the economy, were adversely affected by weak tourism markets and low international fish prices. The current account deficit as a percentage of GDP rose to almost 17 per cent in 1993, from just about 6 per cent in the previous two years. On the domestic front, following surplus budgets in 1987 and 1988, the deficit ballooned in the subsequent years, reaching a high of 14 per cent of GDP in 1991. The growing budget deficits largely resulted from the government's recurrent expenditure, owing to increases in wages and salaries for government employees and extravagant spending on two events: the 25th Anniversary of Independence of the Maldives and the hosting of the annual conference of the South Asian Association for Regional Cooperation (SAARC) in 1991. The deficit was financed mainly by monetisation and, as a result, monetary growth became excessive (an annual growth of 36 per cent in broad money).

Following this episode of macroeconomic destabilisation, the government implemented several macroeconomic and structural reforms in 1994. This included the formal adoption of an exchange rate peg to the US dollar, moving away from the previous policy of a highly managed exchange rate regime. Due to the stabilisation measures, the government budget deficit and the current account deficit as a percentage of GDP was

reduced dramatically to 5 and 3 per cent respectively, in 1994. Consequently, inflation also came down to 3 per cent at the end of the year. Inflation remained subdued in the second half of the 1990s, mainly because of the steady appreciation of the nominal effective exchange rate, which had been taking place since 1995. The low prices of fish in the domestic market also contributed to the low inflation. Moreover, imported prices of clothing and footwear declined in 2000, contributing to the overall decline in prices in 2000 and a negative rate of inflation for the year. The public sector[4] wage increase of 35 per cent in September 1999 did not seem to affect overall inflation in 2000.

In a small open economy like the Maldives, a devaluation of the exchange rate is expected to feed through to inflation through higher import prices. In 2001, the rufiyaa was devalued by 9 per cent against the US dollar. While the average rate of inflation[5] for the year did not increase substantially in 2001 (see Figure 1), the year-on-year inflation registered a significant increase. The monthly inflation rates during 2001 and 2002 are shown in Figure 2. The year-on-year inflation rate at the end of 2001 was about 7 per cent, in contrast to the negative rates of inflation in the first half of the year. The inflation rate, excluding the more volatile domestic prices[6], is also shown in Figure 2. This figure reveals that inflation was already rising prior to the July 2001 devaluation. This is because, in the period leading up to the devaluation, the foreign exchange market was very tight and there was a large black market. As a result, the cost of imports was on the rise in local currency terms, as the black market exchange rate was significantly higher than the officially fixed rate. The resulting increase in domestic consumer prices is an indication of the high ERPT in the economy. The high import costs associated with the exchange rate devaluation was passed on to the consumers, especially for food imports.[7] This was despite the decline in the fish index and the depressed demand in the economy, due to the private sector wage reductions in response to the economic downturn following the 11 September terrorist attack in the US. Following the stabilisation of the high import prices in the second half of 2001 and in the following year, the inflation rate fell steadily over the period 2002–2004.

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4 The public sector in the Maldives is large, with the government administration accounting for about 13 per cent of GDP.

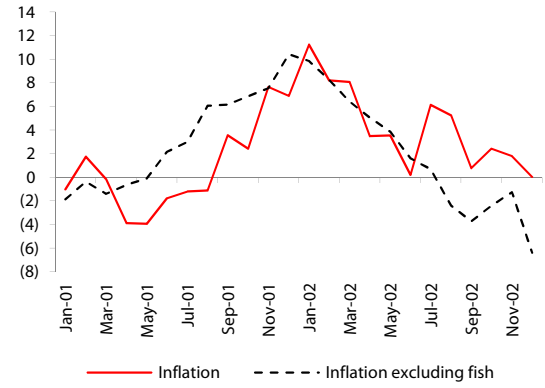
5 The annual inflation rate here is calculated using the average monthly indices of CPI for the year, as this is more representative of the actual inflation during the year than the year-on-year inflation rates. However, the latter are also useful when analysing the monthly developments.

6 Fish and fish products have a 5 per cent weight in the CPI basket. The fish index is usually very volatile, reflecting the daily demand and supply of fresh fish in the local fish market in Male'. The year-on-year increase in the fish index in 2001 was 30 per cent.

7 As discussed in Section 5.4, most of the items in the food category, apart from fish, are imported.

Figure 2: Inflation Rates and Inflation Excluding Fish Prices, 2001–202

(percent)



Source: Maldives Monetary Authority (2009,2011)

In the years following the 2004 tsunami, inflation began to rise again in the Maldives. As the reconstruction of the islands and tourist resorts damaged by the tsunami began, supply-side bottlenecks arose, as all construction materials are imported. While there is an unlimited supply of goods available for import from international markets, the handling capacity for imports into the Maldives is limited, as the existing customs and port infrastructure is constrained. As a result, upward pressure was placed on the price of consumer goods. This was also a period of rising global food prices and oil prices, which further contributed to rising inflation. Another factor contributing to the upward surge in inflation in the years following the 2004 tsunami is related to the increased migration of people from the outer islands to the capital, Male'. This increased the demand for rental properties in Male' and, given the shortage of such properties on the island, drove up rental prices. The only dampening effect on inflation during the post-tsunami period came from the decline in the communication index because of the reduced telecommunication rates stemming from the opening up of the mobile phone services sector. At the end of 2008, inflation reached a peak of 12 per cent as the prices of most of goods and services in the consumer basket increased significantly. However, inflation rates were moderated somewhat in 2009 and 2010, to 5 per cent and 6 per cent, respectively. This reflected the deceleration of world commodity prices and domestic fish prices.

Inflation picked up again considerably in 2011 and 2012, due to a combination of international and domestic factors. During the first half of 2011, a substantial rise in global food and energy prices resulted in elevated levels of domestic prices, owing to

the high proportion of imported items in the CPI basket. As such, world food prices rose by an average of 34 per cent in annual terms during the first quarter of the year, while crude oil prices also rose significantly. Despite world commodity prices easing towards the end of the year, inflationary pressures were further aggravated in the domestic economy, due to the depreciation of the rufiyaa by roughly 20 per cent, following the change in the exchange rate regime in April 2011. The increase in the cost borne by importers was immediately reflected in high domestic prices, and by the end of the year, prices had hiked up by about 17 per cent. Furthermore, the introduction of the goods and services tax (GST) in October 2011 and the subsequent increase in its rate from 3.5 per cent to 6 per cent in January 2012 also contributed to an increase in inflation levels. However, the effect of GST on inflation was relatively muted, as a number of essential goods and services are taxed at 0 per cent under the GST Act. Other domestic factors such as fish prices continued to play a significant role in driving inflation during this period, as erratic price hikes were observed in the domestic fish market. By 2013, as the base effects of the rufiyaa depreciation dissipated and domestic fish prices stabilised, inflation levels decelerated gradually to about 4 per cent.

Based on the above analysis of the developments in inflation, together with the main variables identified in the theoretical and empirical literature, expected sources of inflation for the Maldives are described in the next section.

4.3 Sources of Inflation

Being a small and open economy, it is generally believed that inflation in the Maldives is imported. Apart from exchange rate movements, which would be reflected on the imported value of a good, the final price of an imported good that is sold in the domestic market is also influenced by changes in costs associated with structural factors such as transportation, storage, finance, insurance, wholesaling and retailing. However, due to the unavailability of data on these structural factors, it is not possible to examine their contribution to inflation.

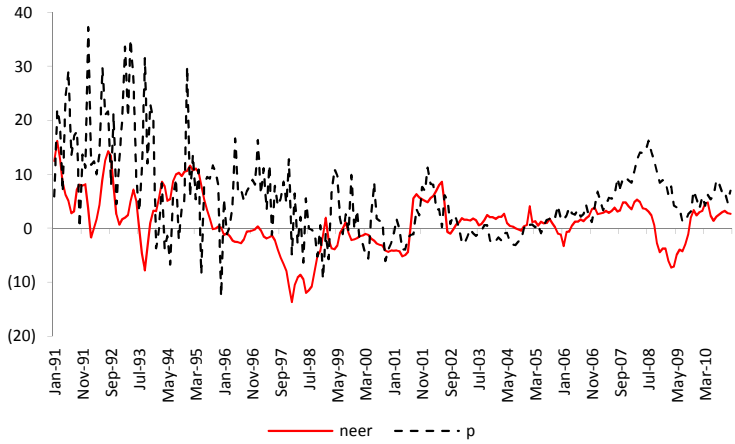
Drawing from the theoretical and empirical literature and the analysis on the developments of inflation in the Maldives in the past two decades (1990–2010), several sources are identified as possible determinants of inflation. They include the NEER, foreign prices, monetary factors (money supply, credit to the private sector and credit to the government), budget expenditure, real GDP and wage levels. The relationships between these variables and inflation are discussed below.

Nominal exchange rates and inflation

The NEER used in this study is the import-weighted exchange rate. As the Maldives have a fixed exchange rate to the US dollar, the changes in the US dollar against the major trading partners of the Maldives changes the exchange rate between the Maldivian rufiyaa and the currencies of its major trading partners accordingly. Given that the Maldives trades very little with the US, the exchange rate changes of major trading partners is captured in the NEER.

The developments in the NEER are shown in Figure 3. In this paper NEER measured in terms of domestic currency units per unit of foreign currency is used. Therefore, a decline in the value of the NEER represents an appreciation of the Maldives rufiyaa against an import-weighted basket of currencies, while an increase represents a depreciation. Depreciation of the NEER makes the imports into the country more expensive, resulting in higher import prices. This directly translates to higher consumer prices in the Maldives. As most of the inputs in the domestic production of goods and services are also imported, higher import prices of inputs also influence consumer prices. As such, a depreciation of the currency should be associated with an increase in inflation and an appreciation should lead to a decline in inflation. The developments seen in Figure 3 seem to suggest the existence of such a relationship, especially in more recent years.

Figure 3: Annual Growth in NEER and Inflation Rates (p), 1991–2010
(percent)



Source: Maldives Monetary Authority (2009,2011)

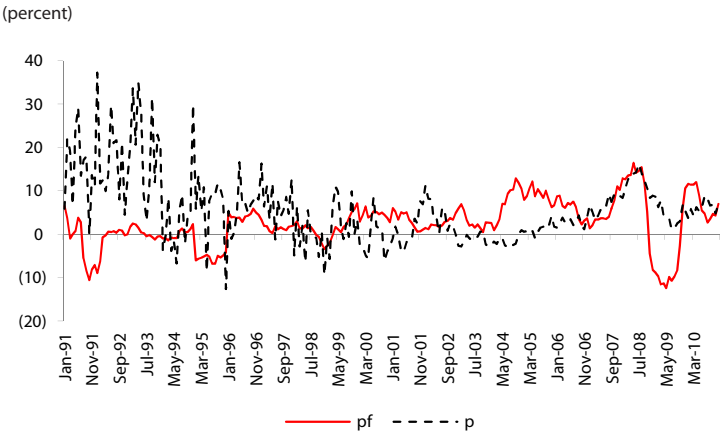
Foreign prices

Foreign inflation can transmit to inflation in the domestic economy directly and indirectly. Higher import prices will be reflected almost instantaneously in the goods imported for final consumption and this will normally show as a proportional increase. Higher import prices of inputs into production are indirectly transmitted to consumption goods, with a time lag before the higher prices are reflected in the domestic prices of these goods.

The best indicator of foreign prices is the import price index. However, such data is not available for the Maldives. Instead, the PPI of the Maldives' major trading partners, weighted by their import share in the total imports of the Maldives, is used in this paper.

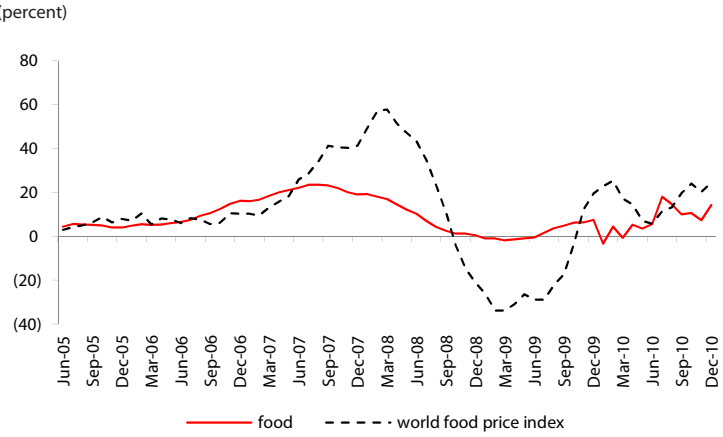
The growth in foreign prices, as measured by the PPI of the major trading partners, is shown in Figure 4, along with the rate of inflation. As in the case of the NEER, the inflation rate moves in tandem with the changes in foreign prices. However, the changes in inflation and the foreign prices are not proportional. This is expected, as domestic inflation is influenced by other factors, such as the prices of non-tradable items in the consumption basket.

Figure 4: Annual Growth in Foreign Prices (pf) and Inflation Rates (p), 1991–2010



Source: Data constructed from IFS Database (2009)and Maldives Monetary Authority (2009, 2011)

Figure 5: Annual Growth in World Food Prices and Food Inflation Rates, 1990–2010



Source: FAO (2011) and Maldives Monetary Authority (2009, 2011)

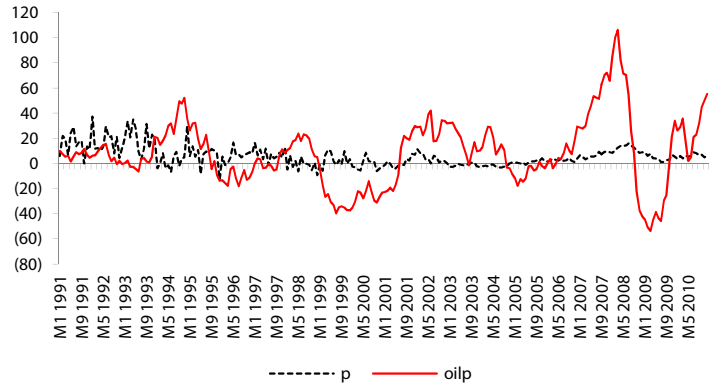
As mentioned before, about one-third of the CPI consists of food items, the majority of which is imported. Therefore, the relationship between world food prices and food inflation in the country becomes important.[8] Developments in world food prices, together with domestic food inflation (as a percentage change in the food price index), are shown in Figure 5. Domestic food prices are shown to respond to changes in world food prices, but the rate of increase in domestic food prices is slight compared to the increase in world food prices. Moreover, the fall in world food prices has had a subdued effect on domestic food inflation. The reason for the limited relationship between the two factors may relate to the administered prices of staple foods in the country, these being rice and flour.

The price of oil affects the domestic economy in most countries. The Maldives is particularly dependent on oil imports, as the main industries of the country have high dependence on and a highly inelastic demand for oil. Oil imports account for about 20 per cent of total imports in value terms. In the case of tourism, oil affects the transportation of both goods and tourists to the tourist resorts. In addition, each resort generates its own power, requiring oil supplies. As regards the fisheries sector, the consumption of oil is high, especially given that large fishing vessels are now engaged in fishing activities. Given that the Maldives are a small chain of islands, with 200 inhabited islands spread across 900,000 square kilometres, sea transport is paramount to the economy.

8 The food price index is only available from June 2004 on a comparable basis.

Figure 6: Annual Growth in International Oil Prices (oilp) and Inflation Rates (p), 1991–2010

(percent)



Source: FAO (2011) and Maldives Monetary Authority (2009, 2011)

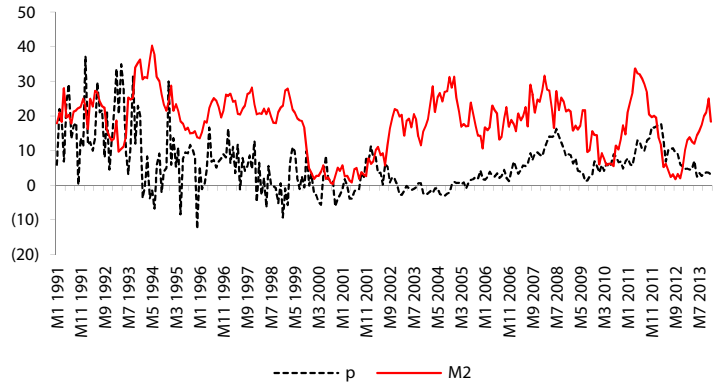
As Male' is the hub of the wholesale and retail sectors, most of the goods consumed in the rest of the country are distributed from Male'. However, the direct impact of oil observed on the domestic consumer prices in Male' (which is the CPI index used in this analysis, as discussed earlier) is very little. Consumer goods and services that are influenced by international oil prices, such as electricity charges in Male', are heavily regulated and subsidised by the government. Therefore, the direct impact of oil price changes is not observed in the domestic consumer prices. The lack of responsiveness of inflation to oil prices is evident from Figure 6.

Monetary growth and inflation

According to the monetarist view of inflation, excessive growth in money creates inflation. Figure 7 shows the developments in inflation together with broad money (M2) in the Maldives. This is the widest monetary aggregate of money supply and measures the total liquidity in the system. Given the high credit demand in the economy, especially from the tourism sector, and the frequent deficit monetisation by the government, the growth in M2 has remained high in most years. This is seen in Figure 8 in the rapid expansion in credit to the government as well as to the private sector. The decline in private sector credit in 2009 and 2010 reflects the downturn in the economy and the increased caution on the part of commercial banks in their lending activities after the global financial crisis.

Figure 7: Annual Growth in Money Supply (M2) and Inflation Rates (p), 1991–2010

(percent)

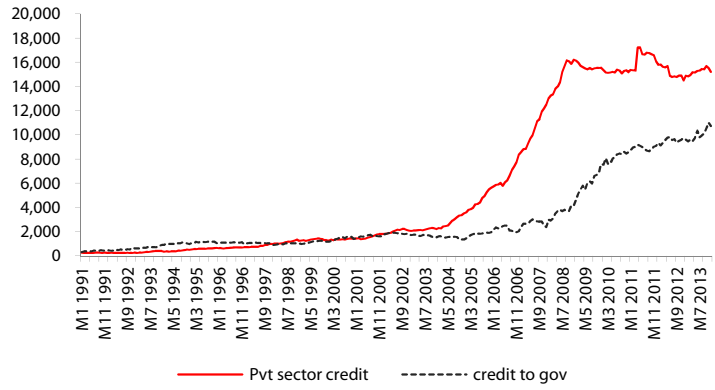


Source: Maldives Monetary Authority (2009, 2011)

While the impact of monetary expansion will be seen in inflation, probably with a lag, it can be seen from Figure 7 that there is some correlation between broad money and inflation. The rapid expansion in credit in the economy also creates inflationary pressure due to the existence of supply-side bottlenecks. As almost everything is imported in the Maldives, the rapid growth in private sector credit and credit to the government increases the demand for imports. Importers frequently face foreign currency shortages when there is a rapid increase in demand for imports. This shortage is also severe during times of tourism downturns, as it curtails foreign exchange inflows to the country. In addition, the

Figure 8: Credit to the Private Sector (cp) and Credit to the Government (cg), 1991-2010

(millions of rufiyaa)



Source: Maldives Monetary Authority (2009, 2011)

limited infrastructure and capacity constraints in areas such as port facilities and inter-island transport contributes to inflation in the domestic economy.

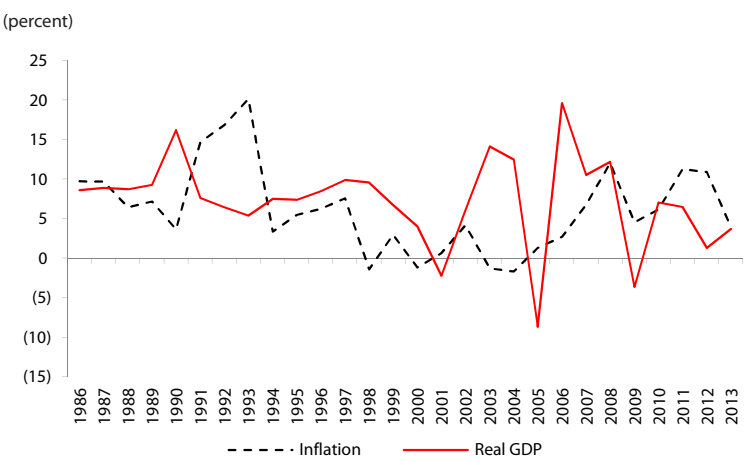
Wage increases and inflation

In the Maldives, the labour market is not very developed. There are no labour unions, and labour rights are very limited. In addition, the large pool of cheap expatriate workers available from neighbouring countries has led to limited (often no) bargaining power for employees. There is no data available on the wage levels in the country, especially in the private sector. The only available information on wages is the total wage bill of the government, in annual terms. However, the total wage bill of the government is not a good indicator of the general wage levels in the country. This is because the wage bill changes with shifts in the composition of employees, such as more employees in higher positions than in the previous year. In recent years, government sector employment has been politically motivated, with extensive and erratic job promotions given to employees with certain political affiliations. Further, the wage levels of the government are generally increased after every election (every five years), often leading to a wage spiral in the private sector. This promotes inflation, as the cost of inputs in the private sector increases when the wage level rises. However, in the absence of data on wage levels, it is difficult to gauge the relationship between the two.

Real gross domestic product and inflation

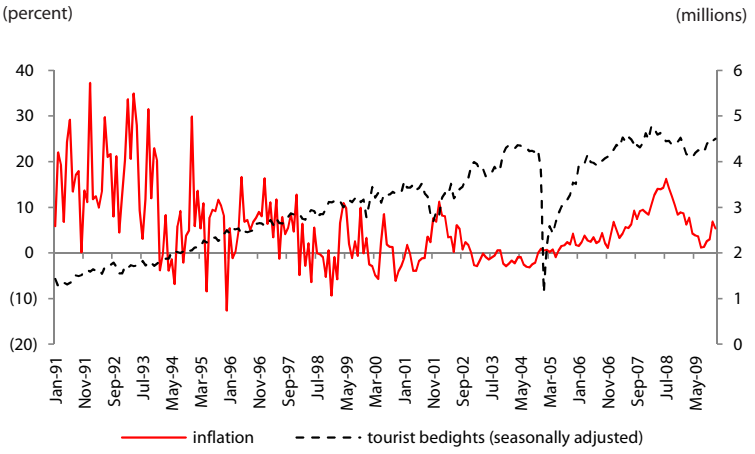
According to the empirical and theoretical literature, real GDP growth eases the demand pressures in the economy, leading to a decline in the rate. Since real GDP data are only

Figure 9: Annual Growth in Real GDP (y) and Inflation Rates (p), 1986–2013



Source: Maldives Monetary Authority (2009, 2011)

Figure10: Tourist Bed Nights, Seasonally Adjusted, (tbn_sa) and Inflation Rates (p), 1990-2010



Source: Maldives Monetary Authority (2009, 2011)

available on an annual basis, Figure 9 shows the annual developments in real GDP and inflation rates. As shown, the relationship between the two variables seems to be positive rather than negative. This might be a sign of overheating in the economy.

In a study by Coppin (1993) on Caribbean countries, he asserts that in tourism-dependent countries, the real GDP is driven by the tourism sector, and an expansion in tourism will lead to higher inflation. He argues that tourists will compete with locals for the available consumption and infrastructural goods, driving up domestic prices, assuming tourism activity does not take place in an enclave. In the case of the Maldives, tourists do not directly compete with locals for such goods, as tourism does in fact take place in an enclave (in the sense that tourists are located on separate tourist islands). These islands are solely for the purpose of tourism and almost all tourism activities take place in these islands. Given the high import dependence of the economy, which is even higher in the tourism sector, the demand for goods is met by imports. However, if the demand for imports is not met due to the structural bottlenecks in the economy, as discussed earlier, an increase in tourism could lead to a rise in inflation.

Therefore, an increase in tourist bed nights can increase or decrease inflation. In Figure 10, the relationship between tourist bed nights and inflation rates shows different trends during different periods. In the 1990s, inflation was too volatile and tourism was expanding too rapidly to discern any visual relationship between the two. During the

period 2000–2004 (prior to the tsunami), a negative relationship is seen, after which inflation seems to positively track tourist bed nights. However, since this latter period was the post-tsunami reconstruction period, the developments in inflation cannot be associated simply to tourism developments.

5. Modelling the Inflation Process in the Maldives

5.1 Theoretical Framework

Following the analysis of the sources of inflation in the Maldives in Section 4.3, this section first specifies an inflation model for the Maldives. There are several theories that have been developed to explain inflation under various circumstances. The theoretical specification for the empirical model used in this section is based on a simple model of price determination in a small open economy. Small open economies are heavily dependent on imports and are generally price takers. Therefore, domestic prices in the country are influenced by foreign prices and changes in NERs. Based on these assumptions, the model specified below uses a tradable and non-tradable sectors framework to determine overall prices in the economy:[9]

$$P_t = f(P_t^T, P_t^{NT}) \tag{7}$$

where price P_t is a function of the prices in the tradable sector, P_t^T, and the prices in the non-tradable sector, P_t^{NT}. The prices in the tradable sector are determined by the world market and the prices of these in the domestic economy is a function of foreign prices (p_t^f) and NER (E_t), assuming that PPP holds. This is given in Equation 8:

$$P_t^T = f(E_t, p_t^f) \tag{8}$$

Domestic prices will increase if the exchange rate depreciates or foreign prices increase. Equation 8 can be regarded as an equation of external inflation, as discussed in Section 2.1.

9 The model specified here draws from inflation models used in studies of small developing economies, such as those of Cumberbach (1995), Downes, Holder, & Leon (1991), Moriyama (2009) and Williams and Adedeji (2004).

Prices in the non-tradable sector are determined in the domestic money market and this can be specified using the quantity theorem of money. This was discussed in Section 2.1 and the Equation 3 is re-stated below (see Equation 9) in the context of the framework developed here:

$$MV = P_t^{NT} Y \tag{9}$$

where M is the money supply, V is the velocity of money, and Y is the real GDP.

Taking the natural logarithm of Equation 9 and solving for prices gives the domestic prices as a function of money supply, real GDP and velocity (which usually declines with financial deepening, and thus has a negative time trend). This is given in Equation 10.

$$p_t^{NT} = m_t - y_t + \theta t + \eta \tag{10}$$

where θt is the time-trending velocity and η represents the disturbances of the velocity other than the time-trend component.

The overall price level in the economy is derived by taking the natural logarithm of Equation 8 and substituting it, together with Equation 10, into Equation 7, as specified in Equation 11.

$$p_t = f(e_t, p_t^f, m_t, y_t) \tag{11}$$

According to Equation 11, the overall price level is positively related to the NER changes (e), foreign prices (p_t) and the money supply (m) , while negatively related to real GDP (y). An increase in real GDP is expected to depress inflation on the assumption that nominal GDP is fixed for a given money supply.

5.2 Model Specification, Data and Variables Definition

Following from Equation 11, the long-run inflation equation for the Maldives is specified in Equation 12:

$$p_t = \beta_0 + \beta_1 e_t + \beta_2 p_t^f + \beta_3 m_t + \beta_4 y_t \tag{12}$$

The definitions of the variables and their units of measurement included in Equation 12

Table 1: Variable Definitions

Variable	Description
p	Overall price level in the economy, measured by CPI (June 2004 = 100, log transformed)
e	The NEER, defined as foreign currency per unit of domestic currency (2000 = 100, log transformed)
p^f	Foreign prices, measured as the import-weighted PPI of the major trading partners (2000 = 100, log transformed)
m	Money supply, measured using broad money supply, M2 (in millions of rufiyaa and in logs)
y	Real income in the economy, proxied by tourist bed nights (in millions of bed nights and in logs)

are given in Table 1, below.

In Equation 12, the overall CPI index for Male' is used as the general price level. As mentioned in the introduction, the CPI is the only price index available consistently for a reasonable period. The choice of CPI for Male' is dictated mainly by data availability. Since, the national CPI data is only available from 2005, and both the series follows the same trend, CPI for Male' is deemed appropriate for the inflation analysis for the country. It would also have been interesting to analyse the determinants of food inflation in the country, as this comprise about one-third of the consumer basket. However, given the lack of consistent time-series data, such an analysis was not possible.

The variable e is the NEER. The NEER is defined in terms of foreign currency per unit of domestic currency. This means that an increase in NEER is a depreciation of the local currency and a decrease in NEER is an appreciation. The NEER used here is an import-weighted exchange rate. A positive relationship is expected between the two variables and the larger the coefficient on NEER, the greater the ERPT.

The variable p^f represents the foreign prices that influence domestic inflation. As discussed in Section 5.2, there are a few choices for the foreign prices. While the best choice would be unit import prices as these would be more representative of the prices actually paid for the imports, such data are not available for the Maldives. Studies commonly use CPI or PPI of major trading partners, world food prices or international

oil prices to represent foreign prices. Of these, this study has chosen to use an import-weighted average of the PPI of the major trading partners, since the dependent variable is the overall inflation. As for the relationship between the foreign prices and domestic prices, a positive relationship is expected. Given the price taker and import dependence assumptions of small open economies, as discussed in the theoretical model, a rise in foreign prices will lead to an increase in domestic prices.

The variable m is the money supply represented by broad money, M2. The theoretical literature does not provide any guidance on which monetary indicator to use and different studies use different monetary aggregates. This analysis uses M2 as the money supply variable, as it is more representative of the total liquidity available in the economy. It is expected that an expansion in money supply will induce higher inflation.

As the data on real GDP are available only on an annual basis, a proxy variable is used to represent real income in the economy, y , in the inflation model. Given that more than one-third of the GDP is directly attributable to the tourism sector and the growth in real GDP closely tracks the growth in the tourism sector, specifically tourist bed nights, the latter is used to proxy real GDP in the Maldives. This was seen as a more suitable option than interpolating annual data into monthly data, due to the absence of any related series (with the exception of tourist bed nights) that could be used for interpolating annual real GDP data into monthly data.

The relationship between inflation and real GDP is ambiguous, as it depends on which supply-side or demand-side factors are at play. The supply-side argument posits that if an increase in the supply of goods and services outmatches the demand, prices will decline. Conversely, if the demand for goods and services is not matched by supply, domestic prices will increase. In addition, in the case of the Maldives, tourism inflows affect the rate of inflation in the country through another channel. As mentioned on several occasions, the Maldivian economy is highly dependent on imports, but the foreign currency required to purchase imports is not always readily available. Dollar shortages are common and often commercial banks impose limits on the purchase of US dollars, especially at times of low foreign exchange inflows. Further, commercial banks in the Maldives only issue letters of credit to importers if they submit the required amount of US dollars. Importers sometimes resort to higher black market rates to obtain US dollars. These factors lead to the higher prices of imported goods in the domestic market. As foreign exchange inflows are directly linked to tourism inflows, improvements

in the tourism flows ease the dollar shortages in the market. Given these factors, the relationship between the real GDP and inflation in the Maldives is ambiguous.

The empirical analysis is conducted using monthly data from January 1990 to December 2010 (240 observations). The data was obtained from the MMA (2009, 2011), with the exception of the PPI data. This was obtained from the IMF's International Finance Statistics online database (IFS Database, 2009). In addition to the variables included in the model, impulse dummies were included to capture the December 2004 tsunami impact. Instead of one impulse dummy three impulse dummies for the first three months of 2006 were included to isolate the effect of each month, as the effects of the tsunami were stronger in the first month after the tsunami as compared to the subsequent months. In addition, two shift dummies and seasonal dummies were also included.

5.3 Methodology

The inflation equation is modelled using cointegration analysis and the ECM approach.

$$Z_t = A_1 Z_{t-1} + \ldots\ldots + A_k Z_{t-k} + Bx_t + \mu_t \quad (13)$$

The cointegrating analysis is based on an unrestricted VAR model, which can be specified as in Equation 13:

where Z_t is a (n x 1) vector of endogenous variables used in the model, which is Z_t = [$p_t, e_t, p_t^f, m_t, y_t$]', a (5 x 1) matrix, and each A_i and B representing an (n x n) or a (5 x 5) matrix of parameters. x_t is a (5 x 1) matrix of deterministic variables, such as constant and time trend, and μ_t is a (5 x 1) matrix of independently and normally distributed errors.

In this paper, the short-run dynamics of the variables in the inflation model will be analysed using impulse response functions and variance decomposition analysis in a VECM framework. Impulse response functions (IRF) trace the effect of a one standard deviation shock to one endogenous variable on the other variables in the VECM. Therefore, the IRF will allow for identifying the magnitude and persistence of consumer prices changes to variations in its main determinants of inflation. The response of consumer prices from a shock to the exchange rate change will be used to calculate the ERPT to the CPI in the Maldives. As regards the variance decomposition, they are used

to identify the percentage of the forecast variance in any variable that can be attributed to its own shocks versus shocks to other variables (Enders, 2004).

5.4 Empirical Results

Unit roots and order of integration

All the variables were tested for unit roots using the ADF test. As a plot of the time series would provide an indication of whether or not to use a constant, a constant and a trend, or none, a graphical representation of the time-series data for each variable was conducted. The plots of the data showed that all the variables fluctuated around a linear trend. Therefore, the test equation that includes both a time trend and a constant was used for testing unit roots for all the variables. To apply the ADF test, the number of lagged terms to be included in the test equation also had to be specified. This was determined based on the SIC, but additional lags were included when autocorrelation was found in the residuals, until it was eliminated. The results of the unit root tests shows that the null hypothesis of a unit root cannot be rejected at 5 per cent significance

Table 2: Unit Root Tests

Variable	No. of Lags	Levels		First Differences		Result
		ADF test stat.	ADF critical val. at 5 %	ADF test stat.	ADF critical val. at 5 %	
p	6	-2.89	-3.43	-10.77	-3.43	I(1)
e	2	-3.17	-3.43	-9.06	-3.43	I(1)
p^f	1	-1.97	-3.43	-12.08	-3.43	I(1)
m	0	-2.29	-3.43	-16.18	-3.43	I(1)
y	13	-3.28	-3.43	-4.85	-3.43	I(1)

Note: The null hypothesis of unit root is rejected if ADF test statistic < ADF critical value. The ADF critical values are MacKinnon (1996) one-sided p-values, provided by EViews software.

levels for the variables in levels. Therefore, unit root tests were carried out on the first difference of the variables, which showed that all the variables are stationary at first difference, indicating that each series is integrated at the same order—I(1). These results are shown in Table 2.

Given that all the variables included in the model are non-stationary and integrated at I(1), cointegration tests allowed the identification of any long-run equilibrium

relationships among the variables. As mentioned previously, Johansen's (1995) cointegration procedure is used to test for cointegration. As for the lag selection, the SIC information criteria is used, and the model that minimises the SIC and eliminates autocorrelation is a model with seven lags.

An unrestricted VAR model with seven lags and five variables (as identified in Equation 13 and including e_t, p_t^f, m_t, y_t as endogenous variables and a set of dummy variables)

Table 3: Johansen Cointegration Test

Null Hypothesis	**Eigenvalue**	**Trace Statistic**	**5% Critical Value**
H_o: r = 0*	0.21	122.97	69.82
H_o: r ≤ 1*	0.18	66.33	47.86
H_o: r ≤ 2	0.04	19.08	29.80
H_o: r ≤ 3	0.04	8.90	15.49
H_o: r ≤ 4	0.00	0.21	3.84
Null Hypothesis	**Eigenvalue**	**Max-Eigen Statistic**	**5% Critical Value**
H_o: r = 0*	0.21	56.64	33.88
H_o: r ≤ 1*	0.18	47.24	27.58
H_o: r ≤ 2	0.04	10.18	21.13
H_o: r ≤ 3	0.04	8.68	14.26
H_o: r ≤ 4	0.00	0.21	3.84

* Denotes rejection of the hypothesis at the 0.05 level. The trace test indicates 2 cointegrating eqn(s) at the 0.05 level. The max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

is estimated to conduct the Johansen cointegration test. The results of the cointegration test are presented in Table 3. Both the trace statistic and maximum eigenvalue strongly rejects the null hypothesis of no cointegration and at least one cointegrating vector, but does not reject the null that the number of cointegrating vectors is two. This means that there are two cointegrating vectors in the variables included in the model.

The existence of two cointegrating vectors is in line with the theoretical foundations of the inflation model that has been specified for the Maldives. The first cointegrating vector can be interpreted as the long-run relationship between the NER, foreign prices and domestic consumer prices. The existence of a long-run relationship between these three variables can be taken as an indication that the absolute version of PPP holds for the Maldives in the long run. This is the equation established in Equation 1, which can also be regarded as an equation of external or imported inflation. The second cointegrating vector is taken as the long-run equilibrium between money supply, real income and domestic consumer prices. This is the money demand relationship given in Equation 3.

Therefore, restrictions were imposed to split the model into two: an external inflation model and a monetary inflation model, which is consistent with economic theory.

The existence of cointegration means that the VECM specified in Equation 14 can be estimated. In terms of diagnostic tests, the VECM is checked for serial autocorrelation and normality. Both the Portmanteau test and LM test showed that residuals are free of serial correlation. However, the normality test of Jarque-Bera failed due to kurtosis in the residuals. Gonzala (1994) and Hubrich (1999) show that the Johansen procedure for VECM is robust under non-normal residuals, and therefore the estimates remain valid.

$$p = \underset{(3.19)}{-3.19} + \underset{(7.81)}{0.95e} + 0.74\,p^f \quad (15)$$

$$m = \underset{(3.93)}{0.92} + \underset{(13.2)}{1.05p} + 0.74y \quad (16)$$

Long-run cointegration relations

The long-run relationships for the two cointegrating relations identified by the VECM give the estimated long-run equations for the external inflation model and monetary inflation model. They are presented in Equations 15 and 16, with their t-statistics in brackets. All the variables are statistically significant.

In Equation 15, it can be seen that both the NEER (e) and foreign prices (p^f) positively influence consumer prices in the Maldives, as expected. Given that the variables are modelled in logs, the coefficients of the variables in the equations can be taken as long-run elasticities. As such, a 1 per cent depreciation (an increase in the coefficient of e is measured as depreciation) leads to an almost equal increase in inflation. This means that the pass-through is extremely high for the Maldives. This is as expected, given that the imports are invoiced in the exporter's currency and, as discussed in the literature review (see Section 3), when there is producer currency pricing, the ERPT is high.

In most small open economies, the ERPT is high—although not as high as this, except for in Jamaica, for which the estimated coefficient was 0.98 (McFarlane, 2002). In the case of Fiji, the pass-through coefficient was estimated at 0.45 for the period 1982–1986 and 0.37 for the period 1987–1991(Jayaraman & Choong, 2011b). As mentioned in the literature review, the pass-through coefficient was somewhat lower in Mauritius (0.23) mainly due to administered prices (Imam & Minoiu, 2005).

Given the high import content of the consumption basket, domestic prices are responsive to changes in foreign prices, as indicative of the large coefficient for the foreign prices in Equation 15. Similar results were obtained for other small island economies as discussed in Section 2.2. As regards the money demand equation given in Equation 16, this is normalised for domestic prices, p , which would give Equation 17:

$$p = 0.95m - 0.71y \quad (17)$$

$$(8.57)\ (-7.54)$$

As expected, money growth (m) increases domestic prices (p), while higher income (y) reduces prices. The responsiveness of prices to an increase in money supply is high for the Maldives, with the long-run money supply elasticity of prices at 0.95 per cent. This means that almost 95 per cent of an increase in money supply will be translated to higher inflation. In most studies on small island economies, monetary aggregates were either not included as a determinant of inflation or found to be insignificant in explaining inflation.

The importance of money supply in determining inflation in the Maldives is explainable from the developments in domestic credit in recent years. Since the year 2000, credit to the private sector has grown exponentially in the Maldives, while borrowings by the government from the banking system (see Figure 8 in Section 4.3) also grew rapidly, fuelling the money growth in the economy. Most of this translates to higher demand for goods and this is a typical case of the old adage 'too much money chasing after too little goods.' Given that this higher demand for goods is actually higher demand for imported goods, in an open economy such as the Maldives, the increased demand could easily be met by higher imports. However, there are several supply-side bottlenecks and capacity constraints, such as limited port and storage facilities, in the economy, as discussed earlier. In addition, the expansion in credit leads to 'foreign exchange bottlenecks', as posited by the structuralist view of inflation, and as discussed in Sections 2 and 5.2.

In contrast to the finding of Coppin (1993) for Barbados that tourism growth has an inflationary impact in tourism-dependent economies, the estimated equation for the Maldives shows that growth in tourism (which is used as a proxy for real income) has a dampening effect on inflation. One of the main reasons for this may be that higher tourism inflows mean higher foreign exchange inflows, which eases foreign currency demand in the importing sector. Given the fixed exchange rate, when foreign exchange

inflows are low, importers face difficulties and delays in obtaining the foreign currency required for import payments. As a result, prices of imported goods in the domestic market increase. Therefore, rather than higher real output easing supply constraints, in the Maldives, this eases the foreign exchange market and import prices in the country.

The short-run dynamics of the inflation model are discussed below using IRF and variance decomposition analysis.

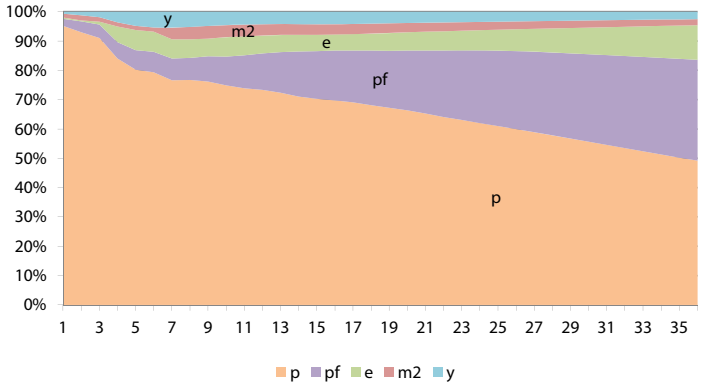
Short-run dynamics

The impulse response function shows the time path of the CPI to shocks from all the other four variables in the model. From the IRF, short-term elasticities, or in the case of exchange rate, ERPT can be calculated. The formula is given in Equation 18.

$$PT_{t,t+i} = \frac{p_{t,t+i}}{e_{t,t+i}} \tag{18}$$

where PT is the pass-through and p_{t+i} is the cumulative change in price indices and e_{t+i} is the cumulative change in NER between the months *t* and *t+i* (Leigh & Rossi, 2002).

Figure 11: Variance Decomposition of Inflation



The Cholesky decomposition method was used for the IRFs and the variables were ordered as follows:

$$p^f \rightarrow e \rightarrow y \rightarrow m \rightarrow p$$

Other orderings were tried, but they did not change the results. Therefore, the above ordering was used. The inflation elasticities to the shocks to exchange rate, foreign prices and money supply on a two-year horizon (24 months) are shown in Table 4.

Table 4: Inflation Elasticities to Shocks

Months	e	p^f	m
1	0.00	0.00	0.00
3	0.03	-0.28	-0.04
6	0.66	-0.30	-0.02
9	0.86	-0.10	-0.01
12	0.82	0.13	-0.15
15	0.96	0.33	-0.26
18	0.99	0.59	-0.40

The results in Table 4 show that the ERPT in the first 3 months is very small, but then gains ground over the next three months to reach a high of 66 per cent. The ERPT is almost complete after 18 months. As discussed earlier, this is a very high level of pass-through. As regards the impulse response of inflation to shocks to foreign prices, the initial impact is negative in the first year. However, the domestic inflation starts to pick-up and within 18 months, approximately 60 per cent of the changes in foreign prices are passed on to domestic prices. By the end of the second year, the pass-through to domestic inflation is complete.

The lag in transmitting foreign price changes to domestic prices may reflect the price stickiness in the economy, as businesses are reluctant to change prices in the short run due to costs such as menu costs. However, why domestic inflation becomes negative in the first year following a shock to foreign prices is not clear. Shocks to money supply seem to bring a negative impact in the short run, which is counterintuitive. This may be due to the availability of credit, facilitating the production of short-term demand in goods and services, especially in facilitating import payments.

As regards the variance decomposition analysis, this shows the relative importance of the four explanatory variables in the model in explaining shocks to inflation. This is achieved by decomposing the error-forecast variance of inflation into components explained by each of the variables. Figure 11 shows the decomposition of inflation in this respect. It is clear that the shocks to inflation are largely explained as shocks to

itself. Initially, about 95 per cent of variation is explained by its own shocks. This could be indicative of the existence of inflation inertia. Shocks to foreign prices explain about 12 per cent of variation in inflation by the end of the first year, and the exchange rate explains about 6 per cent over the same period.

The short-run analysis of inflation shows that changes in NER pass on to domestic prices very quickly, while shocks to inflation itself explain the variance in inflation, followed by shocks to foreign prices. Moreover, it is evident from the variance decomposition analysis, as seen in Figure 11, that external theories of inflation are dominant in explaining the inflation process in the Maldives.

6. Conclusion

This paper examined the inflation process in the Maldives, using 21 years of monthly data from 1990–2010. The high and volatile inflation of the 1990s subsided in the following decade, until, in the post-tsunami period, inflation once again rose to double-digit level. However, these levels remained lower than the high levels of the 1990s. A review of the theoretical and empirical literature on inflation in small developing island economies, such as the Maldives, indicated the importance of three theories of inflation (external theory, monetary theory and wage theory) in explaining the dynamics of inflation.

Given the lack of data on wages in the Maldives and the relatively free and open labour market (due to the easy access to a cheap and abundant labour force of expatriates from neighbouring countries), the contribution of wage inflation is not expected to be large. Therefore, this paper examined the importance of external and monetary determinants of inflation in explaining inflation in the Maldives. Special emphasis was placed on examining the role of the exchange rate in the inflation process, and more specifically, on determining the degree and the speed of ERPT to domestic consumer prices.

Since the time-series data used in modelling inflation were non-stationary, cointegration analysis together with VECM was used. The short-run dynamics were analysed using IRF and variance decomposition. The absolute version of PPP seems to hold in the long run for the Maldives, as a long-run relationship was found between nominal exchange rates and domestic and foreign prices, using cointegration analysis. According to the long-run inflation function based on the external theory of inflation, both nominal exchange rates and foreign prices influence domestic inflation in the Maldives significantly. The

speed of ERPT, determined with the application of IRF, indicates that pass-through is complete in 18 months. Thus, the ERPT can be seen as very high, which is similar to the results obtained for other small island economies.

Given the high content of imports in the consumption basket (both directly as consumption goods, and indirectly as inputs to goods and services) and the inability to influence prices in the importing countries, domestic prices are highly responsive to changes in foreign prices, but suggest some price stickiness in the short run. According to the variance decomposition analysis, shocks to inflation are explained mostly by its own past values, suggesting inflation inertia. Shocks to foreign prices are the second most important source of the variation in domestic prices, followed by the nominal exchange rates.

The estimated long-run relationship based on the monetary theory of inflation showed that an increase in money supply is inflationary, possibly due to structural bottlenecks. As for the real income, proxied by tourist bed nights, this showed that an increase in real income reduces inflation in the long run. This may be due to the easing of foreign exchange markets, owing to higher exchange rate inflows from the increase in tourism activities.

The analysis in this paper suggests that exchange rate and foreign prices have the most influence on the inflation dynamics in the Maldives. The high and fast ERPT suggests that changes to nominal exchange rates will be transmitted almost completely to the domestic prices over a short period. As discussed in the literature review, price-taking, small and open economies, with low trade barriers, high dependence on imports and fixed exchange regimes have a relatively higher and more rapid ERPT. As the Maldives possess these characteristics, the ERPT estimated for the country in this paper supports the findings in the literature.

However, as most of the features of the economy leading to the high ERPT are inherent, except for the exchange rate regime, little can be done to lower the ERPT in the Maldives. The importance attached to the stability of inflation in small developing countries like the Maldives and the volatility associated with flexible exchange rate regimes, therefore lends more weight to the use of a fixed exchange rate regime in the country. Moreover, the empirical results obtained from the inflation analysis also shows that the real

depreciation resulting from a nominal depreciation will be unwound in a short-time which will also reduce the advanatges of a flexible exchange rate regime. The analysis in this paper also showed that there is a positive relationship between monetary expansion and inflation in the Maldives. Therefore, policy makers in the Maldives have to be mindful of the inflationary pressures emanating from monetary growth, especially from monetisation of budget deficits, as the other determinants of inflation in the Maldives are exogenous.

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A REVIEW OF THE MALDIVIAN CONSTRUCTION INDUSTRY

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Abstract

The construction sector of Maldives is vital sector of the economy and has been a key driver of economic growth. However, after witnessing a strong period of growth, the construction sector registered a marked turnaround in 2009, and since then the growth of the sector has remained weak and rather volatile. This paper analyses the recent developments in the construction sector of Maldives and examines the key problems and challenges faced by the sector. The analysis indicates that both demand and supply side factors have contributed to the slowdown. On the demand side, the main factor constraining growth has been the scaling down of public infrastructure projects, while sluggish growth in resort construction has also contributed to the recent slowdown. On the supply side, difficulties in access to bank credit, payment delays, shortage of skilled labour and fluctuations in raw material prices have all raised construction costs leading to project delays and cost overruns.

1. Introduction

The construction sector of the Maldives has been one of the most dynamic sectors of the economy. The sector's contribution to GDP has increased from an average of just 5.8% in the 2002 to 9.1% in the last ten years. However, after witnessing a strong period of growth, the construction sector has registered a marked turnaround, especially after the 2009 Global Financial Crisis (GFC) and the ensuing domestic downturn. Since then, the growth of the sector has remained rather volatile, declining twice during 2009–2012, due to various problems and challenges faced by the sector. While most of these reflect dynamic changes taking place in the business environment, particularly after the GFC, some of these relate to various capacity constraints facing the sector. More specifically, the main problems facing the sector include the cut-down in government spending on

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infrastructure due to budget constraints, difficulties in access to finance, fluctuations in the price of raw materials, shortages in skilled labour, payment delays for contractors, weaknesses in the regulatory framework and financing difficulties faced by resort developers.

Given the importance of the construction sector in the domestic economy, in terms of its potential to create jobs, stimulate other business activities and also due to its critical role in the provision of infrastructure needed for national development and socio-economic growth, the sustainable development of the sector will be important for supporting the long term growth of the economy. While noting the positive contributions of construction sector to the nation's development, it is also important to note the significant economic leakages from the sector due to the sector's excessive reliance on imports—both for labour and material. Against this background, this paper aims to develop a better understanding of the construction sector of the Maldives and examine the key problems and challenges facing the industry.

The analyses used in this paper are based on information gathered through interviews with the key stakeholders of the industry[1] and also various reports of national and international organisations. A major constraint in conducting this study has been the lack of time series data on key industrial and enterprise statistics of the construction sector such as annual turnover, profitability, employment, wages and prices.

The remainder of this paper is organised as follows. Section 2 will present an overview of the construction sector of the Maldives highlighting on recent developments in its output and the key features of the sector. Section 3 will provide an analysis of developments in the different types of construction projects undertaken in the Maldives. Section 4 will analyse and discuss the main problems and challenges faced by the construction sector, with a special focus on issues related to access to finance, labour and raw materials. Finally, section 5 will provide some concluding remarks.

1 This includes fifteen large construction companies, major credit lenders to the construction sector, the Ministry of Housing and Infrastructure, Hulhumale' Development Corporation, the Maldives Association of Construction Industry (MACI)

2. Overview of the construction industry

2.1 Definition of the construction sector

In the compilation of the national accounts statistics of the Maldives, the activities of the construction sector are classified as per the International Standards Industrial Classification (ISIC Rev 3.0). According to ISIC Rev 3.0, the activities of the construction sector are divided into 4 subsectors, which are:

- site preparation;
- the building of complete construction and civil engineering;
- building installation, building completion (includes the renovation, repair and maintenance of buildings) and
- renting of construction or demolition equipment with operators.

Of these 4 subsectors, site preparation and renting of construction equipment accounts for the least value added while building of complete construction and civil engineering subsector also known as general construction involves the core activities of the construction sector.

In the Maldives, the value added for the construction sector is estimated by extrapolating the baseline estimates of the sector[2], using three indicators, which are total imports of building materials[3], the number of expatriate labour employed in construction and area of buildings approved for construction.

2.2 Developments in the construction sector value added

Starting from the early 2000s until mid-2008, the construction sector of the Maldives witnessed unprecedented growth rates, driven by both private and public sector activity. In particular, during 2004–2008, the construction sector grew robustly at an average annual rate of 25% (figure 1), much higher than an average of around 11% during 1996–2000. Key drivers of the sector during this period include the launching of large-scale

2 The baseline estimates are based on information derived from Large Establishment Survey 2004, Financial Statement of companies, Small Establishment Survey 2002/2003 and administrative data from Maldives Customs Service.

3 This is derived by deflating changes in the average monthly imports of building materials per year by the changes in unit-value index of imports of building material.

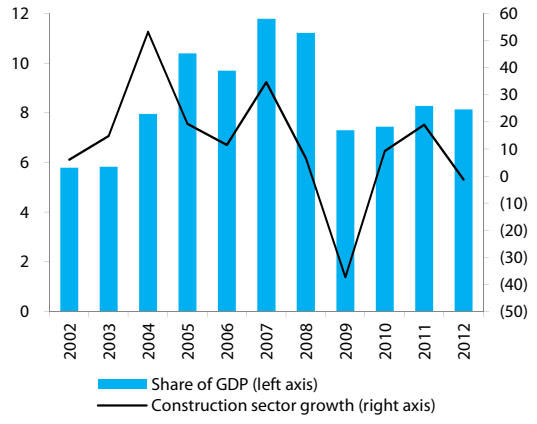
public sector projects such as the development of Hulhumale' , massive reconstruction efforts following the 2004 tsunami, the boom in residential construction in Male' and Hulhumale' and the commencement of several resort construction projects following the leasing of new islands for resort development by the government since 2004.

However, with the bulk of tsunami reconstruction almost reaching an end in 2008 the construction sector began to show signs of slowdown starting from mid-2008. The situation was further aggravated by the sharp increases global construction raw material prices during 2005-2008 and due to the impact from GFC and the domestic downturn in 2009. For example, resort construction activities, which relies extensively on external funding, was almost brought to a standstill due to the global credit crunch, while many public sector infrastructure projects had to be scaled down or deferred owing to fiscal austerity. As a result, the output of the construction declined sharply by 37% in 2009.

Since 2009, the performance of the sector has been rather erratic. While growth rebounded strongly and remained positive through 2010–2011, due to the resumption of government infrastructure projects and strong demand for residential construction, it declined once again in 2012. The decline in construction sector output since 2011 has been mainly attributable to budget constraints faced by government and also the ongoing difficulties faced by resort developers in securing finance for the new resort development projects. Meanwhile, despite the subdued growth in public sector projects

Figure 1 : Construction Sector Growth and Share of GDP, 2002–2011

(in percent of GDP, annual percentage change)



Source: Department of National planning

and resort construction, the residential construction on the other hand has remained more vibrant. The buoyant growth in residential construction has mainly been influenced by government's efforts in providing affordable housing to the people through direct supply of social housing by the government and the facilitation of housing delivery by the private sector. A more detailed discussion on the developments in the different types of construction projects will be provided in the Section 3 of this paper.

2.3 Key characteristics of the sector

The construction sector is among one of the most important sectors of the Maldivian economy. As mentioned earlier, it contributes significantly to GDP and also plays a vital role in delivering the basic infrastructure needed for socio-economic development. In this regard, it covers the construction of roads, highways, harbours, ports, bridges, tunnels and other civil works and also the building of factories, houses, offices, schools and apartments. In addition to the direct contribution of construction sector to the economy, the sector also contributes indirectly through its linkages to other sectors of the economy, ranging from the suppliers of construction materials, architectural and real estate services. Apart from the positive contributions of construction sector to the Maldivian economy, the sector also has several economic leakages due to the sector's excessive reliance on imports (both for materials and labour).

Output

As in the case of many other countries, an important characteristic of the construction sector of Maldives is the cyclical nature of construction activities. This is because it depends to a large extent on government programmes; business and consumer confidence; and financing conditions or availability of credit. As a result of this, the output of the sector is often subject to large fluctuations in the business cycle and other external developments. For example, in the case of Maldives, the developments in the construction sector are closely linked to developments in the tourism sector, while it is also highly influenced by government spending on infrastructure development. Another important feature of the construction sector of the Maldives is its significant dependence on imports since almost all building materials, such as cement and aggregates, base metals and wood, have to be imported. This makes the industry highly vulnerable to fluctuations in global commodity prices and changes in the exchange rate.

Enterprise structure

There are no recent enterprise data on the construction industry of Maldives. However, according to the *Economic Survey 2007*, there were a total of 1,638 enterprises[4] in the construction industry in 2007 which are mostly small and medium enterprises (SMEs). Twelve per cent of these establishments were classified as small (less than 10 workers), 50% as medium (10–99 workers) and the remaining 38% as large firms (over 100 workers). Although most of the firms were classified as SMEs, over 70% of the industry workforce was employed by the larger firms which generated about 90% of the industry turnover and value added. While most major construction projects are undertaken by the larger firms or a general contractor, a considerable portion of the work are sub-contracted to smaller and more specialised groups. This is because of the dynamic nature of the different construction projects and the specialised skills required in performing the jobs. For example, resort construction projects require a high level of craftsmanship and are often managed by a general contractor or a project coordinator (usually the owner of the resort) who sub-contracts certain aspects of the project to smaller more specialised groups. (see Box 1)

Box 1

Maldives Association of Construction Industry (MACI)

Recognising the importance of taking measures to improve the performance of the construction industry, the MACI was formed in 2001 as an industry initiative with the mission to develop, promote and strengthen the construction industry of the Maldives. Since 2003, MACI has been actively engaged in the improvement of the sector through dialogue with the government on tackling disputes related to contracts and issues related to labour and also in introducing construction standards. It has also been collaborating with the government in training and development of locals through providing internships. It has an elected executive board of 11 members to manage and organise its activities. At the end of 2012, there were 134 members registered in MACI[1].

1 Interview with MACI, 2012

4 The establishments covered under the Economic survey 2007 also include establishments that are operating without a physical location to carry out their activities

Employment

The activities involved in the construction sector are very labour intensive, making it a significant contributor to industrial employment in many countries.[5] Meanwhile, it is also a sector which is characterised by the existence of a large expatriate labour force, such as in many Gulf countries.

According to the *Household Income and Expenditure Survey 2009-2010 (HIES 2009-2010)*, the construction sector of the Maldives employed about 5% of the total local labour force in 2010. Out of the total workforce of the construction industry, expatriate employment accounted for 88% in 2010 compared to 75% in 2006. During this period the total number of locals employed in the sector saw a decline of 18% and totalled 4,459 workers, while the number of registered expatriate labour nearly doubled to 31,866. With this large increase in expatriate labour force, the construction sector has now become the single largest employer of the country's expatriate labour force (accounting for 43%). Although most expatriate workers in the construction industry are employed as labourers, a significant portion is also employed under the skilled crafts level category, partly reflecting shortages in local craftsman.

As for the nationality of expatriate workers, majority of them are from neighbouring countries of Bangladesh, India and Sri Lanka, obtained at a cheaper cost, since the cost of living in these countries is much lower than the Maldives.

3. Types of construction projects undertaken in Maldives

In the Maldives, the types of construction projects can be categorised as residential buildings, non-residential buildings, civil engineering and resort construction. Of these, resort construction and public sector infrastructure projects form the bulk of construction activity in Maldives, although since the early 2000s residential construction (funded by both the government and private sector) has contributed significantly to the growth of the construction sector.

5 The construction industry is Europe's largest industrial employer, accounting for about 7% of total employment, and in the EU, the US and Japan combined, it employs more than 40 million people. Among all OECD countries, the construction industry accounts for an average of 6.5%of GDP. (OECD)

3.1 Residential buildings

The residential construction projects cover the construction of dwellings by private individuals, developers and government. Until the early 2000s, activity in the residential construction has been dominated by private housing projects (mostly by individuals) which were generally financed through the domestic banking sector. However, with the commencement of development of housing units in Hulhumale' in 2003, public sector residential projects have also increasingly contributed to the growth of this sector. The bulk of public sector housing projects were undertaken in Hulhumale' while some major projects have been initiated in Male' and in other urban centers in the atolls. Although some of the public sector projects have been financed directly through the government budget, others were financed through Housing Development Finance Corporation (HDFC), Public Private Partnerships (PPP) and foreign loans.[6]

Developments in the residential buildings sector

The residential construction has witnessed a boom in construction activity since 2003 both in the Male' (Table 1), Hulhumale' and in some other islands. The rapid growth in residential construction witnessed in Male' and Hulhumale' reflected the increase in demand for rental accommodation in Male' and changes to government policies affecting housing construction. This includes the direct supply of social housing by the government and the facilitation of affordable housing through provision of land (land reforms[7] and the development of Hulhumale') and introduction of housing finance schemes such as the formation of HDFC (see Box 3). Activity in the residential construction was also boosted by the massive repair and reconstruction of housing units damaged by the 2004 tsunami. More than 8,500 housing units were damaged or completely destroyed during the tsunami, of which, 5,700 houses required repairs and 2800 new houses needed to be reconstructed (DNP, 2009). Despite considerable delays in housing reconstruction,

6 The majority of the public sector housing projects are undertaken in Hulhumale' by the Housing Development Corporation (HDC) while a number of projects are also being underway in Male' and in other urban centers. The projects underway in the atolls include the reconstruction of housing units in the three remaining islands that were completely destroyed by the 2004 tsunami and also a number of other housing units being built in other urban centers to support de-congestion in these areas – this includes the Phase Two of the development of Four Thousand Housing Units programme in the Maldives initiated by government in 2010. The public sector residential projects underway in Male' includes housing units being built under the Veshifahi Male' Programme launched in 2011, which is a PPP initiative between the government of Maldives and a foreign investor with the aim of developing 10,000 housing units in 4 locations of Male' to alleviate the acute shortage of housing in Male'. Under the Phase One on Four Thousand Housing Units in Maldives project, 1,000 units were developed in Hulhumale' and handed over to government 2012.

7 Enactment of land law in 2002 and its subsequent revisions.

mainly owing to significant escalation in material prices (which more than doubled), most of the repair and reconstruction of houses were complete by the end of 2008[8].

With most tsunami-related housing construction complete,[9] residential construction registered a marked slowdown and suffered a major setback in 2009 due to the tight availability of financing, both for individuals and developers, on the back of the GFC (see Table 1). However, with the revival of housing finance, activity in residential construction rebounded in 2010 and has since then remained strong in Male' and Hulhumale'.

Table 1: Buildings Authorised for Construction and Completed in Male', 2002–2012

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Authorised Buildings											
No. of Dwellings	452	619	843	513	593	506	504	485	436	322	273
Floor Area (thousands of sqm)	180.7	209.6	304.2	225.8	360.4	320.8	408.9	309.6	224.6	236.2	422.2
Residential	116.2	131.3	256.7	180.9	253.9	235.4	229.3	235.9	176.8	191.9	151.8
Non- residential	64.5	78.4	47.5	44.9	106.5	85.4	179.6	73.8	47.7	44.3	270.3
Completed Buildings											
No. of Dwellings	264	175	166	170	153	153	167	175	176	78	46
Floor Area (thousands of sqm)	52.9	56.5	35.3	37.3	58.7	38.2	59.9	52.0	51.7	45.1	28.1
Residential	33.6	36.7	17.5	19.0	22.5	16.8	21.4	26.4	27.0	22.3	12.6
Non- residential	19.3	19.8	17.8	18.4	36.2	21.4	38.5	25.6	24.7	22.9	15.6

Source: Department of National Planning

8 As a result of rising material and oil prices, the estimated cost per house went up from an initial contract value of US$ 19500 in 2005 to more than US$30,000 by 2007.

9 By end of 2008, housing repair was almost complete, while more than half of housing reconstruction was complete (DNP, 2009).

Box 2

Hulhumale' Development project

The Hulhumale' development project was envisaged by the government to alleviate the acute housing congestion problem in the capital region Male' and to facilitate the continued growth of the key sectors of the economy. Hulhumale' is a reclaimed island located 3 kilometers from the capital Male' and 1 kilometer from the international airport and comprises of 188 hectares of reclaimed land. The reclamation of Hulhumale' began in 1997 and was completed in 2002. It has an estimated population of 60,000 people and the target completion of the entire project is 2020.

With the completion of primary developments, which includes 280 residential units, 48 commercial units, major road network and main social and utility infrastructure, the first inhabitants settled in Hulhumale' in the middle of 2004 with a resident population of just over 1,000 people (see Table 1 for detailed information on developments in Hulhumale' since 2004).

The Housing Development Corporation, which was initially incorporated in 2005 as the Hulhumale' Development Corporation Ltd. (HDC), is the legal entity taking responsibility for the successful implementation and delivery of the development of Hulhumale'. The role of HDC also includes the builder to construct the necessary infrastructure to meet the required conditions for living in the island and for development of the businesses.

Housing developments in Hulhumale' is delivered through a mix of low income housing and middle to upmarket developments. HDC directly develops housing units targeted for lower income population groups which are sold at cost with no profit margin. Middle to upmarket developments are delivered through sale of individual plots of land for private housing development, and sale of bigger plots of land to corporate clients for major real estate projects such as condominiums and mixed use residential flat blocks.

Box 2 (continued)

Table 1: Developments in Hulhumale' during 2004-2013

Phase	Facilities and Developments	Funding	Type of Investment
2004			
Residential	Development of Neighborhood 1, 280 Standard Apartment Units of 2, 3 and 4 bedroom units	Thai Exim Loan	Residential
	Sale of 222 Residential Land Plots		Residential
Commercial and Industrial	Allocation of 54 Industrial Plots		Industrial
	4 Commercial Buildings with a total of 48 units	Thai Exim Loan	Commercial
Facilities and Infrastructure	Integrated Primary and Secondary School of 20 Classrooms (Laale' School)	Thai Exim Loan	Institiutional
	50 Bed Hospital	Thai Exim Loan	Institiutional
	Mosque of a Capacity of 1500	Thai Exim Loan	Institiutional
	Major Arterial Roads, Basic Infrastructure and Utilities, Landscaping. Etc.	Thai Exim Loan	Road Development
2006			
Residential	120 One Bedroom Apartments : Hulhumale' Basic Flats	Equity financing	Residential
	64 Row Houses : Hulhumale Row Houses	Equity financing	Residential
	Sale of 254 Residential Land Plots		
	Development of 504 Social Housing Units	Loan Financing	Residential
Facilities and Infrastructure	Award Construction of 232 Condominium Units	Developer financing	Residential
	Construction of a Secondary School (Ghazee School)		Instituitional
	Roads, Infrastructure and Landscaping of N2		Road Development
2008			
Residential	Award Construction of 6 Apartment Complex Plots	Developer Financing	Residential
Commercial and Industrial	Allocation of 62 Industrial Plots		Industrial
	Development of 58 Commercial Units	Equity Financing	Commercial

Box 2 (continued)

2010			
Residential	Middle to High Income / Coral Ville Housing Project (183 Apartments, all Sold)	Developer financing	Residential
	Middle to High Income/Row House Project (12 Developed all sold)	Equity financing	Residential
Commercial and Industrial	Sale of 10 Garage Units	Equity Financing	Commercial
2012			
Residential	Sale of 150 Residential Plots		
	Development of 15 Row Houses	Equity Financing	Residential
	Development of 1000 Housing Units in N3	Chinese Exim Bank Loan	Residential
	Development of Additional 15 Row Houses	Equity Financing	Residential
	Development of 10 Commercial Units	Equity Financing	Commercial
	Development of Hulhumale Mini Mall	Equity Financing	Commercial
Facilities and Infrastructure	Neighborhood 3 Road Development	Equity Financing	Road Development
	Hulhumale Sheet Piling Project	Equity Financing	Costal Development
	Hulhumale' Neighbourhood 3 Grade 1-12 School Project 2013	Equity Financing	Institutional Development

Source: Housing Development Corporation

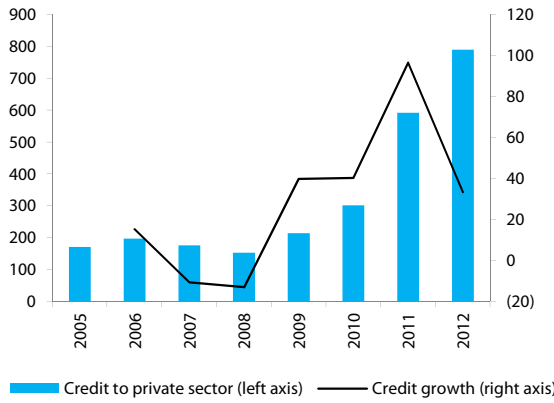
Box 3

Housing Development Finance Corporation

Housing Development Finance Corporation (HDFC) is the only institution specialised in providing housing finance in the Maldives. The company was established during 2004 as a state owned enterprise with the purpose of providing financing for housing with terms more favourable than commercial banks.

During the initial years, HDFC had limited capacity to cater for increasing need for the financing, due to limited financial resources available to them. Hence, with the entire equity of the company being given out as loans to households within the years 2005–2006, the company was no longer able to provide further loans after this period. However, following its privatisation in July 2008 (government share was reduced to 49% and the remaining 51% was jointly held by International Finance Corporation, Asian Development Bank (ADB) and HDFC Investments Ltd. India) and with new lines of long terms credit, the HDFC re-entered the market for mortgage loans for individuals and families during February 2009. With these changes, HDFC offers both developer and end user financing with efforts made to enable the poor and disadvantaged to have access to the facilities offered. Reflecting the strengthening of its financial capacity, the HDFC's loan portfolio has witnessed a substantial growth since 2009 and amounted to MVR789.7 million at the end of 2012. This compares with MVR214.8 million in 2009 and reflects an average loan portfolio growth of 52% during the period (Figure 2).

Figure 2: Credit Extended to the Private Sector by HDFC, 2005–2012
(in millions of rufiyaa, growth in annual percentage change)



Source: Housing Development Finance Corporation

3.2 Non-residential buildings

This includes investment in non-residential buildings by both the public and the private sector. The bulk of non-residential projects are public sector projects for the development of social infrastructure such as health facilities, schools, offices and mosques funded by the public sector investment programme (PSIP). This area of infrastructure development has witnessed a sharp growth between 2006 and 2008 reflecting reconstruction of schools and facilities in the islands that was damaged or destroyed by the 2004 tsunami (Tables 3 and 4). Health facilities on 40 islands were damaged or destroyed by the tsunami. Schools and other educational infrastructure totaling US$15 million were damaged or destroyed by the tsunami (DNP, 2009). However, activity in the non-residential building construction has registered a significant decline since 2009, mainly due to the completion of most tsunami-related projects and the scaling down of public infrastructure projects owing to budget constraints.

Table 3: Value of Public Sector Infrastructure Projects Awarded by Sector, 2000–2012
(millions of rufiyaa)

	2000	2001	2002	2003	2004*	2005	2006	2007	2008	2009	2010	2011	2012
Education	26.9	30.5	7.9	13.9	n.a.	14.5	107.0	186.9	152.0	26.2	76.5	65.7	-
Harbour/ seawall	-	8.6	-	9.4	n.a.	22.3	15.2	349.6	462.0	270.7	105.0	177.9	224.9
Dredging/ reclamation	-	-	-	-	n.a.	-	29.1	-	-	-	-	27.4	-
Mosque	1.7	9.1	10.2	21.6	n.a.	11.4	20.0	145.3	30.3	-	10.6	43.8	4.7
Health	-	-	15.0	8.0	n.a.	6.0	52.2	161.9	44.6	-	1.6	-	9.2
Housing	-	-	22.0	10.0	n.a.	360.7	29.4	469.9	822.4	80.0	92.1	24.2	-
Airport	0.5	0.4	0.7	-	n.a.	-	84.6	-	-	-	-	-	-

Source: Ministry of Finance and Treasury
*Data for 2004 was not available

Table 4: Number of Public Sector Infrastructure Projects Awarded by Sector, 2000–2012

	2000	2001	2002	2003	2004*	2005	2006	2007	2008	2009	2010	2011	2012
Education	26	8	4	5	n.a.	3	45	30	12	5	9	8	-
Harbour/ seawall	-	1	-	2	n.a.	2	2	11	8	3	1	13	6
Dredging/ reclamation	-	-	-	-	n.a.	-	1	-	-	-	-	1	-
Mosque	2	3	3	8	n.a.	2	3	38	4	-	7	7	1
Health	-	-	6	3	n.a.	5	28	22	11	-	1	-	1
Housing	-	-	3	1	n.a.	18	5	7	3	2	1	1	-
Airport	1	1	1	-	n.a.	-	2	-	-	-	-	-	-

Source: Ministry of Finance and Treasury
*Data for 2004 was not available

3.3 Civil Engineering

The civil engineering subsector mostly include public investment in transport infrastructure such as habour/seawall, dredging/reclamation, airports, ports and utilities infrastructure. Given the dispersed nature of the islands in the Maldives, the most feasible means of access between islands for commerce and other social activities are provided by harbours. Therefore, most investments in the civil engineering subsector are transport infrastructure projects for the development of harbour or seawall and dredging for passage deepening. Although majority of projects in the civil engineering subsector are projects under the PSIP, some of the transport infrastructure projects that were undertaken in the country during 2010–2011 also include the development of airports under the Public Private Partnership initiated in 2009.

Developments in the civil engineering subsector

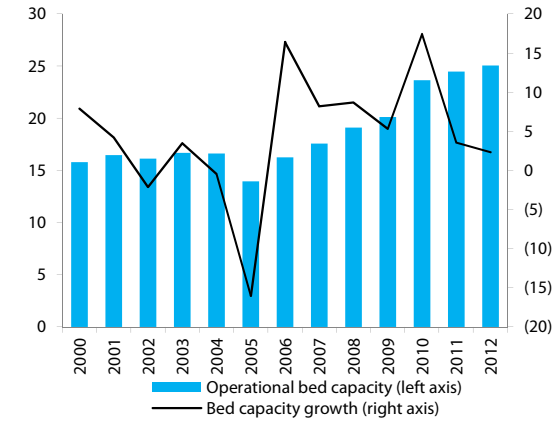
Activity in the civil engineering subsector witnessed a significant expansion between 2005–2008 driven by the reconstruction of harbours that were destroyed or seriously damaged by the 2004 tsunami. For example, harbours and jetties in a total of 104 islands required reconstruction, of which only around 38% were completed by 2008 (DNP, 2009). Harbour projects are rather expensive and the slow progress in harbour reconstruction mainly reflects difficulty in securing funding for these projects and the rising cost of construction.

Followed by period of rapid growth, activity in civil engineering subsector contracted sharply in 2009 due to the scaling down or halting of major PSIP projects due to fiscal austerity on the back of domestic economic downturn. As can be seen from Table 3 and 4, both the number and value of public projects awarded in 2009 fell markedly and remain subdued until it recovered in 2011. It again declined in 2012 due to funding constraints faced by the government.

3.4 Resort construction

The resort construction projects, which includes the construction of new resorts and the repair and reconstruction of existing resorts, has been an important driver of construction sector growth since the inception of the tourism industry in 1972. The tourism sector, which is the single most important sector of the economy, witnessed a rapid increase in tourist arrivals over the years. This has resulted in a substantial expansion in the

Figure 3: Operational Bed Capacity of Tourism Sector, 2000–2012
(in thousands, annual percentage change)



Source: Ministry of Tourism, Arts and Culture

number of tourist accommodation facilities in the country. For example, in line with the increase in tourist arrivals, the total registered bed capacity of industry grew at an annual average rate of 5% (2000–2012) providing a major boost to construction sector growth (see Figure 3 for the growth in operational bed capacity of the tourism sector). Meanwhile, with the developers' focus concentrated on high-end tourist resorts, the value, scope and nature of the tourism related construction projects have also seen a tremendous increase in recent years.

Developments in the resort construction sector

Looking at developments since 2004, the demand for resort construction has witnessed a strong growth reflecting the leasing of several new islands for resort developments by the government during 2004–2011. Overall, these new leases have allowed for an additional bed capacity of 8,441. Despite these developments, the resort construction market, which relies extensively on external funding, registered a major setback in 2009 due to the GFC and the decline in tourism revenue. Since then, activity in the resort construction segment has remained weak, mainly reflecting the funding difficulties faced by resort developers, particularly after the GFC. As such, a number of the leased properties continue to be underdeveloped or are considerably behind the construction schedule. By the end of 2012, there were about 72 islands at different stages of development, while some of the developments have been completely put on halt due to lack of financing availability (Ministry of Tourism, Arts and Culture, 2009). While noting that most resort

development projects are foreign investments, financed mostly through borrowing from offshore banks, attracting foreign investment to the tourism sector has recently become more challenging, due to the low levels of investor confidence amid the deteriorating macro environment.

4. Problems and challenges

4.1 Access to finance

Construction companies generally require a large amount of working capital since expenditure on materials and other operational costs account for the bulk of the total project value. Moreover, most public works projects involves heavy transaction costs, which include the various payments associated with the bidding process, including the bid security to be paid at the pre-proposal stage; the 90 days bid security performance guarantee; and a 15% advance payment obtained at the post-bid stage. Given that banks in general consider lending to construction as high risk, due to the high levels of uncertainty associated with construction projects and also due to the relatively small size of contractors which have limited fixed assets/capital, access to finance is often a major constrain for the growth, operation and expansion of construction companies. Hence, as a result of the limited financing options available, most construction firms have to rely on cash flow and trade credit to finance its operations.

Bank credit to construction

Although internal funds are the main source of financing for working capital requirements for local construction companies, bank credit is also an important source of finance for raising project finance and working capital. Bank credit facilities most commonly used by the construction firms include letters of credit, bank overdraft facilities, bank guarantees (such as for bid security, performance guarantees and advance guarantees) and loans. Looking at trends in bank credit, following a period of rapid growth, bank credit to the construction and real estate sectors, which accounted for 6% of GDP and 12% of overall bank credit, declined markedly in 2007 and has remained sluggish since then (Figure 4). This reflected the overall stagnation in credit to the private sector by domestic commercial banks after the GFC. Meanwhile, the bulk of domestic bank credit to construction related projects (which excludes credit to tourism development projects), is lent to residential or housing projects followed by commercial building projects.

Figure 4: Bank Credit to Construction and Real Estate Sectors, 2001–2012
(in thousands, annual percentage change)

Source: Maldives Monetary Authority

Issues in bank credit

The barriers faced by construction firms with respect to access to finance from the banks include high interest rates of borrowing from the domestic banking sector (averaging 11%–13%) compared to borrowing from foreign banks (LIBOR +5%), the higher collateral requirements and the shorter maturity (5–7 years). For example, in the case of new borrowers, banks require 100% in cash as margin or 180% if collateral is used as a security, while in the case of existing customers it requires 25%. This constrains the ability of construction firms to borrow and is also a major constraint on the growth of the relatively smaller firms tendering for public sector projects.

From the bankers' point of view, several factors affect the credit delivery to the construction sector, which includes the high level of uncertainty involved when lending to construction sector. Project delays and cost overruns are common problems in the construction industry which increases credit risk. According to the banks, construction projects sometimes get delayed due to the lack of proper planning and risk management by the construction companies, which interrupt the smooth flow of cash, thus increasing credit risk to banks. In some cases, delayed payment to the contractor also harms the cash flow of the contractors. Banks also cites failures in following the required procedures, when applying for credit, as constraints to credit delivery. Since most contractors lack

collateral, the absence of credit ratings makes it difficult for banks to assess the credit worthiness of the contractors. In addition, inaccurate valuation of property (where property is valued at a much lower price) and the weak judiciary or legal framework which delays loan recovery efforts were also among the factors cited as barriers to credit delivery. In addition, some banks also cited prudential regulations on lending limits (on single client and his/her related parties) and the high minimum reserve requirement as constraints on credit delivery.

Payment delay to contractors

Another major issue which is also related to access to finance is payment delay to contractors. Unlike other businesses, contractors usually have to wait for some time (usually 30–90 days) to receive payment for work done and it is not uncommon for contractors to receive payments beyond the date specified in the contract. Prolonged delay in payments creates serious problems for contractors and harms the cash flow of contractors. This increases the additional need for borrowing to finance labour and materials. In the Maldives, one of the major problems faced by the construction sector has been delays in payments for contractors' invoices, particularly by the government. This has in part been contributed by the lack of a legally enforceable measure in the contracts for compensation to contractors for payment delays.

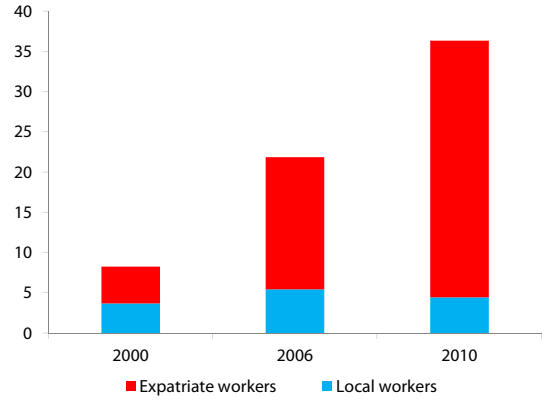
4.2 Labour shortages

The construction sector of Maldives is dominated by a large and growing expatriate labour force. The number of expatriate workers in the construction sector has witnessed an exponential increase from 2006 to 2010, while the number of locals declined during the period (see Figure 5). Although expatriate workers provide the employment required by contractors at a cheaper price, the significant dependence of the construction sector on expatriate labour has resulted in large economic leakages. Each year a large amount of foreign currency continues to be remitted by expatriate workers, which has added to the foreign exchange shortages faced by the economy. According to the balance of payments statistics the average amount of foreign currency remitted outwards in 2012 was US$259.3 million, which is an increase of 20% compared to the US$216.5 million remitted in 2011.

Reasons for the growing expatriate workforce

Based on the interviews held by the MMA with a number of construction companies, it was found that around 80% of their workforce is expatriate workers, mostly employed in the unskilled category. The main reason for the high number of expatriate workers as highlighted by the companies include a) the preference for expatriates due to the attitude and work culture of locals—high level of absenteeism, turnover; b) the low cost of hiring expatriates—according to some contractors wages paid to locals are 20% to 50% higher than their expatriate counterparts; c) unavailability of locals due to lack of interest; and d) shortages in skills and education required by the industry. In addition, some locals appears to be reluctant to work in certain jobs, due to a preference for white collar jobs over blue collar jobs. This partly reflects the society's perceptions on such occupations as it is considered low prestige. Another reason for the reluctance of locals to work in the construction sector includes low wages, particularly for the more elementary level occupations (although locals are paid higher than expatriates), and poor working conditions. There is also no minimum wage in the Maldives and contractors can easily obtain expatriate labour at a relatively low cost from the large labour markets of the

Figure 5 : Local and Expatriate Employment in the Construction Industry, 2000, 2006 and 2010
(thousands of workers)



Source: Household Income and Expenditure Survey 2009/2010, Statistical Yearbook of the Maldives 2007 and 2011, 25 Years of Statistics Maldives

neighbouring countries.[10] For example, 94% of expatriate workers in the construction sector are sourced from South Asian countries, such as Bangladesh and India, where the cost of living is much lower than the Maldives.

Shortages in skilled labour

In addition to the shortage of unskilled labour, there also appears to be a serious shortage of crafts level skilled labour (such as masons, barbenders and carpenters) in the industry. This is despite the high level of youth unemployment (according to HIES 2009-2010, 28% in 2010) prevalent in the country and the large number of school leavers entering the labour market each year. The main reason for this is the poor mismatch between the skills of school leavers and those required by enterprises, as for a long time, the educational system of the Maldives was more academic oriented and less focused on vocational training that are demanded by businesses.

While it is relatively easy for the construction companies to hire unskilled workers from abroad at a lower cost, obtaining skilled workers from abroad appears to have become more difficult and costly for contractors. In recent years, contractors have also found it difficult to obtain skilled craftsman from India, the main traditional source of skilled or crafts level labour for the industry, mainly due to the increase in rural income levels in India. This has forced some contractors to source skilled workers from South East Asian countries, particularly from Indonesia, where wage levels are relatively much higher than Maldives. Since shortage in skilled labour is associated with delays, inefficiencies, increase in costs and lost business, training locals in the skills and education required by construction sector would be crucial to increase the productivity of industry and maintain its competitive position. By training locals, it does not only benefit the contractors, but also the wider economy, through the provision of employment to locals and reduction in foreign exchange outflows.

Training and education

Recognising the need to attract more Maldivians to jobs in the construction sector, the government has been collaborating with MACI on a cost sharing basis, to train

10 A quota system applies for recruitment of expatriates in the Maldives. Any employer wishing to recruit a foreign worker can apply for a quota, but before that the employer should follow certain procedures and justify that a local worker, with required qualifications and experience, is not available for the job. A work permit for expatriate is only granted after obtaining the quota issued by the Ministry of Human Resources, Youth and Sports which is mandated with the issuing of quotas to foreign workers.

Maldivians in the skills required by the industry. One such programme is the Construction Industry Training Initiative formed in 2008, aimed at providing Employer Based Training. In addition, the Maldives Polytechnic[11] provides both intermediate and higher level technical and vocational education related to the building industry. Between 2006 and 2010 a total of 1,057 people were trained in construction related skills under the Technical and Vocational Educational Training programme implemented by the Ministry of Human Resources, Youth and Sports with assistance from ADB in 2006. A new initiative, "Skills Training Programme", has also been launched in 2011. This aims to train an additional 2,290 persons in construction related skills, through apprenticeships and institution based training.

However, these training initiatives, so far have not been able to produce a sufficient amount of trained people demanded by the construction sector. This is indicated by the growing number of expatriates being employed in the construction and also the decline in number of locals employed in the sector. This highlights that additional effort would be needed to attract Maldivian youth for employment in the construction sector. In addition, effort would be needed to make the industry more appealing to the public, as generally, like in many other countries, construction related work are perceived as "difficult dirty or dangerous".

Unregistered migrant workers

A growing labour related issue faced by the construction industry has been the increasing number of unregistered migrant workers engaged in the construction sector of the Maldives. According to MACI, there are approximately 36,000 unregistered migrant workers (47% of total expatriate workforce) in the construction sector of the Maldives in 2012, of which 70% are unskilled. Most of these unregistered workers undertake construction work at a much lower price and contractors use these workers to reduce their costs and increase profit margins. Hence, this gives contractors using unregistered labour an unfair competitive advantage over contractors using registered workers who face higher administrative and operational costs (such as visa fees and work permit fees). Due to the high levels of self-employment in the construction sector, the activities of unregistered workers in the construction sector are more difficult to monitor and

11 The Maldives Polytechnic was established on 12 April 2010 as the national technical and vocational training centre. The institution has evolved over the years since it was founded in 1975 as Vocational Training Centre.

pose certain health and safety related risks. It is often the case that the work performed by unregistered workers is of poor quality, due to their non-compliance to standards to reduce costs, and also because most of them lack the necessary skills required to perform the job. Although the use of unregistered workers makes reduces the cost of contractors, on the other hand it brings down the wage level and takes away jobs that may otherwise go to skilled locals who are willing and capable in undertaking the job.

4.3 Fluctuations in material prices

Due to the lack of local materials and the limited scope for substitution using local materials,[12] almost all building materials required by the construction industry, such as cement and aggregates; base metals; wood; various fittings and finishing materials, have to be imported[13]. This leads to a huge drain on the country's foreign exchange reserves. For example, during 2004–2012 construction related imports accounted for 12% of the total imports to the country or amounted to US$131.5 million Meanwhile, given that expenditure on materials is the major business cost for the contractors operating in the Maldives (around 60% of their operating expenditure), any unexpected increase in material prices, either due to domestic or external factors considerably harms the cash flow of the contractors and slows overall construction.

Escalations in global commodity prices

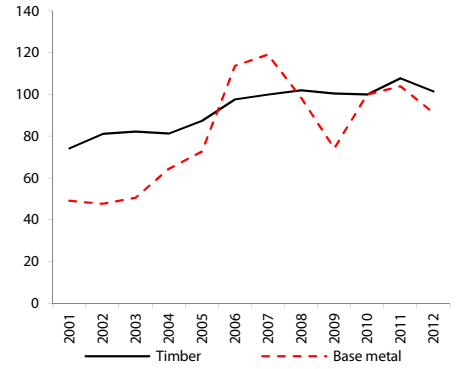
The excessive dependence of the construction sector on imports has made the industry highly vulnerable to fluctuations in global commodity prices, as experienced by the global commodity price boom of 2005-2008. As shown in Figure 8, construction raw material prices more than doubled during 2005–2007, with price of steel and cement having increased by 85% and 34%, respectively. The increase in materials costs led to

12 Historically, the local communities used coconut leaves and various locally available timbers to build houses. During 1970s and 1980s, coral rock mined in Maldives, which is a relatively more expensive building material, became the main aggregate used in local building construction. However, with the government intervening in coral mining (through regulation and awareness) due to its negative implications on fragile reefs of islands, coral mining has been stopped since 1995 and is no longer used in construction.

13 Until 2011 all imported construction materials had been subject to an import tariff (23–25% was levied for all base metals, cement and aggregates) which was an additional burden to contractors. However, with the introduction of a general goods and services tax (GST) in October 2011, the import duties on most construction materials have now been eliminated which would help in reducing the cost of construction.

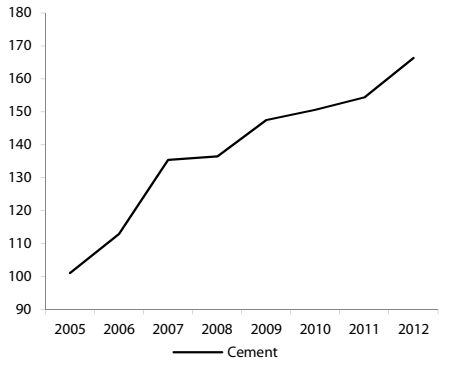
a significant escalation in construction costs during this period. Meanwhile, the impact of these cost increases was further exacerbated due to the absence of a price variation clause in government contracts, which meant that most of the cost increases had to be borne by the contractors.

Figure 6: Global Timber and Base Metal Prices, 2001-2012
(index, 2010=100)



Source: World bank data and statistics

Figure 7: Cement Prices (Grey) India, 2005-2012
(index, 2004-05=100)



Source: Office of the Economic Advisor, Government of India

Shortages in raw materials

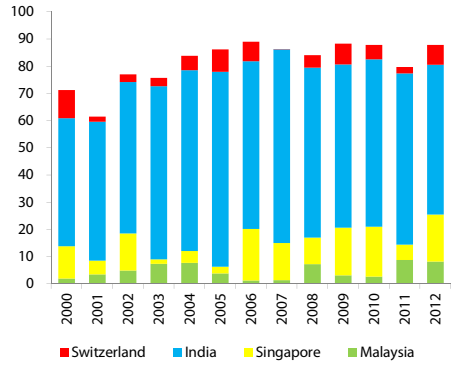
From time to time, the Maldivian construction sector continues to experience shortage in key materials, such as aggregates and river sand, mainly owing to the sector's reliance on a single source for the import of these two commodities. For example, during 2007–2011 around 96% of construction aggregates to Maldives were imported from India. This leads to unexpected increase in prices, causes construction delays and cost overruns. Although most construction materials are still sourced from traditional supply routes, in recent years there has been a gradual shift to non-traditional supply routes (see Figures 8,9,10). The shift to alternative supply routes would be important to minimise the adverse impact of certain limitations in traditional supply routes.

Foreign exchange constraints

Timely availability of foreign exchange for the import of materials is important to complete the projects on time and within the required budget. Since 2009, suppliers of construction materials and the contractors which directly import their material

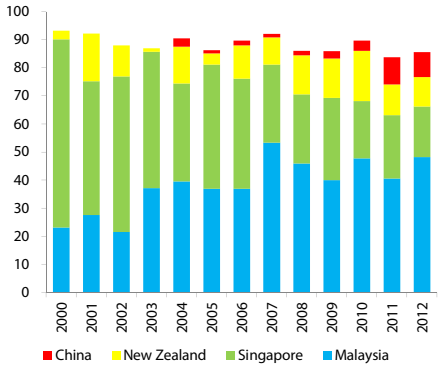
requirements[14] have faced severe constraints in obtaining the required amount of foreign exchange from the formal banking sector. As result, a considerable amount of foreign exchange has to be obtained from the parallel market at a higher price. This has created an additional burden to construction firms, particularly at a time when construction costs have been increasing and margins have been falling.

Figure 8: Major Source of Cement and Aggregates Imports to Maldives, 2000-2012
(as a percentage of total)



Source: Maldives Customs Service

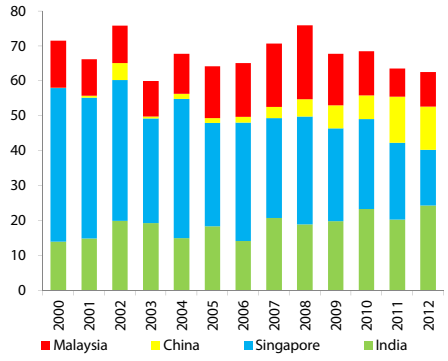
Figure 9: Major Source of Wood and Articles of Wood Imports to Maldives, 2000-2012
(as a percentage of total)



Source: Maldives Customs Service

Figure 10: Major Source of Base Metal Imports to Maldives, 2000–2012

(as a percentage of total)



Source: Maldives Customs Service

14 While some construction companies procure building materials from local suppliers, the larger construction companies directly imports on average around 45% of their material requirements.

Changes in exchange rate and tax policies

Unexpected changes in the exchange rate and tax policies, such as the 20% devaluation of the rufiyaa in 2011 and the introduction of business profit tax and the general goods and services tax in the same year (at rates of 15% and 3.5%,[15] respectively), had also contributed to an escalation in costs, leading to huge losses to contractors. This was because most of these cost increases had to be borne by the contractors as there was no compensation clause for cost escalations in the public contracts. Meanwhile, the absence of a construction price index made it difficult for contractors in making necessary adjustment for escalations in costs.

4.4 Other issues

Weaknesses in the legal and regulatory framework

Weaknesses in the national legal system, and the absence of a proper regulatory framework to govern construction related activity in the Maldives, have made it difficult to monitor or regulate the construction industry properly. At present, the industry is governed by a set of regulations which is not bound by a Building Act. Moreover, these regulations were created on an ad hoc basis and are administered by several institutions. A building code was implemented in 2010 although it also lacks legislative backing. At the same time, the existing regulations also do not also seem to be adequate. For example, at present, there are no regulations to ensure the occupational health and safety of workers around the construction sites. Similarly, there is also no authority to oversee elevator safety in the country and therefore the elevator contractors, elevator mechanics or elevators inspectors are not required to be licensed. Insufficient coordination between different authorities, combined with weak control and enforcement of the existing regulations, have contributed to increasing concern about work-related health and safety issues and the quality of buildings being poor.

Competition by foreign firms

Competition from foreign firms is also a concern of local construction companies. The rapid growth of the industry, and the increase in the size and scale of available projects in recent years has resulted in a rise in the number of foreign companies entering the local construction market. The foreign contractors usually undertake the large and complex

15 Introduced in October 2011 and this was raised to 6% beginning January 2012.

civil engineering projects, as very few local contractors have the capacity to undertake these projects. However, more and more residential and resort construction projects, which were traditionally undertaken by local companies, have been awarded to foreign companies, either as joint ventures or as entire foreign investments. Competition by foreign firms, through joint ventures, offers the scope for technology transfer, and the development of local construction firms and upgrading of the industry. Nonetheless, the increasing involvement of foreign firms in the residential and resort construction segment have adversely affected the local contractors through a reduction in prices and taking away the work from locals who are capable. This is because foreign competitors have better access to capital and other resources which gives them a competitive advantage in bidding for certain projects. At present, there is also a lack of an adequate legal framework regarding the foreign contractors operating in the Maldivian construction. The existing guidelines on licensing of foreign investors states that a project value of less than US$5 million can be awarded to a foreign company as a joint venture, with the condition that 35% of shares should be held by a local company or individual, while an amount higher can be awarded as an entire foreign investment.

5. Concluding Remarks

The construction sector of Maldives underwent a rapid period of growth between 2004 and 2008, driven by the Hulhumale' development project, the massive reconstruction efforts following the 2004 tsunami and an increase in resort construction activities. However, with the end of the tsunami reconstruction boom and reflecting the adverse impact of the GFC, activity in the construction sector has become weak and rather volatile. While most of the problems and challenges faced by the construction sector reflect the dynamic changes taking place in the business environment, particularly after the GFC and the ensuing domestic downturn, some of these problems also relate to various capacity constraints facing the sector. More specifically, the main problems facing the sector include the scaling back of government infrastructure spending; escalation in construction costs due to price fluctuations and material shortages; difficulties in access to finance; shortages in skilled labour; constraints in foreign exchange and also payments delays. Moreover, apart from the industry specific issues, broader problems relating to the macroeconomic and regulatory environment also seem further lowered investor confidence, thereby hindering the ability to attract foreign finance for the construction projects.

Shortages in skilled labour continue to be key challenge faced by the construction sector. The problem of labour shortages and the resulting increase in the expatriate employment also have an undesirable impact on the country's limited foreign exchange reserves though large remittance outflows. Meanwhile, given that the construction industry is now faced with greater uncertainty and more risk, there appear to be the scope to improve the skills of local construction managers. This further emphasises the need for continued investment in developing management skills and other technical skills required by the industry.

There are also certain issues in the public contracts, such as the lack of a price variation clause or a compensation clause, which constrain the operation of local construction companies and the overall growth of the construction sector. Hence, adopting fair and equitable terms in contracts, in order to minimise the risks associated with price fluctuations and payment delays, would provide benefits to both the parties. Moreover, measures to improve the timely payment to contractors would help to smooth the cash flow of contractors and thus alleviate their borrowing needs. This in turn would reduce banks' perception of risk and improve overall access to bank finance.

Finally, strengthening the regulatory environment through the enactment of the Building Act; updating and revising existing regulations related to the sector; and strengthening compliance would be crucial for the sustainable growth of the sector. Given the critical challenges facing the construction sector of the Maldives and due to its important contribution to the economy, both as a provider of infrastructure for national development and its potential to create jobs and stimulating other business activities, new strategies are needed to ensure the sustainable development of the construction sector and make the sector play its role in the economy effectively.

Looking ahead, the long term prospects for the Maldivian construction sector will largely depend on the ability of resort developers and the government to secure finance for ongoing and planned projects and in addressing the various problems and challenges being faced by the construction sector in a timely and cohesive manner.

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Short Articles

SEASONAL FACTORS AFFECTING CURRENCY DEMAND IN MALDIVES

*by: Ahmed Munawar**

1. Introduction

The demand for currency[1] in an economy is influenced by both short- and long-run factors. Over a short period of time, the currency demand shows a clear seasonal pattern influenced by payroll dates, weekends and holidays. It is important to understand and monitor these fluctuations as changes in currency demand[2] affects the banks' liquidity position which in turn would affect the open market operations (OMOs) of the Maldives Monetary Authority (MMA).[3] Moreover, currency demand and its daily breakdown is a very important component that affects the forecasting of liquidity. Thus, a suitable method of estimating the currency demand would help improve the efficiency of forecasting.

This article examines the seasonal factors affecting currency demand in the Maldives. The rest of the article is organised as follows. Section 2 provides some stylised facts of the movements in currency during recent months and weeks. In the next section, two main factors which affect this seasonal pattern of currency are discussed. In Section 3, the payroll effect is analysed while Section 4 looks into the holiday effect together with festive holidays in which holiday dates change each year. The final section of the article deals with the conclusion.

1 This refers to Currency in circulation (CIC) which is the total amount of notes and coins issued by the Maldives Monetary Authority (MMA) and held by the public (consumers and businesses) and the banking system. For the purpose of this study, currency and CIC is referred interchangeably.

2 Currency in circulation is close to 30% of Monetary Base (M0) of Maldives.

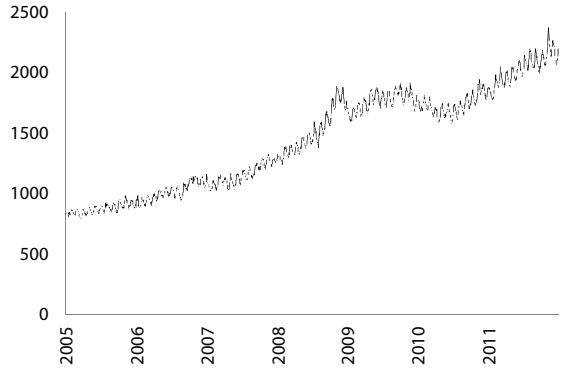
3 MMA conducts weekly OMOs to either inject or mop-up excess liquidity in the banking system.

* The author was from the Monetary Policy and Research Division of the MMA at the time of writing. He is now a State Minister at the Ministry of Finance and Treasury. He would like to thank Dhaha Shuaib, Mariyam Azmath and Hassan Fahmy for their assistance in data analysis. He would also like to thank Azeema Adam for her comments on the article. This was previously published in Q1-2014's Quarterly Economic Bulletin.

2. Stylised Facts of Currency Demand

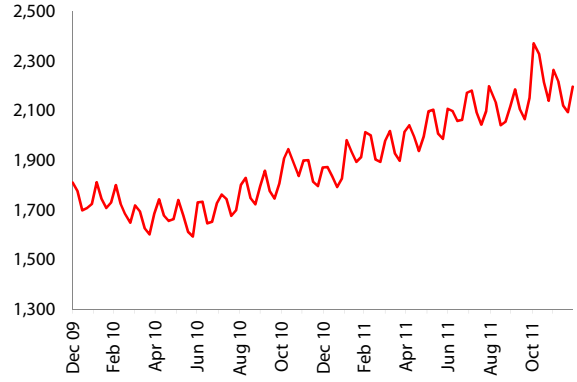
Figure 1 depicts the daily outstanding amount of currency over the period 2005–2011. Figure 2 shows the weekly movement in currency from 2009 to 2011. They clearly show the presence of seasonality in the data. Both figures also show that over the longer horizon, there is a general linear trend in the currency with a threefold increase in the amount of currency during 2005–2011. This can largely be explained by long-term factors such as growth of the economy, demographic changes and development of the financial sector.

Figure 1: Daily Movements in Currency, 2005–2011
(in millions of rufiyaa)



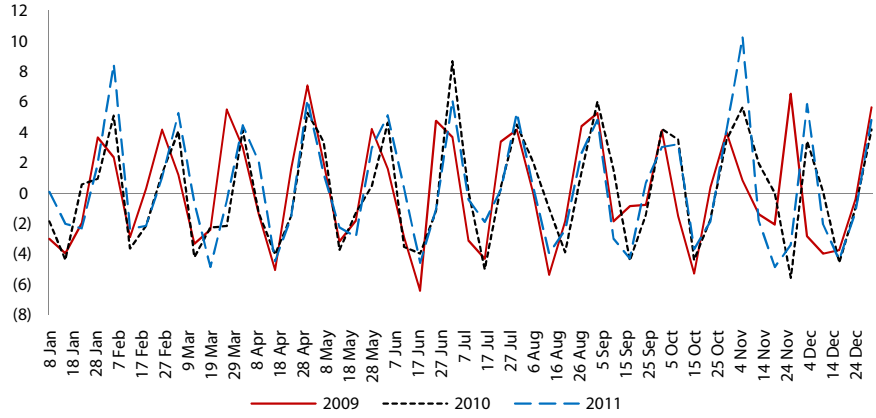
Source: Maldives Monetary Authority

Figure 2: Weekly Movements in Currency, 2009–2011
(in millions of rufiyaa)



Source: Maldives Monetary Authority

Figure 3: Weekly Growth Rate of Currency, 2009–2011
(percentage change)



Source: Maldives Monetary Authority

The seasonality can be further analysed by the growth rates of currency during the weeks[4] of the month as shown in Figure 3. The figure shows a clear inverted V-pattern and there are 12 peaks corresponding to each month of the year. This monthly pattern looks similar to an inverted V or "saw tooth" as depicted by the inventory theory of money demand of Baumol-Tobin Model (Baumol, 1952; Tobin, 1956). The Baumol-Tobin model is a model which explains the transactions demand for money and is based on the fact that income which an individual receives can be retained for a period and may be held either in the form of cash, bearing no return (interest rate); or bonds, bearing high interest rates. In addition, it states that an individual who receives an income at the beginning of a period spends it evenly throughout that period. As such, the demand for currency is affected by the dates at which salaries are paid and the spending pattern of consumers which is referred to as the intra-month effect. In addition, the demand for cash is seasonally affected by holidays and weekends. These two factors would be discussed in the next section.

3. Intra-month Effect

The demand for currency from the public is mostly met via the commercial banks; thereby they act as the intermediary in the distribution of currency. The public normally obtains cash from banks by withdrawing cash from automated teller machines or by

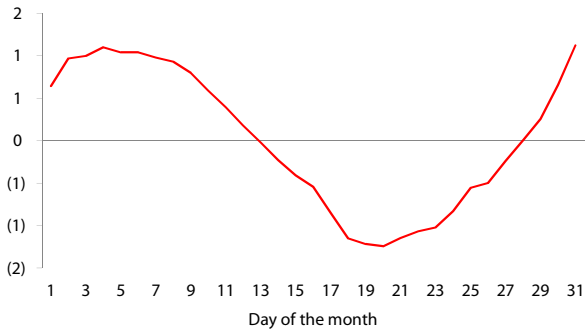
4 In order to remove the uneven weekly fluctuations of the dates, the average of the corresponding period has been taken.

cashing cheques. Since MMA is the sole supplier of currency, banks get the required currency from MMA. However, currency is not "free" and banks which request cash from MMA pays for it through their reserve accounts which they have in MMA. When a bank buys a currency from MMA, their account is debited by the amount of the currency bought. On the contrary, if the demand for currency decreases, the banks return the currency to the MMA and their accounts at MMA will be credited.

As depicted in Figure 3, this monthly inverted V-shape shows how the demand for currency behaves in Maldives. This pattern can be explained by how the monthly salaries are paid and how the spending of households takes place. As such, it shows the presence of a pronounced intra-month or intra-week effect.

The salaries are normally paid during the last two working days of the month which is normally on the 30th or the 31st of the month. Consequently, within each month, the weekly growth rates of currency tend to increase at the beginning of the month (normally during the first week of the month) and the saw tooth is at its peak in each month. After receiving their salaries, most of the households would start to spend their income to make their normal payments for the bills such as electricity, water and rent; these are normally due on or before 10th to 15th of each month. As the payments are made, their incomes are drawn around the third week of the month and the money flows back to the banking system. As a result, the currency demand decreases and reaches its bottom.

Figure 4: Normalised Average Currency for Each Month, 2005–2011



Source: Maldives Monetary Authority

The spending pattern of the households also create the so-called "day-of-the-month effect" as can be seen in Figure 4[5], which shows the same pattern as in Figure 3. It can be seen that that the currency in circulation (CIC) on average reaches its peak on the 4th of the month when the salaries have been paid. However, after some time, once households begin to make their regular payments and the money flows back into the banking system, the CIC reaches its lowest point on average on the 20th day of the month. In most countries such as India, the demand for CIC thereafter remains low until the salary period falls again, which is normally at the end of the month. However, in Maldives, CIC starts to gradually increase again in the third week even before the salary is received. This is largely due to the behaviour of the banks, especially Bank of Maldives plc (BML) which starts to increase their stock of currency in anticipation of the public needs as they distribute cash across Maldives via their extensive network of branches in the island. For instance, on average, in 2010 almost 60% of the withdrawals from MMA had taken place from 19th to 30th of each month by BML.

In addition, there is also a month effect seen from Figure 3. Although the broad pattern of the currency for each month is similar and the growth rate generally fluctuates between +4% and -4%, there are some months which show significant differences. For example, during November and December, currency demand becomes somewhat more volatile, perhaps due to uneven spacing of holidays coinciding with the festive periods. In addition, it can be also noticed that currency demand reached its highest level in July during 2009 to 2011, largely reflecting the holidays which fall during these months.

4. Holiday Effect

Maldives faces many holidays throughout the year. That being the case, currency demand is affected to a considerable extent by these holidays. Some of these holidays include the Independence Day, New Year, Victory day, and academic year-end holidays and so on. CIC also increases during weekends, boosting it up more if it is followed by other holidays. These holidays are known with certainty and thus enable us to implement seasonal adjustments. However, the major holidays include the Fit'r Eid and Al'h'aa Eid holidays in Maldives.

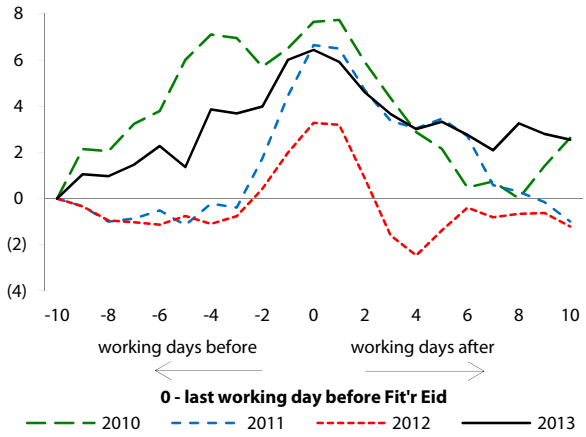
5 To plot the graph, data has been normalised where normalised value = (CIC end of period – mean)/ standard deviation

Moving holidays refer to those holidays where their dates change from year to year. These holidays do not follow the Gregorian calendar as they are based on the festivals and Islamic calendar periods. In such cases, interpreting CIC would be rather difficult because these effects cannot be removed by the standard seasonal adjustment methods. In the Maldives, Fit'r Eid and Al'h'aa Eid are two moving holidays that have a considerable impact on CIC. The demand for currency is usually low before a holiday which then keeps increasing as the holiday comes closer, reaches its peak during the holiday and gradually returns to normal afterwards.

4.1 Impact of Fit'r Eid

Figure 5 shows the percentage changes in CIC[6] taking into consideration ten working days prior to and after the last working day before Fit'r Eid. It is seen that the CIC grew by a range of 3% to 8% ahead of the holidays over the period 2010–2013. It can be noted that in 2010 and 2013 there was an increase in CIC throughout the days until the holiday. This is because the days prior to the holidays coincided with the salary week, thereby leading the way to a higher spending ability and higher peak points. However, in 2012 and 2011, the period coincided with the second week of the month where people would

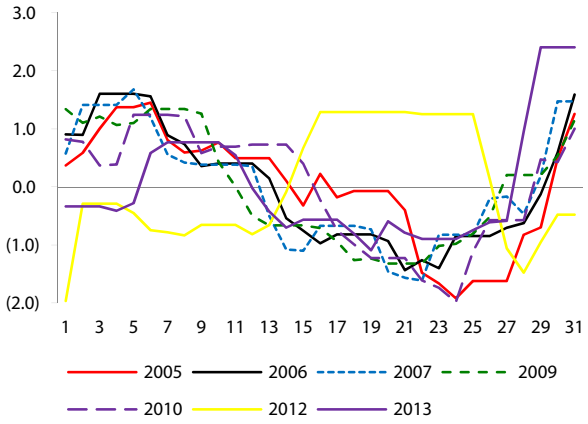
Figure 5: Percentage Change in Currency during Fit'r Eid, 2010–2013



Source: Maldives Monetary Authority

6 The percentage change in currency is calculated using the data of the 10th day before the last working day prior to Fit'r Eid as the base.

Figure 6: Fit'r Eid Holiday Impact for the Month of August for selected years during 2005–2013
(normalised value)



Source: Maldives Monetary Authority

have paid their monthly bills. Thus, a holiday period combined with the beginning of a month leads to more CIC in the economy.

The impact of Fit'r Eid over a normal time period is shown more clearly in Figure 6[7]. The August month of 2005–2013 was observed to see the Fit'r Eid holiday impact. This month is taken because no other holiday fell into this month for the past eight years.

CIC for the years 2005–2010 and 2013 shows a clear seasonal pattern, where CIC increases during the last and the first week of the month with the payment of salaries and wages, while it declines during the second and the third week of the month as the currency flows back to the banking system after payments are made to the bills. During 2012, Fit'r Eid holiday period was 17th to 25th August. Unlike the other years where CIC declined, it increased during the second and the third weeks of the month due to the Eid holiday and currency started to flow back to the banking system soon after the holiday. Commercial banks withdraw cash from MMA on the last working day prior to the holiday to cater for the customers' demand during this period.

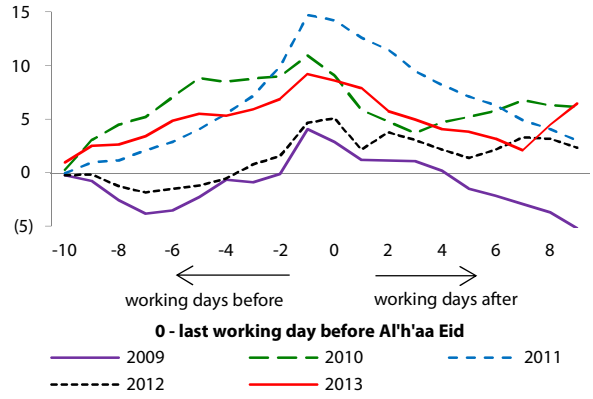
7 2008 is excluded due to unusual patterns in August due to the elections held in October that year. Further, 2011 is also excluded since the beginning of Ramadan fell during August, thus the spending patterns of people differ.

4.2 Impact of Al'h'aa Eid

Figure 7 depicts the impact on CIC during Al'h'aa Eid for the period 2009–2013. It can be observed that CIC grew by a range of 4% to 15% ahead of the holiday. Further, it can also be noted that these peak values are much higher than those that occurred during Fit'r Eid. The main reason for this can be the fact that Maldivians spend more on consumption and food during Al'h'aa Eid.[8] Another reason could be the spending habits of the people during and just prior to Ramadan.[9] The steep increase in the change in CIC in 2011 is again associated with it perfectly coinciding with a salary week, thus contributing to the highest peak of 15%. Therefore the impact on CIC is much higher during Al'h'aa Eid than on Fit'r Eid.

A similar holiday impact can also be observed during November in 2011[10] (Refer to Figure 7) in which the growth of CIC reached its peak for the year. In November 2011, there were 14 holidays including the weekends, Al'h'aa Eid, Islamic New Year, Victory Day, and Republic Day. Thus, it supports the fact that 2011 had the highest peak. Hence, it can be concluded that the monthly peak and trough of CIC growth is largely affected by these holidays.

Figure 7: Percentage Change in CIC during Al'h'aa Eid, 2009–2013



Source: Maldives Monetary Authority

8 Consumption increases especially for the feast of sacrifice.

9 CIC increases because consumption increases rapidly with preparation of Ramadan and also during Ramadan. Thus, CIC does not rise as much in Fit'r Eid when compared to Al'h'aa Eid.

10 Al'h'aa Eid in 2011 was in November.

5. Conclusion

Over the recent years, CIC has been on the rise. Each year, more and more currency is demanded by the public owing to the improvement in the standard of living and increasing inflation levels. In Maldives, Al'h'aa Eid is known to have a more prominent effect than Fit'r Eid with regard to currency demand. The intra-month and the day-of-the-month effects are further heightened if it is associated with a weekend or another holiday. These intra-month effects and the day-of-the-month effects can be dealt with using a simple seasonally-adjusted series. The behaviour of the CIC also depends on the timing of the holidays[11] and the type of holidays, making it difficult to assess and can cause major fluctuations even in the forecasting analysis. Therefore, it is important to keep a track of them while forecasting. A possible solution could be the introduction of a dummy variable series which is the next step to work on. A successful econometric model as mentioned could help improve the efficiency of the liquidity forecasting and thus the OMOs of MMA.

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11 It refers to a holiday coinciding with another holiday, weekends or intra-month effects.

THE EXPATRIATE WORKFORCE: BOON OR BANE?

*by: Ahmed Zayan Mohamed**

1. Introduction

The number of expatriate workers in the Maldives experienced a huge boom in recent years, increasing 188% between 2000 and 2011 to 79,777. This implies that an expatriate worker is present in the country for every 4 members of the local population[1]. Although this large influx to the population contributes to economic growth by boosting consumer demand and by providing human capital to meet shortfalls in local (available and willing) labour, problems such as increased pressure on the already strained foreign exchange market and detrimental effects on local employment are likely to be exacerbated. This article looks at the characteristics of the expatriate workforce[2] (defined here as the official number of expatriate *workers* in the country) in the Maldives, and discusses the potential benefits and problems their large and growing numbers could pose for the economy.

2. The Expatriate Workforce

2.1 Trends in Expatriate Employment Since 2000

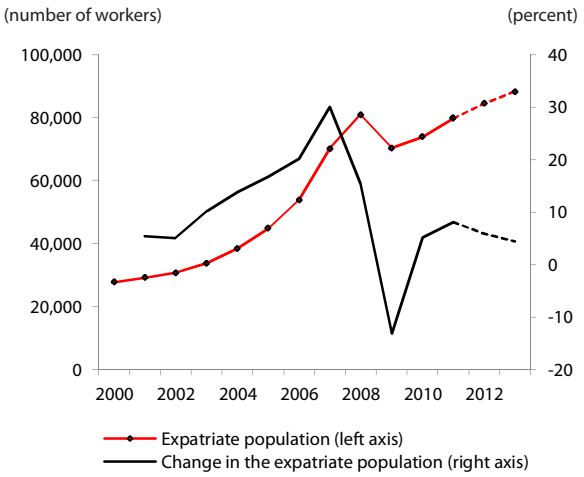
As Figure 1 shows, the expatriate workforce in the Maldives stood at less than 30,000 in year 2000. However, this number grew at an increasing rate till 2007, and peaked at 80,839 at the end of 2008. A significant portion of this increase is likely to have

1 Local population data was obtained from the Ministry of Planning and National Development (2006) and Department of National Planning (2013).

2 Expatriate employment numbers were based on data provided by the Ministry of Human Resources, Employment and Labour in 2011. The data for 2011 was obtained from the Department of National Planning (2012a).

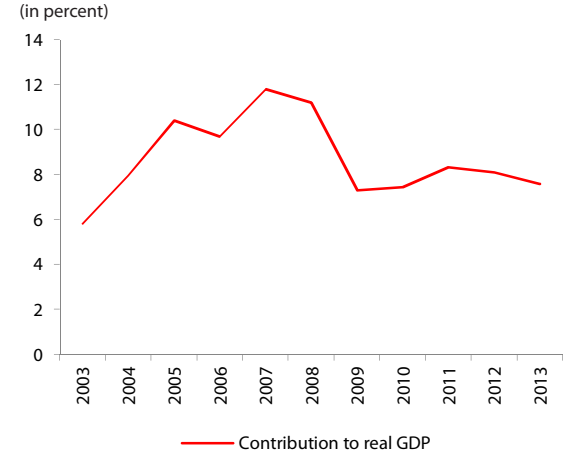
* The author is from the Monetary Policy and Research Division of the MMA. He would like to thank Azeema Adam, Idham Hussain and Mariyam Rashfa for their comments on the article. This was previously published in Q4-2013's Quarterly Economic Bulletin.

Figure 1: The Expatriate Workforce, 2000–2013



Source: Department of National Planning; Ministry of Human Resources, Employment and Labour

Figure 2: Contribution of Construction Industry to GDP, 2003–2013



Source: Department of National Planning

stemmed[3] from the construction boom witnessed after the Indian Ocean tsunami in December 2004. Numerous resort development projects initiated around this period further boosted construction sector activity, and thus also contributed to this spur in

3 The analysis done in this article is based on correlations throughout, and does not refer to causation. Therefore, further research (beyond the scope of this brief article) will be required for concrete proof of the exact relationships and their respective magnitudes.

expatriate employment numbers. This is indicative by the change in the contribution of the construction sector (which is labour intensive and largely dependent on expatriate workers), to GDP post-2004. Construction sector's share of real GDP rose from 6% in 2003 to 11% in 2008, before declining sharply with the close of the majority of reconstruction projects and reduced access to finance due to the global financial crisis. As expected, the eventual decline in construction is reflected in the total expatriate numbers, with the expatriate workforce diminishing markedly in 2009 before gradually increasing again. Overall, between 2001 and 2011, the number of expatriate workers increased at an average of 11% per year and by the end of the period reached 79,777, which is three times higher compared to its level in 2000. Although official expatriate employment data is unavailable after 2011, it is estimated that the number would have increased to 88,175 by the end of 2013[4]. However, the growth in the expatriate labour force is expected to decelerate over 2012 and 2013, to an estimated average of 5.1% over the two years.

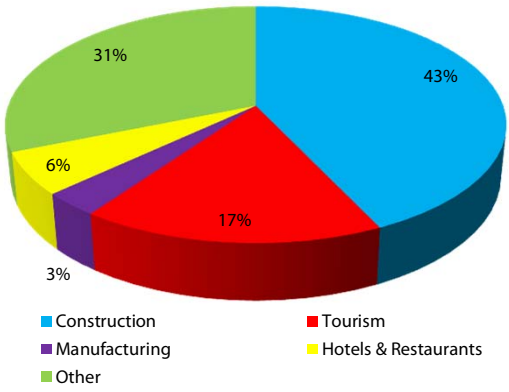
2.2 Key Features

Of the 79,777 expatriate employees in the country at the end of 2011, 78,097 were of Asian origin, with Bangladesh and India contributing a significant 57% and 24% respectively to total expatriate employment. It is possible to find expatriate labour by offering much less (in the range of US$150.0 to US$200.0 per month for unskilled labour) compared to what is usually demanded by locals to perform the same tasks due to the abundance of low paid (especially unskilled) workers in these neighbouring countries. For example, close to 45% of all employed workers in India earned less than US$2.0 a day in 2005 (International Labour Organization, 2013, p.40). Therefore, the skew of the expatriate workforce towards other South Asian countries can largely be attributed to Maldivian employers trying to minimise labour costs. Other factors responsible for this could include anti blue collar sentiments among certain (usually the younger) factions of the local working age group, and a general skills mismatch between unemployed locals and available jobs.

Another key feature of the expatriate labour force is that a significant majority are unskilled workers. For example, 37,931 (48% of expatriate workers) were reported to have worked in elementary occupations in 2011. This figure is much higher once other

4 Estimates refer to extrapolations based on data from 2006 onwards. The methodology chosen assumes that the correlation between expatriate population numbers and the growth rates of real GDP and the construction sector do not significantly change over the period.

Figure 3: Expatriate Employment by Industry, 2011



Source: Department of National Planning

occupations that do not require much specialised knowledge or skills are added to the count. A key reason why this dominance of unskilled expatriate labour arises is because the gap in expected returns for unskilled labour between local and most other South Asian countries is larger than that for skilled labour. Models of migration such as Harris and Todaro (1970) suggest that workers maximise expected returns (wages would factor into this, and presumably play a major role), and that migration only occurs if the expected returns to working in a new host country is higher than at home[5]. In this case, the expected returns of migrating and working in the Maldives is higher for unskilled workers from neighbouring South Asian countries compared to that for skilled workers, mainly due to the greater wage gap for unskilled labour compared to that for skilled labour. Another reason which contributes to this dominance of unskilled expatriate labour is the mismatch of skills between local (mostly young and inexperienced) job seekers and the demands of employers. Coupled with the reluctance to take on blue collar jobs among some segments of the local population, employers are forced to meet their labour demands from abroad. The low supply of local unskilled labour together with the high and readily available supply from abroad thus leads to this relatively large influx of unskilled expatriate workers into the economy.

Looking at the distribution of expatriate workers across industries, the construction industry is by far the largest employer of expatriate labour, responsible for 43% of

5 The actual realised returns may be different from expected returns, but as potential migrants (expatriate workers) only have an idea of expected returns ex-ante, only this is used in making the decision to migrate. This could be a reason why migration still occurs even when a significant proportion of expatriate (mainly unskilled) workers end up in poor conditions or in informal jobs with lowly wages.

all expatriate employment in the country. This is followed by the tourism industry which accounts for another 17%. As a result, shocks to these industries are likely to have repercussions on expatriate employment as employers hire or lay off workers accordingly. This is also indicated by the data presented in the previous section regarding expatriate employment in the construction industry following the construction sector boom post-2004.

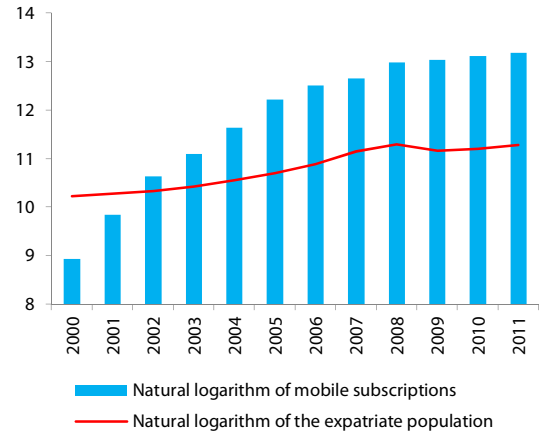
3. Potential Benefits from the Expatriate Workforce

3.1 Demand-side Benefits

A large and growing expatriate labour force means more consumers in the domestic economy, and thus can have potential benefits in the form of higher consumer demand. One industry which reaped the benefits of this and grew in tandem with the expatriate population is the communication industry. On average, the communication industry grew at 10% per annum between 2002 and 2011, while the expatriate population grew at 11% in the same period. A channel through which the inbound expatriate workers gave this boost to the industry can be seen by the effect on mobile phone subscriptions. As Figure 4 shows, the natural logarithm of the number of expatriate workers moves together with the natural logarithm of mobile phone subscriptions (the logarithm is taken for scaling purposes)[6]. Specifically, the expatriate labour force and the number of mobile phone subscriptions (levels of the variables referred to here) between 2000 and 2011 are highly positively correlated with a coefficient of 0.97, which is significant at the 1% level. The correlation between the expatriate workforce and telecommunication industry revenue between 2005 and 2011 is also significantly positive, although the magnitude is slightly lower in this case. This is because most newly arriving expatriate workers will want to and thus subscribe to use mobile phone services as this is the primary and most convenient mode of communication presently available. Therefore, it is highly likely that the communication industry's growth was in part due to the increasing expatriate population in the country. The period saw the entry of a second telecom operator into the market which brought down tariff rates due to competition, and this too is likely to have been a driving factor behind the growth of the communication industry.

6 The number of mobile phone subscriptions increased at a much faster rate because this was a period during which a significant part of the local population first started using mobile phones too.

Figure 4: Expatriate Population and Mobile Subscriptions, 2000–2011
(in logarithm)



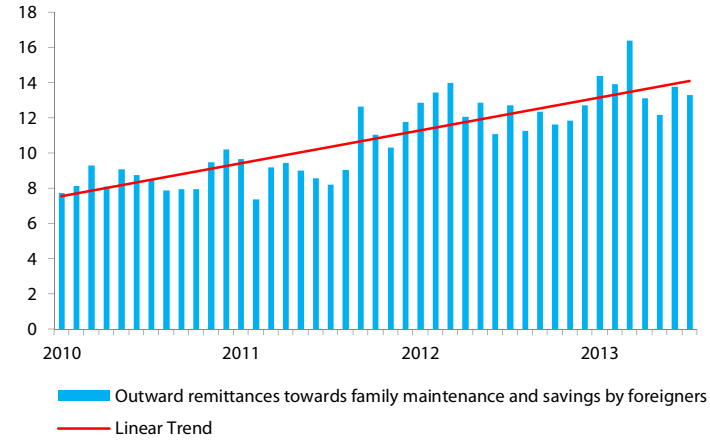
Source: Maldives Monetary Authority

3.2 Key Source of Human Capital

Expatriate workers contribute to the economy by meeting shortfalls in human capital which cannot be met locally due to skill mismatches or otherwise. This is especially true for unskilled labour, although it is necessary to rely on expatriates for some highly technical positions as well. According to the Department of National Planning (2012b), the unemployment count among the local population in 2010 was 13,033[7]. Meanwhile, the number of expatriate workers at the end of the same year totalled 73,840, which implies that even in the unlikely case of full employment, the local population alone would not be able to cater to the labour demands of the economy which is currently met by tapping into foreign labour markets. As such, it is unlikely that the current level of economic growth can be achieved without the contribution of the expatriate population. Evidence from the outside world indicates that this is country specific, for there are countries which exhibit strong growth both with and without much reliance on foreign labour. For example, the majority of countries in the Gulf region (who generally have respectable growth rates) have a very high dependence on expatriates, with the share of foreign labour even exceeding 75% in some cases like Qatar and the United Arab

7 The International Labour Organization's (ILO) definition for (un)employment is used in this article, which counts as unemployed the people who were 15 years and over, had no employment during the reference period, were available for work except due to temporary illness, and made specific efforts to find employment sometime during the reference week. This definition excludes 25,460 discouraged workers from the unemployment count who are sometimes included under a broader definition.

Figure 5: Monthly Outward Remittances Towards Family Maintenance and Savings by Foreigners, 2010–2013
(in millions of US dollars)



Source: Maldives Monetary Authority

Emirates[8]. On the other hand, there are also countries which manage consistent growth with a relatively small expatriate contribution. One such example is Seychelles, which had an expatriate share of just 25% in 2011 (National Bureau of Statistics, 2013, p.26).

4. Potential Problems

4.1 Sizable Outward Remittances

Typically, expatriate workers remit a part of their earnings back to their home countries for purposes such as family maintenance, saving, donations, etc. Therefore, a direct consequence of a large and growing expatriate population is the outflow of foreign currency in sizable and increasing amounts from the domestic economy. Figure 5 shows monthly outward remittances by foreigners towards the sole purpose of family maintenance and saving[9]. It indicates that huge amounts of foreign currency are remitted out every month, and that these amounts are steadily and constantly on the rise. For

8 The corresponding share for the local economy in 2010 was 43%.

9 The data only includes remittances made via the commercial banks operating in the Maldives. Also, as the data for the month November 2011 contained an outlier and March 2012 was not available for one of the banks, an average of the preceding and following months was taken for this institution in these months. It should also be noted that family maintenance and saving is just one of the eight purposes for which outward remittances are made. The data is restricted to remittances made for this purpose to isolate as much as possible the transactions made by expatriate workers. Therefore, the data presented is an under-estimate.

example, the average amount of foreign currency remitted outwards (for the selected purpose) during the first six months of 2013 was US$14.0 million, which is an increase of 64% compared to the average of US$8.5 million remitted out during the first six months of 2010. The outflow of foreign currency in these large amounts will further exacerbate the pressure in the foreign exchange market.

It should be emphasised that the remittance data used in the analysis is that for a single purpose only and so should be viewed only as a lower bound of outward remittances by expatriate workers. Therefore, the actual magnitude of foreign currency outflows and the resulting negative impact will likely be more pronounced.

4.2 Crowding Out of Local Labour

According to the Department of National Planning (2012b), 98,393 out of 111,426 economically active people were employed in 2010 (the economically inactive count was 100,617). Furthermore, an unemployment rate of over 40% prevailed for those between 15 and 24 years of age in the same year. The low level of employment of locals in the country, and especially the high level of inactivity is very likely to be contributed to by the large and growing expatriate population. In particular, relatively less skilled or less educated locals can be easily displaced by incoming low skilled expatriates, as low skilled expatriate workers usually demand much lower wages compared to locals. The local-expatriate wage gap for skilled labour is narrower (meaning that displacement by foreigners among this group will likely be less), as skilled labour usually demands high wages regardless. Also, as discussed before, the majority of expatriate workers in the country find work in elementary occupations that require less specialised skills. For example, the construction industry, which contributed the third most to nominal GDP in 2010 (10%), only employed 4,459 locals or 5% of total employment in this year. However, in comparison, 31,866 expatriates were working in the industry in the same year (Department of National Planning, 2011). This is another reason why the relatively less skilled and less experienced of the local population are likely to suffer more in the job market. The economically inactive are likely to be from among the less skilled too, as withdrawal from the job market could occur if losing potential jobs to expatriate competition for too long lowers morale and the desire to find work. This could lead to the more severe problem of hysteresis, that is, the long term withdrawal from the labour force due to reduced employability from remaining inactive for an extended period of time. The economy's productive potential will suffer if this occurs.

4.3 Other Potential Problems

Other potential problems of a large and growing expatriate workforce include a rise in government expenditure. This could result from a need to increase monitoring by the immigration authorities or due to the additional law enforcement effort that will be required to cater for a larger population. Another indirect way the government expenditure could increase is via subsidies that envelope expatriates as well. For example, the subsidy on rice, flour and sugar imports is a blanket subsidy which does not differentiate between final consumers. The subsidised price, which is applicable to all buyers, is set lower compared to the market price using the contribution by the government. Therefore, a growing expatriate population will increase the number of people that have access to these types of universal amenities from the government.

A further consequence of such a rapidly growing expatriate population is the potential exacerbation of certain social problems. The gradual decline of cultural identity as foreign norms and values slowly get integrated into society may also be a reason why large inflows of expatriates may face opposition. In fact, Pritchett (2006, p.99) argues that "of all the ideas that limit migration, perhaps the most important is the idea that there is a national "culture" and that increased labour mobility threatens that culture". Therefore, potential problems, or at least arguments that are not tied to economic rationales are also abound concerning the inflow of foreign labour.

5. Conclusion

The expatriate workforce in the Maldives has increased by leaps and bounds in the past decade or so, bringing along many changes to the economic and social landscape of the country. Although the potential problems of a large and growing expatriate population are usually discussed due to the nature of the subject, benefits are also being realised to some extent. It should be noted that although the trends and characteristics discussed above are likely to hold true in a general sense, the expatriate population numbers used in this study are very likely to be underestimated. This is because the Department of Immigration and Emigration estimates that a relatively large number of illegal expatriate workers that are off the records are in the country too. The magnitude of the benefits and problems discussed above are thus likely to be even higher in reality.

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DOMESTIC AVIATION IN MALDIVES – A SUMMARY AND ANALYSIS OF RECENT DEVELOPMENTS

*by: Aishath Zara Nizar**

1. Introduction

While the Maldivian economy is largely dependent on a single industry—tourism—for its economic growth and foreign exchange earnings, a number of supporting sectors have arisen over the years to cater for the demand of auxiliary services created in line with this booming industry. The transport sector is one such vital component of the economy at present, contributing about 9% of gross domestic product (GDP) over the past decade. Despite its growth being quite volatile, the transport sector has had a robust average annual growth of 8.4% between 2003 and 2012, supported by the development of infrastructure in various regions and expansion in transport services.

The transport industry encompasses all modes of transport such as land, air and sea transport. Among this, sea transport is the most common mode of transport for locals, due to its accessibility and cost effectiveness. Nevertheless, in terms of growth of the transport industry as a whole, air transport or aviation is the major component that drives this industry. This is due to the huge demand for air transport services emanating from the tourism sector, while the demand from the local population has been increasing steadily as well. As such, during 2001–2012, roughly 60% of all tourists are estimated to have travelled domestically by air to their resorts. Historically, the growth of the transport sector has thus been closely related to the growth of the tourism sector, being affected by the same shocks as those to tourism.

* The author is from the Monetary Policy and Research Division of the MMA. She would like to thank Azeema Adam for her comments on the article. This was previously published in Q3-2013's Quarterly Economic Bulletin.

In terms of domestic aviation in the Maldives, it comprises of two significant components: seaplane operations and domestic airline operations. This article focuses on these two components of domestic aviation and looks at its significance to the Maldivian economy. It also highlights the most recent developments observed in the sector and discusses the trends in aviation passenger movements over the last decade.

2. Recent Developments

One of the biggest developments that have taken place in the transport sector is the rapid development of regional airports in the past few years. Due to its geographical dispersion, Maldives has always had an acute need for a well-developed transport system. Although this need was traditionally catered for by maritime transport services, the expansion of tourism into peripheral atolls, especially after 2004, underlined the need for northern and southern air transport hubs—to be able to cater for tourists. Additionally, changes in national development policy plans in recent years have also helped pave the way for the development of regional airports.

While four domestic airports were established prior to 1995, primarily to serve Maldivians, the next domestic airport was not established until 16 years later—in 2011. Within a span of three years (from 2011 to 2013), a number of domestic airports were built and two airports were upgraded to international standards (Table 1). This acceleration in the pace of airport development was mainly due to a greater emphasis placed by the government on developing tourism infrastructure as a large number of new resorts were leased out. Tourism Master Plans (compiled by the Ministry of Tourism once about every five years) have consistently called for the development of additional major transport hubs in the north and south. As such, difficulties in accessibility are faced more significantly by developers of new resorts, in transporting materials and labour to remote islands. In this respect, the third Tourism Master Plan (2007) highlighted the need for more domestic airports, as well as seaplane hubs in the northern and southern zones of Maldives, in order to enable resort development to prosper in atolls far from Male'. Moreover, the fourth Tourism Master Plan (2012) specifically calls for the development of Hanimaadhoo and Gan as transport hubs in the north and south respectively. These transport hubs are aimed to be developed with a marina, seaplane base and cruise facilities in order to attract new investment as well as to provide necessary infrastructure and support services for existing resorts.

Table 1: List of Airports and Dates of Opening

Before 1995	Ibrahim Nasir International Airport
	Gan Airport
	HDh. Hanimaadhoo Airport
	L. Kahdhoo Airport
	GDh. Kaadehdhoo
2007	*Gan International Airport**
2011	ADh. Maamigili*
	Gn. Fuahmulah
2012	*HDh. Hanimaadhoo Airport**
	B. Dharavandhoo
	Ga. Kooddoo
2013	*ADh. Maamigili (Villa International Airport)**
	Th. Thimarafushi
Upcoming	N. Maafaru
	R. Ifuru

Source: Press releases from the Presidents Office, Villa group; Maldives Airports Limited; Haveeru Online

* upgraded to/opened as international airports

Hence, recognising the need for infrastructure development in the tourism sector, the government embarked on a plan in the early 2000s, to establish 10 regional airports and airport hotels, to expand air transport services. Additionally, government policies to improve air transport as a means of travelling for locals also helped to fast-track the establishment of airports. These airport development projects were carried out under the Public Private Partnership program introduced by the government. While 10 airports are in operation at present—4 international and 6 domestic airports—two additional airports have also been proposed to be opened soon.

Despite the advancement of regional airports at Gan, Hanimaadhoo and Maamigili[1] to international airports, the number of international aircraft movements at these airports remains relatively low. As such, while Hanimaadhoo International Airport has had no international aircraft movements by 2012, only a mere 3% of all aircraft movements in Gan International Airport (since 2007) are recorded to be international airlines.

1 The regional airport at Maamigili was renamed Villa International Airport when it was inaugurated as an international airport in 2013

Nevertheless, the transition of several regional airports to international levels has been an impetus for the growth of air travellers within Maldives.

3. Seaplanes and Domestic Airlines

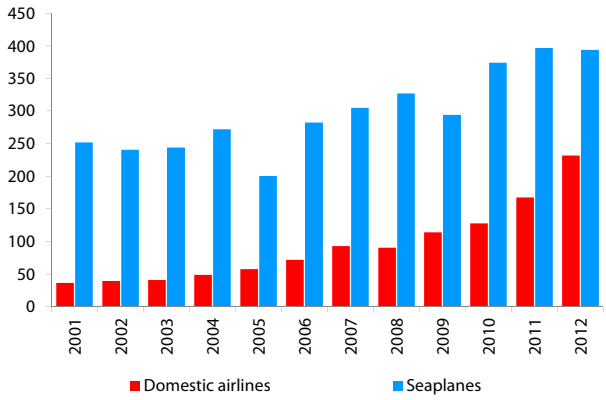
For the purpose of analysis, the domestic aviation operations have been divided into two separate parts: seaplane and commercial airline operations.

Seaplanes were first introduced in the Maldives in the late 1990s with the development of tourism beyond the central regions surrounding Male'. While tourist resorts were initially clustered around the capital city in Kaafu and Alifu atolls, tourism policies by the government placed emphasis on developing resorts in the northern and southern parts of the country, thus creating a greater need for an accessible transport system. Due to the lack of an extensive maritime transport network and the underdevelopment of regional airports, seaplanes account for a large proportion of tourist transfers between the airport and the resorts. In addition to being a means of transport for tourists, it is also commonly marketed as an attraction in itself due to the unique experience of travelling in a seaplane.

Two seaplane operators, Trans Maldivian Airways (TMA) and Maldivian Air Taxi (MAT) have competed in the industry since its inception, serving approximately 45% of all tourist arrivals (over 280,000 passengers) throughout the past decade. In 2013 however, TMA and MAT were bought over by US-based private equity fund, Blackstone and now operates under the TMA name.

Although seaplanes were introduced in the late 1990s, domestic airline operations began much earlier in the 1970s, along with the establishment of the first national carrier of the country, Air Maldives. While Air Maldives operated international routes to enable greater access for foreign visitors into Maldives, it also began operations on domestic routes between the established regional airports, catering for the local population during the 1980s. However, the airline declared bankruptcy in 2000 and was replaced by the flight operations of Island Aviation Services Ltd, a government owned company, becoming the new national airline of the country. Initially, flights were only operated on the domestic routes. However, in 2008, the airline commenced international flights and additionally rebranded themselves as Maldivian, the national flag carrier of Maldives.

Figure 1: Domestic Airline and Seaplane Passenger Movements, 2001–2012
(in thousands)



Source: Civil Aviation Authority

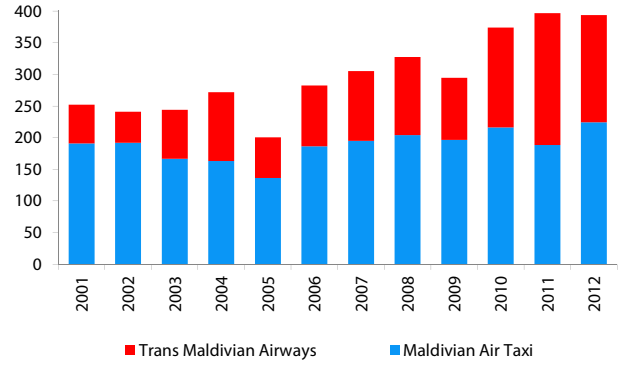
The development of new regional airports in recent years have stimulated the growth of domestic aviation in the country, as new and private airline operators entered the industry.

Considering the passenger movements of both seaplanes and domestic airlines, it can be observed that while seaplane passenger movements have averaged over 200,000 during the past decade, passenger movements of domestic airlines have remained relatively lower—less than 100,000 (Figure 1). Moreover, passenger movements of seaplanes largely reflect tourist arrival trends, with distinct dips observed in both 2005 and 2009. The number of tourist arrivals into the country decreased by 36% and 4% in these two years, respectively. While seaplane movements stagnated somewhat in 2012, following a mere 3% growth tourist arrivals, this was somewhat offset by the modest increase in commercial flight operations during the year, attributed to the opening of new regional airports and new airlines expanding their services, which boosted the domestic airline industry.

3.1 Market Composition of Seaplanes

Seaplanes usually operate only from Ibrahim Nasir International Airport to resorts and are usually chartered by travel operators. Therefore, most seaplanes ferry tourists and only a small percentage of passengers are locals, who mainly travel for work to resorts. During 2001–2005, about 49% of all tourists are estimated to have travelled to resorts via

Figure 2: Seaplane Movements by Service Provider, 2001–2012
(in thousands)



Source: Civil Aviation Authority

seaplanes; this number has decreased slightly to 45% in the past five years, along with the expansion of domestic airline services.

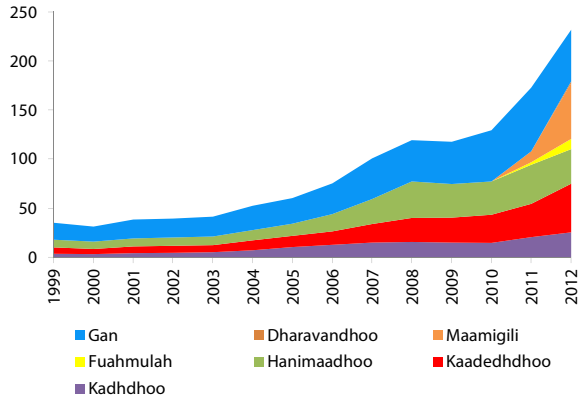
Delving into the market composition of the seaplane industry, between 2001 and 2011, MAT has served 63% of all seaplane passengers while TMA accounts for the remaining 37% (Figure 2). This is equivalent to 51% and 27% of all passenger movements in the domestic aviation industry (including domestic airlines), for MAT and TMA, respectively, during this period.

3.2 Domestic Airlines

Domestic aviation between regional airports, as measured by commercial airline operations, has increased rapidly throughout the past decade (Figure 3). While less than 50,000 passenger movements were recorded in 2003, this number has quadrupled to reach more than 200,000 by 2012. This exponential growth in recent years can be partly attributed to the commencement of operations by two new airlines in 2011—Mega Maldives Airlines and Flyme. Prior to this, Maldivian Airlines existed as the sole domestic carrier in Maldives. The most notable growth in the sector was thus observed in 2011 and 2012, with passenger movements increasing by more than 30% in both these years, compared to an average growth of 19% in the preceding five years.

Similar to the rapid growth in international outbound travel by Maldivians, economic growth and the increased levels of income have enabled Maldivians to increase their

Figure 3: Passenger Movements of Domestic Airlines by Destination, 1999–2012
(in thousands)



Source: Civil Aviation Authority

inter-atoll travels. Moreover, the rapid development of domestic airports and the promotion of low fares, especially during festival and school holidays, have spurred this growth.

With regard to the passenger movements classified by destination, the most number of passengers are recorded to have travelled to Addu atoll via domestic airlines. On average, about 40% of all passenger movements were made to Gan International Airport during the past decade. Nonetheless, the establishment of new regional airports is likely to pave the way for increased passenger movements to other atoll hubs as well, especially driven by the demand from the tourism sector, as more resorts are being leased out in far-off atolls. Quite notably, the increase in passenger movements to ADh. Maamigili is largely tourists, with Alifu Dhaalu atoll having 17% of total bed capacity of the tourism industry (only second to Male' atoll, having 40%).

The expansion in the commercial airline services has also resulted in a shift in the market composition of passenger movements as well. Thus, while Maldivian Airlines accounted for 15% of all domestic aviation passenger movements between 2001 and 2005, this has increased significantly to 26% in the past five years. The establishment of new airports has enabled domestic airlines to expand its target market and cater for a higher number of tourists, encouraging greater competition between the major players.

4. Challenges to the Industry

While being one of the most rapidly developing sectors of the Maldivian economy, the transport sector continues to face a number of challenges. Most significantly, the heavy reliance of domestic aviation on the tourism sector makes it extremely vulnerable to external shocks that affect tourism. As a result, operators in the industry find it difficult to offset declines in tourist passenger movements by shifting towards local tourists. This is because the volume of demand from the local population is too low or insufficient to support the industry, which is a common constraint faced by other industries as well.

Within the domestic aviation sector, there is also increased concern about the emergence of the monopoly in the seaplane operations and its effect on prices. The recent decision by Maldivian Airlines to enter the seaplane industry however, is likely to encourage more competition within the sector. As the sector is closely linked to tourism, it is also essential that development plans for the transport sector is aligned with national development goals. As such, the Third Tourism Master Plan (2007) called out for integration between the Tourism Master Plans and other government plans, especially the Transport Master Plan.

With regard to challenges faced by the companies operating in the sector, according to the Quarterly Business Survey conducted by the Maldives Monetary Authority in 2013, businesses in the transport sector face difficulty in raising finance to expand their operations. Factors such as difficulty and high cost of obtaining finance as well as insufficient demand were highlighted as significant factors that hinder the potential of the business activities of these companies.

However, further research is required to fully capture and understand the opportunities and challenges faced by the industry.

5. Conclusion

The transport sector is an important sector to the economy of the Maldives, especially due to its close linkages with tourism and its vital role in enabling accessibility in a widely geographically dispersed nation. Its contribution to GDP also remains significant, being the fifth largest industry driving the economy. Recent changes in the industry including the opening up of new regional airports and the introduction of new domestic airlines have brought about significant changes to the dynamics of the industry. Along with the

expansion of the industry, there still remain a number of challenges that constrain the development of the industry.

Nevertheless, with the growth of tourism in Maldives—both local and international—there is an increasingly significant role of the domestic aviation industry. The brief analysis of domestic aviation presented in this article also highlights the importance of further research in the industry in order to better understand its dynamics.

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THE EFFECTIVE EXCHANGE RATES OF RUFIYAA

*by: Azeema Adam**

1. Introduction

Effective exchange rates are important indicators for macroeconomic analysis of a country. These rates show the relative strength of a country's currency relative to a basket of currencies of its major trading partners. The nominal effective exchange rates (NEER) measures the weighted averages of bilateral nominal exchange rates (NER). The real effective exchange rates (REER) are expressed as NEER adjusted for price differentials or inflation between the home country and its major trading partners.

Real effective exchanges rates are most commonly used as an indicator of price or cost competitiveness. In this regard, a depreciation of the REER indicates an increase in competitiveness of the home country relative to its trading partner, and conversely, an appreciation is regarded as a loss in competitiveness for home country producers of goods and services. However, given that competitiveness encompasses different dimensions of productivity and market performance in interaction with one other, REER may not always be an appropriate measure of competitiveness. REER measures can also be used to evaluate the degree of exchange rate misalignment of the domestic currency[1] or to test the Balassa-Samuelson effect.[2] The NEER can be used to estimate the effect of NER changes on domestic prices, which is known as the exchange rate pass-through.

1 To find the degree of exchange rate misalignment, the medium to long-run equilibrium REER (ERER) has to be computed. The difference between the REER and its ERER is the exchange rate misalignment.

2 The Balassa-Samuelson effect refers to the increase in productivity in the tradable sector relative to non-tradable sector, leading to a rise in the relative price of non-tradables and pushing up the real exchange rate of the country (Appleyard, Field, & Cobb, 2010).

* The author is the Governor of the MMA. This article draws on a more in-depth research paper of the author on the construction of effective exchange rates for the Maldives, prepared as part of her Doctoral thesis. This was previously published in Q3-2012's Quarterly Economic Bulletin.

This article summarises the conceptual and methodological aspects of constructing effective exchange rates and presents alternative indices of both NEER and REER for the Maldives. The developments and trends in these indices from January 1990 to March 2012 are also briefly discussed.

2. Methodology

There are several measures of NEER and REER and various ways in which to construct them. The construction of these indices begins with a measurement of the NER and the real exchange rates (RER). The NER is normally quoted in domestic currency terms, as the units of home currency per unit of foreign currency. The RER is the nominal exchange of the home country adjusted for the price level between the home country and the foreign country. Defined this way, an increase in the NER/RER reflects a depreciation of the home currency and a decrease is appreciation of the home currency in nominal terms.

The methodology used for constructing the effective exchange rates for the Maldives is drawn from Hinkle & Nsengiyumva (1999), because their methodology has shown to be appropriate for developing countries with data limitations, as is the case for the Maldives. The following equations are used to calculate the NEER and REER for the Maldives.

NEER is expressed as:

$$\mathrm{NEER}_{\mathrm{dc}} = \prod_{\mathrm{i}=1}^{\mathrm{m}} \mathrm{NER}_{\mathrm{dc_i}}^{\omega_{\mathrm{id}}} \tag{1}$$

where NER_{dc} is the index of units of domestic currency per one unit of foreign currency and ω_{id} is the trade weight assigned to the ith country (where i = 1.....m).

The REER can be expressed as:

$$\mathrm{REER}_{\mathrm{dc}} = \prod_{\mathrm{i}=1}^{\mathrm{m}} \mathrm{BRER}_{\mathrm{dc_i}}^{\omega_{\mathrm{id}}} \tag{2}$$

where $\mathrm{REER_{dc}}$ is the REER for domestic currency; m is the number of trading partners of the home country and $\mathrm{BRER_{dc_i}^{\omega_{id}}}$ is the bilateral RER with ith country. The $\mathrm{BRER_{dc_i}^{\omega_{id}}}$ can be expressed as:

$$BRER_{dc} = NER_{dc} * \frac{P_{Gf}}{P_{Gd}} \tag{3}$$

where $BRER_{dc}$ is the bilateral RER between the domestic currency and a foreign currency; P_{Gf} is the general price index of the foreign country; and P_{Gd} is the general price index of the domestic country.

As regards the averaging process that is used to calculate the weighted average exchange rate indices, geometric averaging is used due to its many advantages.

In many developing countries, the official exchange rate may not be the only exchange rate used in the country. In countries where there are parallel markets for foreign exchange, the official and unofficial rates might diverge significantly. This would alter the outcomes for RER calculations, depending on the NER used. If a country does not have a significant parallel market, the use of the official exchange rate is suitable. Otherwise, the exchange rate prevailing in the parallel market may be the representative exchange rate of the country, and using the official exchange rate to calculate RER would not produce reliable estimates (Edwards, 1988). However, the problem with parallel market exchange rates is that they are not always available, especially in a consistent manner.

In the Maldives, parallel markets have occasionally emerged in the past, typically following periods of foreign exchange shortages. However, no data exists on the parallel market exchange rates or the volume of transactions using parallel market rates. Therefore, the official NER is used.

Based on the trade patterns of the Maldives, trade weights based on exports of goods, imports of goods and tourism inflows are computed for the country. For each of these categories, separate weights are calculated for each trading partner, allowing them to be used to construct effective exchange rates based on each type of trade. In addition, aggregations of these weights are computed to derive overall trade weights. Constant or fixed weights are the simplest to both derive and use in the construction of effective

exchange rates. Fixed weights assume that the relative shares of trading partners remain constant over the period. However, this assumption rarely holds, especially over long periods, during which time the shares of a country's trading partners may change substantially. Therefore, weighting schemes that allow trade weights to change from period to period are used in this paper, as they produce a more representative index of effective exchange rates (Richter & Svavarsson, 2006).

In the Maldives, the importance of the main trading partners has shifted significantly over the years, which makes moving weights more suitable. Therefore, time-varying weights by assigning three-year averages for each three-year period and chaining the indices as suggested by Ellis (2001) are used to construct a consistent time-series index of effective exchange rates. The justification for using three-year average weights instead of the more common annual weights is to smooth out the potentially abnormal movements in year-to-year variations in trade.

In the Maldives there is a significant difference in the importance of trading partners for imports, exports and tourism. In this respect, effective exchange rates are constructed based on imports weights, exports weights, tourism weights and aggregate trade weights, separately. The aggregate trade weights are simply the relative shares of imports, exports and tourism in the total trade in goods and services. The following equations are used to compute the four sets of trade weights.

Import weights:

$$w_i^M = \frac{m_i}{M} \tag{4}$$

Export weights:

$$\mathrm{w_i^X} = \frac{\mathrm{x_i}}{\mathrm{X}} \tag{5}$$

Tourism weights:

$$\mathrm{w_i^T} = \frac{\mathrm{t_i}}{\mathrm{T}} \tag{6}$$

Aggregate trade weights:

$$w_i^{TW} = \frac{M}{M+X+TR} w_i^m + \frac{X}{M+X+TR} w_i^x + \frac{TR}{M+X+TR} w_i^t \quad (7)$$

where w_i^M, w_i^X, w_i^T and w_i^{TW} denote the trade weights for the ith country based on imports, exports, tourism receipts and aggregate trade in goods and services, respectively. The variables m_i *and* x_i represent the value of imports and exports of the i^{th} country and t_i represents the tourist arrivals from the i^{th} country. The variables M and X are the total value of imports and exports of the Maldives, T is the total number of tourists from all the countries and TR is the total tourism receipts.[3]

The trade shares are calculated for the major trading partners in each category using Equations 4 to 7 for 17 countries. These countries account for about 80 per cent of trade in goods and services for the Maldives. For each year, the trade weights are calculated as the average of that year and the preceding two years. For example, the trade weights used to calculate the effective exchange rates for 2011 is the three-year average of the period 2009-2011. For any current year, the past three-year average is used. The use of different weights for different periods requires the indices to be chain-linked to make a consistent time series. Therefore, the calculated indices are chain-linked each time to the old series.

Since the computations of the different trade weights result in a large amount of data, only the countries included in each category are shown in Table 1.

The calculation of weights for different periods allowed the countries included in each period to be based on the significance of that country during that period. Although the inclusion threshold was determined initially at 1 per cent, inclusion of some countries in the basket was delayed until trade share became more significant. This is to limit excessive variation in the basket of currencies over the period. It is also important to note that Australia and UAE are not included in the currency basket due to the unavailability

3 To calculate the tourism shares by country, tourist arrivals data are used because tourism receipts by country are not available. However, when calculating the tourism share in total trade in goods and services, total tourism receipts are used. Since, in Equation 3.8, the trade weight is calculated using trade shares, use of different units is not an issue.

Table 1: Countries Included in Trade Weights, by Category

	Imports (M)	Exports (X)	Tourism (T)	Aggregate Trade Weights (TW)
Austria			x	x
China	x		x	x
France	x	x	x	x
Germany	x	x	x	x
India	x		x	x
Italy		x	x	x
Japan		x	x	x
Malaysia	x			x
Russia			x	x
Singapore	x	x		x
South Korea			x	x
Sri Lanka	x	x		x
Switzerland			x	x
Thailand	x	x		x
UK	x	x	x	x
US	x	x	x	x
Euro Area			x	x
Total[1/]	10	9	13	17

[1/] This excludes Austria, France, Germany and Italy, as their shares are individually allocated

of required data.[4] The exclusion of Australia is not significant, as the country has a trade share of only 2 per cent. However, UAE is the second largest source of imports, accounting for 18 per cent of imports during the period 2005–2010. Further, UAE has held a 10 per cent share in imports since the mid-1990s. Despite this, the necessary exclusion of UAE is not viewed as a problem for the calculation of effective exchange rates. This is because the weight of UAE was allocated to the United States, based on two factors. Firstly, both the Maldives and UAE have their exchange rates pegged to the US dollar. Secondly, UAE is a major transhipment hub, which means that most of its

4 CPI data for Australia is available only on a quarterly basis, while this study uses monthly data. As regards the UAE, monthly CPI data are available only for 2008, 2009 and 2010.

exports are re-exports. Most of the re-exports are priced in US dollars and the bilateral exchange rates may not have much influence on the price of re-exports.

As mentioned earlier, the trade shares of currencies included in the currency basket account for an average of 80 per cent of trade in goods and services. While this is a good representation of the overall trade, the issue of how to treat the remaining 20 per cent needed to be addressed. One option was to normalise the weights of all the countries based on their trade shares for the total, to sum up to 100 per cent. Another option was to allocate the share to another currency or currencies that might play a more important role than their actual trade share shows. This was the case for the US dollar. While the actual trade of the Maldives with the United States is relatively small, a large majority of trade transactions are carried out in US dollars, as it is a major vehicle currency throughout the world, especially in the Asia region. While this does not preclude the importance of other currencies in influencing the effective exchange rate indices, this justifies a higher weight allocation to the US dollar than its trade share warrants. Consequently, the share of currencies not included in the imports and exports currency baskets were allocated to the US dollar.

In the case of tourism shares, a slightly different approach is used. Given that a number of countries not included in the tourism currency basket are Euro area countries, these shares were allocated on this basis to the euro. The remaining was allocated to the US dollar. However, the weights shown for the euro area in Table 1 do not include the four Euro countries already included in the basket, namely Austria, France, Germany and Italy. This is to identify their individual affect. The additional allocation of trade shares to the US means that the highest individual trade weight is on the US dollar, at about 25 per cent in the aggregated trade weights. While this percentage is lower for exports and tourism weights, a share of over 40 per cent on average is assigned to the US in imports-based weights.

The price or cost indices typically used in calculating REERs are CPIs, unit labour costs, producer price indices (PPIs, also known as wholesale price indices, WPIs), GDP deflators or export and import unit values. Each of these indices has its own advantages and disadvantages. Of all the indices, CPI is the most frequently used price index, as it is more readily available than the other indices, especially for developing countries. The main criticism of CPI is that it includes the price of non-tradable items, which may bias

the degree of competitiveness measured by the RER (Lafrance, Osakwe, & St-Amant, 1998).

In the Maldives, only the CPI and GDP deflators are available. The GDP deflators are only available annually, whereas CPI data are available on a monthly basis. Recently, the Maldives have also begun to publish PPI, but this is available only from 2001 on a quarterly basis. As only CPI data can be used on a monthly basis, this study uses CPI as the price index to construct the monthly RER index.

3. Computation of Real and Nominal Effective Exchange Rates

To calculate the bilateral RERs and the effective exchange rates, the nominal official exchange rate of the rufiyaa per US dollar and the cross rates of US dollar against the currencies of the Maldives's major trading partners are used. The data used in the construction of the indices are from different sources. The trade data was mainly collected from the Maldives Monetary Authority (2009, 2011). The NER and CPI data were extracted from the IMF's International Finance Statistics (IFS) database. The CPI data for China was obtained from the OECD's Statistics website (OECD), as only the percentage change in CPI was available on the IFS database. For the European countries, Euro conversion rates were used to convert the national currency exchange rates to Euro equivalents prior to the adoption of Euro. As the trade share of other European countries not included in the currency basket was allocated to the Euro, the exchange rate and CPI for the Euro area was required. Since this was not available for the period prior to 1998, German data was used as a reference for the period. For all the data series, both the monthly and annual data were collected for the period 1990–2010.

Using Equation 1 for NEER and Equation 2 for BRER which is then used to calculate REER using Equation 3 exchange rate indices are constructed for the Maldives. The reference year for the indices is 2000=100. Since the trade weights used in the construction of indices are time varying, the index numbers for different periods were chained-linked.

The NEER and REER using import weights (M), export weights (X), tourism weights (T) and aggregate trade weights (TW) are calculated for the Maldives, both on a monthly basis and on an annual basis, for the period 1990–2012 (end of March). The movements in these indices are briefly discussed below.

4. Developments in Real and Nominal Effective Exchange Rates

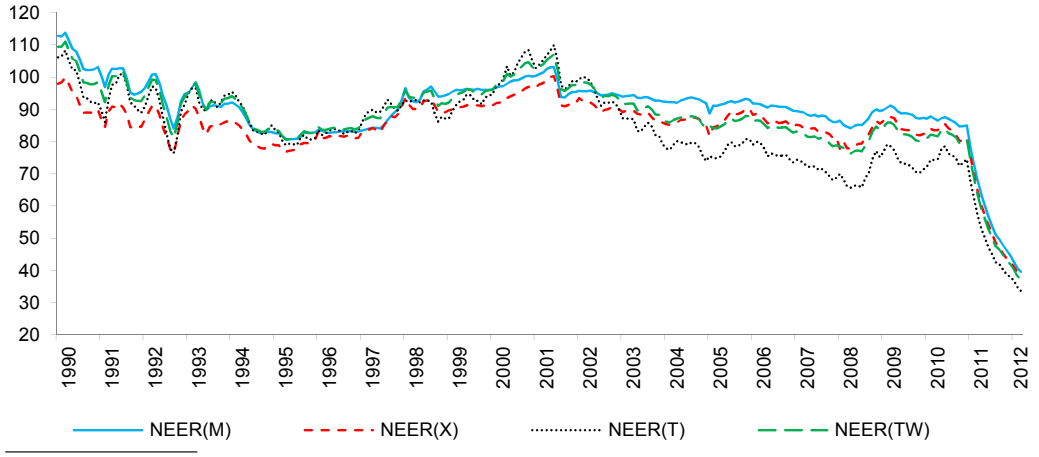
The four measures of NEER are shown in Figure 1, and it is seen that all the four NEER measures have approximately the same trends. However, the magnitude of change differs across the indices, especially between the tourism-weighted NEER and the import-weighted NEER (NEER(T) and NEER(M)). The movements in NEER mainly reflect the movements of US dollar against the main trading partners of the Maldives as the exchange rate of the country is pegged to the US dollar. The large depreciation of NEER in 2011 is the result of the change in exchange rate regime in April 2011[5] which led to a rapid depreciation of the Maldivian rufiyaa by 20 per cent in the following months.

The movements in aggregate trade-weighted REER index are shown in Figure 2. The developments in the REER can be divided into five phases. The first phase is the early 1990s, during which the REER (TW) was relatively volatile due to the macroeconomic imbalances facing the country. As part of the economic stabilisation program that was implemented, the rufiyaa was pegged to the US dollar in 1994. The second phase is from 1994 to the 2001 devaluation of the rufiyaa against the US dollar. This was a period of a steady appreciation of the REER (TW).

The third phase is the period following the July 2001 devaluation of the rufiyaa until mid-2007. During this period, the REER (TW) depreciated significantly, tracking the weakening of the US dollar in the international market. The fourth phase is the period

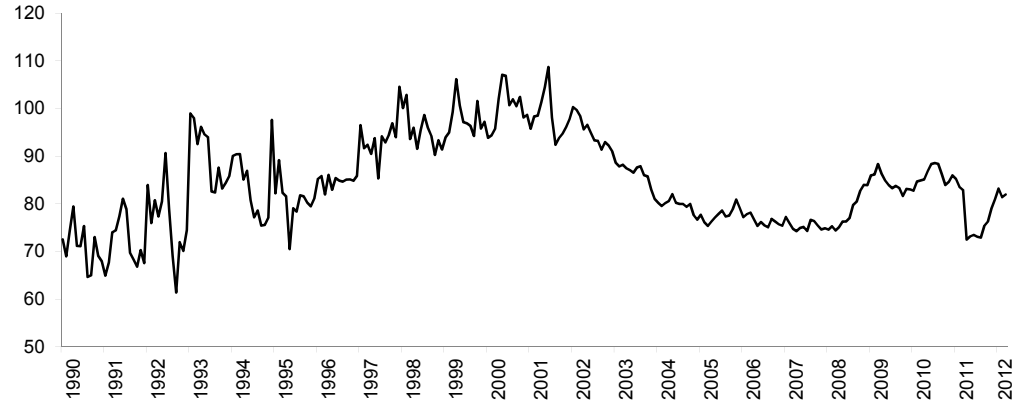
Figure 1: Measures of NEER, 1990–2012

index (2000=100)



5 The exchange rate regime was changed in April 2011 from a conventional peg to the US dollar to a peg within a horizontal band of 20 per cent around a central parity of MVR12.8 per US dollar.

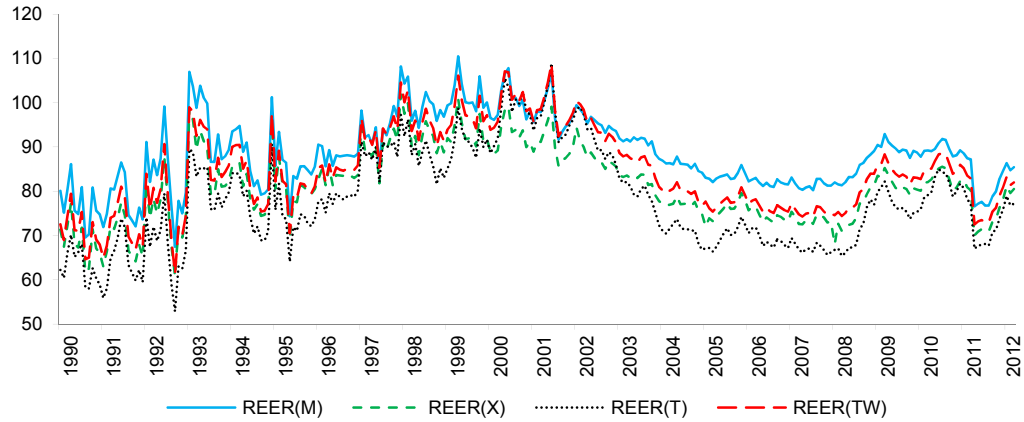
Figure 2: Real Effective Exchange Rates, Aggregate Trade-Weighted, 1990–2012
index (2000=100)



from 2007 to early 2011, up to the change in exchange rate regime in April 2011. During this period the REER (TW) appreciated, owing to the higher rates of inflation in the Maldives and the relative strength of the US dollar against major currencies. In the last phase, the REER depreciated sharply following the depreciation of the NER with the change in exchange rate regime in April 2011. Since then REER has shown to be moderately appreciating due to the high relative prices in the Maldives.

As seen in Figure 3, the four REERs computed—REER(M), REER(X), REER(T) and REER(TW)—follow the same patterns, but the magnitude of change in the indices differs. Since the import-weighted REER has a higher share of US dollar than the other three indices, the scale of depreciation and appreciation over the period is relatively low, compared to other indices.

Figure 3: Comparison of the Different Measures of REER, 1990–2012
index (2000=100)



The average rates of depreciations and appreciations for different periods during 1990–2011 for the four different REER indices are shown in Table 2. As also evident from Figure 3, the level of appreciation and depreciation for the four indices are significantly different from one another. The tourism-weighted index experienced the largest appreciations and depreciations compared to other indices. During the period 2001–2007, the REER(T) depreciated by 39 per cent, increasing the relative competitiveness of the Maldives exports. This means that both exports of goods and tourism services in the Maldives were relatively cheaper for foreign importers or tourists during this period. While this gain in competitiveness in the export of goods appears obvious, it is less clear how much competitiveness would be gained by the tourism sector from the REER depreciation. This is because the REER depreciation makes the imports into the country relatively more expensive, which would increase the costs in the tourism sector given the heavy reliance of the sector on imports. Moreover, the usefulness of REER as a competitiveness indicator for the tourism sector is unclear. Apart from the previously mentioned impact of imports, a large proportion of employees in the tourism sector are foreign workers and their wages are set and settled in US dollars. Therefore, the relative costs of the tourism sector due to an exchange rate change may not have the same impact as goods exports. The negative values for 2011 shows the effect of nominal depreciation of rufiyaa against the US dollar due to the exchange rate regime change in April 2011.

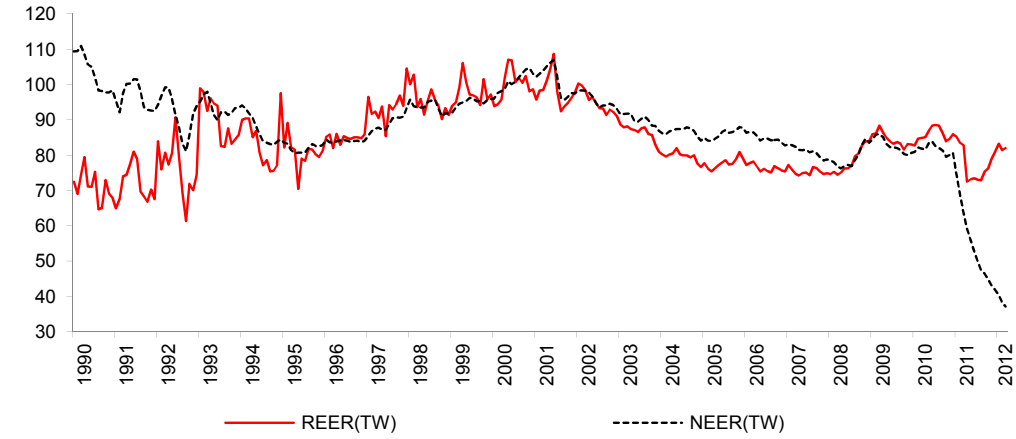
Figure 4 compares the aggregate trade-weighted NEER and REER. This shows that in the pre-exchange rate peg period, NEER depreciated significantly, while the REER appreciated. The appreciation of the REER was the result of the high rates of inflation experienced during that period.

Table 2: REER Appreciations and Depreciations

	1990-1995	1995-2001	2001-2007	2007-2010	2011
REER (M)	4.2	24.7	(23.8)	9.8	(5.1)
REER (X)	9.0	23.1	(26.3)	12.6	(4.9)
REER (T)	15.5	47.8	(39.1)	23.4	(7.1)
REER (TW)	9.0	34.0	(31.1)	14.8	(5.9)

Note: a positive (negative) figure indicates an appreciation (depreciation)

Figure 4: Real and NEER, Trade-Weighted, 1990–2012
index (2000=100)



5. Conclusion

This article presented a methodological framework for constructing the REER and NEER for the Maldives. Although the NER of the Maldives is fixed against the US dollar, the NERs against other major trading partners and the RERs always fluctuate. Therefore, it is important to construct these indices for the Maldives, both for use in monitoring their development and for future exchange rate analysis.

The construction of effective exchange rate involves several issues. One important issue is the choice of trade weights. The countries that were included in the trade weights accounted for almost 80 per cent of the trade, and individually accounted for 1 per cent or more of the Maldives trade. Given the significant difference in trading partners in relation to imports, exports and tourism, weights were calculated for each sector separately and then as an aggregate to represent total trade in goods and services. Another issue is the choice of price index. In REER construction CPI data is used, as this is the only data series available at the required frequency, for the required length of time.

Eight indices were calculated for the Maldives for the period 1990–2010, on both a monthly and annual basis. The effective exchange rate indices were relatively stable in the Maldives, although there had been periods of large exchange rate appreciations and periods of depreciations that were more moderate. All the indices constructed using the different trade weights showed similar trends, although the magnitudes of those changes differed.

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AN ANALYSIS OF OUTBOUND TRAVEL OF MALDIVIANS

*by: Idham Hussain and Mohamed Amdhan**

1. Introduction

A large number of Maldivians travel out of the country every year. The purpose of travel ranges from seeking medical services, education and training, business and official trips or holidaying. Many Maldivians travel abroad for dual purposes, most commonly holidays would include medical checkups and treatments. The expenditure on these outbound travels is captured in the travel payments component of the balance of payments (BOP) and is one of the largest components of the services payments of the Maldives BOP. As it is not possible to obtain the exact expenditure of outbound travel, estimates have to be made based on spending patterns of Maldivians while abroad based on surveys. Hence, as part of work carried out to improve the coverage of BOP statistics as well as to improve the estimates made for travel payments, the Maldives Monetary Authority (MMA) conducted a survey[1] on "Maldivians Travelling Abroad (MTA)" during the last two weeks of December 2011. The objective of the survey was to investigate the patterns of Maldivians travelling in terms of travel destinations, purpose of visit and also to examine the pattern of their spending.

This article discusses the outbound travel of Maldivians in the light of the MTA survey results. The first section analyses the recent trends and developments in outbound travel

1 This survey was conducted by the Statistics Division of the Maldives Monetary Authority and the survey team included Abdul Majid, Mansoor Zubair, Mohamed Amdhan, Mohamed Sofwaan Hassan, Aishath Shahuru, Mariyam Jailam Mujthaba, Ibrahim Lameer Abdul Baree, Ahmed Nazeeh Mohamed, Ahmed Munawar, Hassan Fahmy and Aminath Seema.

* The authors are from the Statistics Division of the MMA. They would like to thank Azeema Adam for her comments on the aricle. This was previously published in Q3-2012's Quarterly Economic Bulletin.

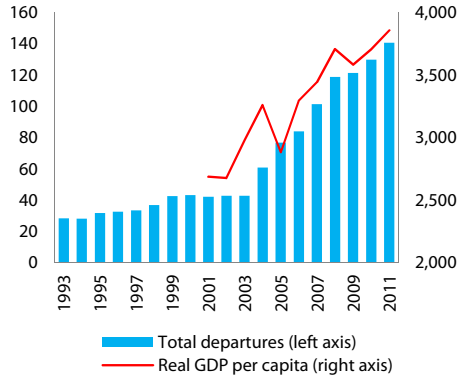
by Maldivians. The second section discusses the main outbound travel destinations of Maldivian residents, reasons for travelling abroad and expenditure patterns based on the MTA Survey.

2. Maldivian Outbound Travel Market

Maldivians travelling abroad has increased steadily, especially in recent years. The trend is driven by the rapid economic growth in the past couple of decades and the associated increase in general levels of income of the Maldivians. As in other developing countries with improved income and easier access to foreign countries people tend to travel abroad more, and Maldives is no exception. Data from the Department of Immigration and Emigration of the Maldives shows that the outbound travel has increased more than fivefold at an annual average rate of 9% from 1993 to 2011, with absolute numbers increasing from about 28,354 thousand international trips in 1993 to 140,594 thousand in 2011.

The data shows a rapid growth in outbound travel by Maldivians since 2003, with a sharp increase in 2004 (see Figure 1). Maldivians travelling abroad has increased by an annual growth rate of 14% during the period 2003–2011, and during this period gross domestic product (GDP) per capita of the country increased by an annual rate of 3% from US$2,979.2 in 2003 to US$3,855.0 in 2011. The higher income levels in the country

Figure 1: Maldivian Departures, 1993–2011
(departures in thousands; GDP per capita in millions of US dollars)



Source: Department of Immigration and Emigration; Department of National Planning

coupled with availability of holiday packages and cheap airfare deals, especially to neighbouring countries, may have contributed to the rapid growth in Maldivians travelling abroad in recent years.

The number of total overseas trips by Maldivians as a proportion of population is quite high in the Maldives, and it has increased from 28% in 2006 to 43% in 2011[2].

India and Sri Lanka tend to be the most popular destinations for Maldivians. According to the Ministry of Tourism of India and the Sri Lankan Tourism Development Authority, total Maldivian visitors to India and Sri Lanka on average has increased by 9% and 11% respectively from 2006 to 2011. As such Maldivians tourists to India increased from 37,652 in 2006 to 54,118[3] by the end of 2011 while Maldivian tourists to Sri Lanka increased from 24,831 to 44,018 during the same period. Total Maldivian tourists to both these countries together comprise of 70% of the total outbound travel. The short proximity of Sri Lanka and India to the Maldives, and availability of relatively cheaper and more frequent flights makes it easier for Maldivians to travel to these countries. According to the information from the Civil Aviation Authority flight movements to both India and Sri Lanka has also increased steadily in recent years. Movements of Indian Airlines increased from 820 flights in 2006 to 1,404 flights in 2011. Meanwhile, movements of Sri Lankan Airlines increased from 2,184 flights in 2006 to 3,642 flights. In addition, Maldivian Airline, the national airline of the Maldives also commenced its international flights to Trivandrum-India and Colombo-Sri Lanka in 2008 but the Colombo route was discontinued later in 2010. Further, the relatively lower costs for accommodation, living and other services in Sri Lanka and India compared to other countries, such as Singapore and Thailand, are additional reasons for the high proportion of Maldivian travellers to these countries.

3. Maldivians Travelling Abroad Survey

The MMA conducted the MTA survey as part of the work to improve the estimates made for travel payments, the biggest component of services payments of the Maldives BOP. The objective of the survey was to investigate the outbound travel patterns of Maldivians in terms of travel destinations, purpose of visit and expenditure.

2 Mid-year population projections – Statistical Year Book 2011/ Department of National Planning

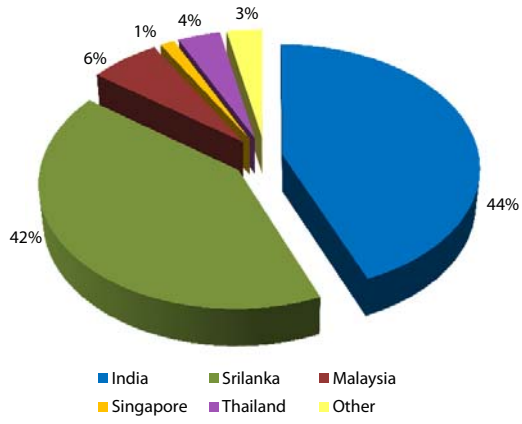
3 Preliminary data for 2011

The MTA survey was carried out during the peak season from 16–29 December 2011, for a period of two weeks at the arrival hall of Ibrahim Nasir International Airport. According to the information provided by the Department of Immigration and Emigration, 8,776 Maldivian passengers arrived from abroad during the two week survey period. The sample concentrated on the carriers with the highest number of Maldivian passengers. Although participation in the survey was voluntary, the aim was to cover information from the highest possible number of Maldivians who were returning from abroad. During the survey about 83% of the Maldivians who returned from abroad were interviewed. The survey was conducted using a questionnaire, and the questions were asked face-to-face. The interviewers questioned the Maldivian passengers after immigration clearance, while they waited to reclaim their luggage.

3.1 Destination of Travel

According to the survey results, the five most popular destinations for the Maldivians are India, Sri Lanka, Malaysia, Thailand and Singapore (Figure 2 and Table 1). As observed in the Maldivian outbound travel market analysis, the MTA survey data also revealed that the most popular destination with the largest number of visitor arrivals was India, with 1,362 visitors or 44% of the total respondents. This is followed by Sri Lanka with 1,292 outbound travellers or 42% of the respondents Maldivian visitors to Malaysia and Thailand represented 6% and 4%, respectively.

Figure 2: Popular Destinations for Maldivians



Source: Maldivians Travelling Abroad Survey, December 2011

Table 1: Number of Maldivians Travelling Abroad, Categorised by Country and Purpose of Visit

Country	Medical	Vacation	Education & training	Business & official	Other purposes	Total
India	1,127	134	44	9	48	1,362
Sri Lanka	738	376	51	60	67	1,292
Malaysia	11	101	62	10	16	200
Singapore	25	6	5	3	2	41
Thailand	59	27	2	29	4	121
Other countries	19	14	36	17	15	101
Total	**1,979**	**658**	**200**	**128**	**152**	**3,117**

Source: Maldivians Travelling Abroad Survey, December 2011

3.2 Analysis by Purpose of Travel

Table 1 shows the destinations and purposes for travelling abroad based on the data collected from the survey. The major reasons for travelling abroad have been reported as medical, vacation or education. They are discussed below in more detail. Other than these, some travellers identified their purpose of travel as "Business and Official" and also as "Other purposes". However, due to variations in the expenditure patterns in such cases, the two areas are not discussed in this article.

Medical and Healthcare

The survey results confirm that a larger proportion of outbound travel is for medical purposes. As such, 63% of the total Maldivians travelled for medical purposes.

The most popular destination for medical purposes among Maldivians is India with 1,127 visitors (57% of total) followed by 738 (37%) visitors to Sri Lanka and 59 (3%) visitors to Thailand. Only 1% of Maldivians travelled to Singapore and Malaysia for medical purposes.

Vacation

The survey results reveal that, of the respondents who travelled for vacation, 57% went to Sri Lanka. This is followed by India, accounting for 20%, and Malaysia with 15%. The popularity of Malaysia as a holiday destination may be due to the growing Maldivian student population in Malaysia, with their families visiting them.

Table 2: Destination and Expenditure of Maldivians Travelling Abroad for Medical Purposes

Country	**No. of people**	**Duration of stay per person** (in days)	**Average expenditure per person per trip** (in US dollars)		
			Per day	**Airfare**	**Expenditure abroad**
India	1,127	19	57	350	753
Sri Lanka	738	14	75	196	709
Malaysia	11	17	144	649	1,297
Singapore	25	7	290	701	1,717
Thailand	59	12	152	616	925
Other countries	19	15	28	492	409
Total[1/]	**1,979**	**17**	**69**	**317**	**762**

[1/]Weighted average (weight being number of people)
Source: Maldivians Travelling Abroad Survey, December 2011

Table 3: Destination and Expenditure of Maldivians Travelling Abroad for Vacation

Country	**No. of people**	**Duration of stay per person** (in days)	**Average expenditure per person per trip** (in US dollars)		
			Per day	**Airfare**	**Expenditure abroad**
India	134	21	50	348	958
Sri Lanka	376	14	115	186	655
Malaysia	101	18	69	551	883
Singapore	6	22	619	742	2,950
Thailand	27	15	86	588	600
Other countries	14	20	2	1,026	63
Total[1/]	**658**	**17**	**100**	**317**	**834**

[1/]Weighted average (weight being number of people)
Source: Maldivians Travelling Abroad Survey, December 2011

The average duration of Maldivians travelling on vacation is 17 days. This was highest for India with 21 days while the lowest was for Sri Lanka with 14 days. Meanwhile on average Maldivian vacationers spend about 18 days in Malaysia, 22 days in Singapore and 15 days in Thailand.

Table 4: Destination and Expenditure of Maldivians Travelling Abroad For Education and Training

Country	No. of people	Duration of stay per person (in days)	Average expenditure per person per trip (in US dollars)		
			Per day	Airfare	Expenditure Abroad
India	44	482	29	385	1,558
Sri Lanka	51	250	111	258	1,971
Malaysia	62	290	43	527	3,539
Singapore	5	203	-	795	-
Thailand	2	19	-	548	-
Other countries	36	208	50	1,278	2,467
Total[1/]	**200**	**303**	**58**	**551**	**2,420**

[1/]Weighted average (weight being number of people)
Source: Maldivians Travelling Abroad Survey, December 2011

Education and Training

The most popular destination for education and training was Malaysia which represented about 31% of the 200 students interviewed. This was followed by Sri Lanka (26%) and India (22%). There were a very few locals who returned home from Singapore and Thailand who stated that their purpose of travel was for education and training, and these numbers were too low to make the sample representative. These participants probably represented the government sponsored personnel who went for short-term training to these countries.

3.3 Expenditure of Maldivians Travelling Abroad

In 2011, it is estimated that the Maldivians spent a total of US$209 million on travels abroad. This is an increase of US$149 million or a rise of more than threefold compared to 2005[4]. According to the survey results total expenditure per person per trip was highest for education purposes with US$2420 while the second highest was for vacation purposes with US$834. About US$762 per person per trip was spent on medical and healthcare trips. These expenses are discussed below in more detail.

4 BOP Statistics – Maldives Monetary Authority

Medical and Healthcare Expenses

With regard to travel expenditure, Maldivians travelling for medical purposes spent on average US$57 per day in India while they spent US$75 per day in Sri Lanka, according to the survey results. Therefore, on average, a Maldivian would spend about US$753 per medical trip in India and US$709 per medical trip in Sri Lanka. The reason why these amounts are low may be because they were able to arrange free accommodation, food or transport through friends and family. The survey participants confirmed that they receive such benefits from the migrant Maldivians living in these two countries.

The survey results show that the Southeast Asian countries are more expensive and this may be the main reason why Maldivians did not prefer to travel to these countries for medical and healthcare purposes. In this regard, on average a Maldivian travelling for medical purposes spends about US$290 per day in Singapore, US$152 per day in Thailand and US$144 per day in Malaysia. On this basis, the average expenditure per trip stands at US$1,717 for Singapore, US$1,297 for Malaysia and US$925 for Thailand.

To compare, a Maldivian travelling for medical purposes spends about US$70 per day in India or Sri Lanka while their counterpart spends close to US$200 per day in a South East Asian country.

The average duration of stay for Maldivians who travelled for medical purposes was 19 days for India and 14 days for Sri Lanka. Of the Maldivians who travelled to Malaysia and Thailand for medical purposes the average duration of stay of was 17 and 12 days, respectively while for Singapore it was 7 days on average. The average duration of stay is almost the same for each of these destinations except for Singapore and it appears that the duration of stay is influenced by the cost of stay rather than the condition for which medical attention was being sought.

Vacation Expenses

The survey results revealed that Maldivian vacationers spent US$100 per day on average while on vacation. With an average stay of 17 days abroad, the total expenditure for a vacation trip is estimated at US$843. As regards, expenditure in individual countries, the survey results showed that the Maldivians spent about US$50 per day in India and

US$115 per day in Sri Lanka. The expenditure for Malaysia was US$69 per day while such expenses for Thailand was US$86. Some travellers who returned from Singapore revealed that their expenditure averaged around US$619 per day. Meanwhile the average expenditure per trip was US$958 for India and US$655 for Sri Lanka. Maldivian vacationers spent the highest amount per trip in Singapore reaching almost US$3,000.

Education and Training Expenses

Detailed information regarding educational fees and total expenditure were very difficult to obtain because most of the respondents were unable to recall such expenses. This may be due to the fact that most of the students usually go on scholarship programs or the parent administers the expenses relating to university/college fees and charges, and as a result, the students may not be aware of the exact amount of costs for their education.

4. Conclusion

Maldives outbound travel analysis shows that the Maldivians travelling abroad have increased steadily, especially in recent years. The two most popular destinations for Maldivians were India and Sri Lanka. Maldivians also frequently visit Malaysia, Thailand and Singapore. The major reasons to travel abroad have been reported as medical, vacation or education. The survey results suggest that the most popular destination for medical purposes is India followed by Sri Lanka. The third most popular destination for medical purposes is Thailand. While Sri Lanka is a popular destination for vacations, Malaysia appears to be the most popular for education. Businessmen seem to have more business-related work in Sri Lanka and Thailand than in India or Malaysia.

It is important to highlight that there were a number of unforeseen obstacles that affected the data collection process during the survey period. Firstly, the sample for the survey was chosen based on a convenience sampling method which may reduce the randomness in the selection process. This may limit, to some extent, the relationship or representativeness of the sample with the population. Secondly, the survey period was targeted for the school holiday period i.e. the most popular season for Maldivians to travel abroad which however may not coincide with the semester breaks and holidays of Maldivian students living abroad, limiting the representativeness of the student

population in the survey. Lastly, many students were not able to recall sufficient information regarding tuition fees and monthly expenses. Therefore, such information is likely to be very much undervalued in the survey findings.

A further evaluation of the spending patterns of "Business and Official" and "Other purposes" categories is necessary to understand the expenditure patterns for those respondents who claimed to have travelled for reasons other than medical, vacation or education.

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