



# **Annual Market Report: Telecommunications and Broadcasting Sectors**

**January – December 2010**

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## **1. Overall Market Data**

As in previous reports published by the Telecommunications Authority of Trinidad and Tobago (the Authority), this report presents annual information on the markets within the telecommunications and broadcasting sectors which includes data on subscriptions, gross revenues and traffic of the relevant markets. The data collected is also used by the Authority to determine the market share of the relevant service operators and to monitor and inform policy decisions that will facilitate the orderly development of markets within these sectors.

The data presented is based primarily on the results of completed questionnaires by operational concessionaires within the telecommunications and broadcasting sectors for the period 1st January to 31st December 2010, historical data series and other information made available to the Authority at the time of publication of the report.

The Authority publishes quarterly market updates on the telecommunications and broadcasting sectors to supplement this Annual Market Report.

### **1.1 Total Authorization**

Under the Telecommunications Act 2001, the Authority is responsible for making recommendations to the Minister of Public Administration for the granting of concessions to telecommunications and broadcasting operators (Section 21(5)). To date one hundred and five (105) concessions were granted to seventy six (76) service providers by the Minister based on the Authority's recommendations.

While this figure represents the number of authorizations granted, it may not reflect the total number of telecommunications and broadcasting service providers currently operating in the industry. In particular there are some concessionaires in the international and fixed voice markets who have been granted concessions but are yet to launch their services to the public.

Table 1 provides a list of the number of concessions granted, authorised concessionaires and the number of providers operational in the various markets as at December 2010.



**Table 1: Number of Concessions, Concessionaires and Operators as at December 2010**

<b>Network Category</b>	<b>Service Provided</b>	<b>Authorised Concessions<sup>1</sup></b>	<b>Operational Concessionaires</b>
<b>International Telecommunications</b>	Facilities only	1	1
	Facilities and/ or Services	10	8
<b>Mobile Telecommunications</b>	Mobile voice and Internet services	2	2
<b>Fixed Telecommunications<sup>2</sup></b>	Fixed Telephony	7	2
	Fixed Internet		7
<b>Subscription TV (Pay TV)</b>		9	9
<b>Free to Air Radio Broadcasting</b>		37	37
<b>Free to Air Television Broadcasting</b>		9	9
<b>TV Broadcasting via Cable</b>		1	1
<b>Total</b>		<b>76</b>	<b>70</b>

Source: TATT

A detailed list of concessions granted by the Authority can be found in Appendix II and at the website <http://www.tatt.org.tt>

In addition to the concessions, under Section 36 of the Telecommunications Act 2001, the Authority is authorized and responsible for the granting of licences. In accordance with these legislative powers, for the period January to December 2010, the Authority granted a total of 321 licences.

<sup>1</sup> Concessions are granted to persons or companies to provide telecommunications and/ or broadcasting services.

<sup>2</sup> One concession is granted for the provision of both fixed telephony and fixed Internet services and/or networks

Table 2 lists the categories and the number of licences granted during 2010.

**Table 2: Number of Licences Granted for the period January to December 2010**

Type of Licence		2010
<b>Spectrum</b>	Cellular Mobile	<b>0</b>
	Land Mobile	<b>110</b>
	Point-to-Point	<b>12</b>
	Point-to-Multipoint	<b>7</b>
<b>General Radiocommunications</b>	Satellite Earth Stations	<b>38</b>
	Amateur Stations	<b>49</b>
	Maritime Stations	<b>57</b>
	Aeronautical Stations	<b>45</b>
<b>Broadcasting</b>		<b>3</b>
<b>Total</b>		<b>321</b>

Source: TATT

## 1.2 Overview of the Telecommunications and Broadcasting Sectors

### 1.2.1 Market Revenue Contributions to the Industry

As at December 2010, the estimated gross revenues obtained by the telecommunications and broadcasting sectors totalled TT\$4.5 billion<sup>3</sup> or US\$713.1 million<sup>4</sup> which comprised approximately 3.5 per cent of GDP<sup>5</sup> for 2010. This represented an increase of 4.0 per cent over the last year. Of this amount, mobile services contributed the highest towards total revenues with \$1.9 billion, or 43.5 per cent. This was followed by fixed<sup>6</sup> voice services which contributed approximately \$783.4 million or 17.4 per cent. The next highest revenue earner for the industry was Internet services contributing \$553.6 million or 12.3 per cent. Following closely behind were subscription television services and International<sup>7</sup> services whose contributions totalled \$489.5 million and \$295.4 million respectively, that is 10.9 and 6.7 per cent. Next in line was free to air radio services recording \$166.9 million or 3.7 per cent. Free to air television recorded for the industry were estimated to be \$132.1 million or 2.9 per cent of gross revenues. The lowest contributors were leased line services and other revenues<sup>8</sup> with earnings of \$86.5 million and \$25.4 million respectively, 1.9 and 0.6 per cent.

To summarise the above information, Figure 1 illustrates the revenues earned within the industry while Figure 2 shows the percentage revenue contribution by each market towards overall gross revenue of the industry.

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<sup>3</sup> This figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services.

<sup>4</sup> Estimated exchange rate US\$1=TT\$6.3

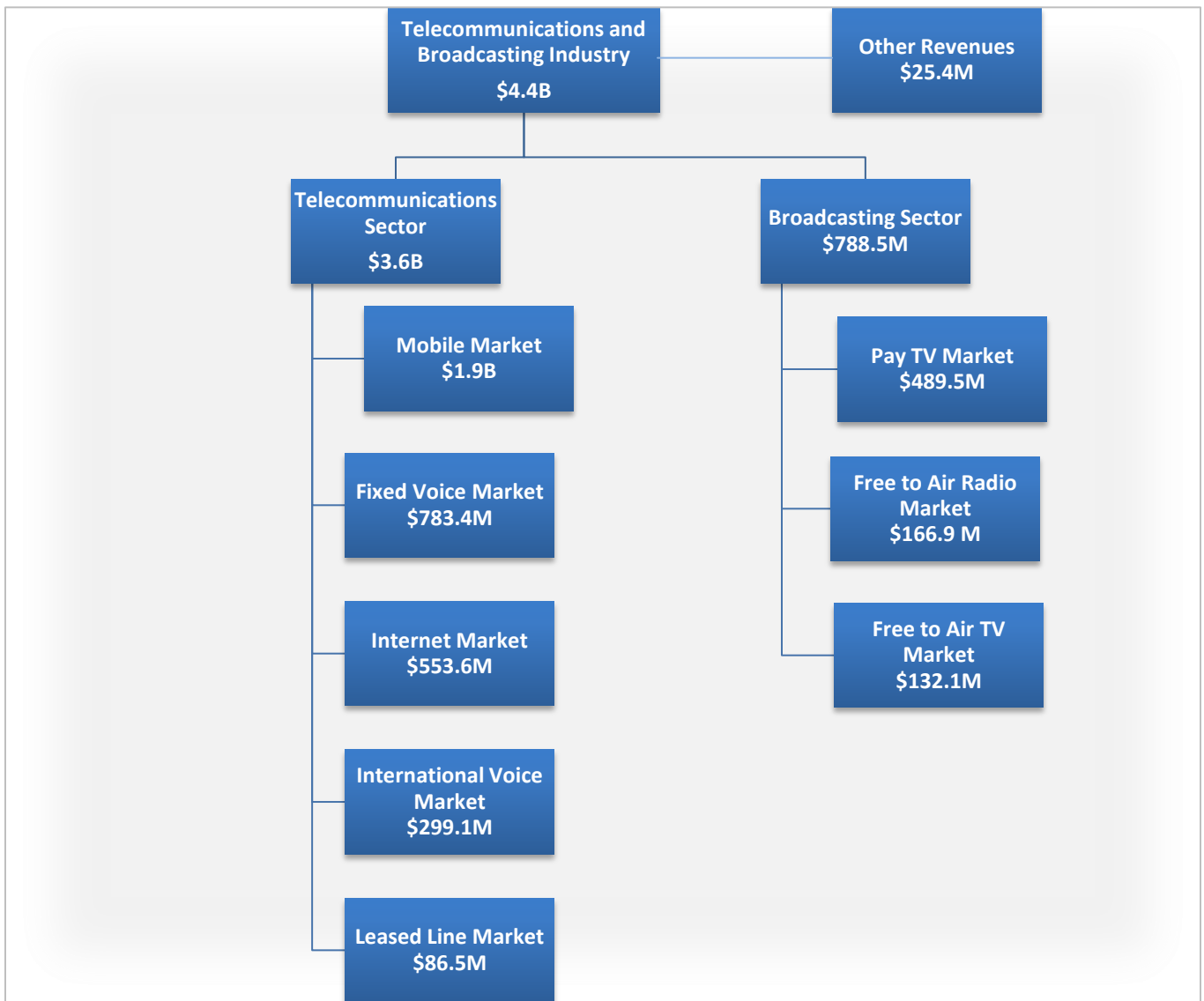
<sup>5</sup> The Central Bank of Trinidad and Tobago has recorded Gross Domestic Product (GDP) at current market prices for 2010 to be TT\$129.8 billion.

<sup>6</sup> Fixed market revenues include revenues earned from fixed voice and access (excluding international) services.

<sup>7</sup> International market revenues are equal to the sum of gross revenues obtained from outgoing and incoming int'l traffic.

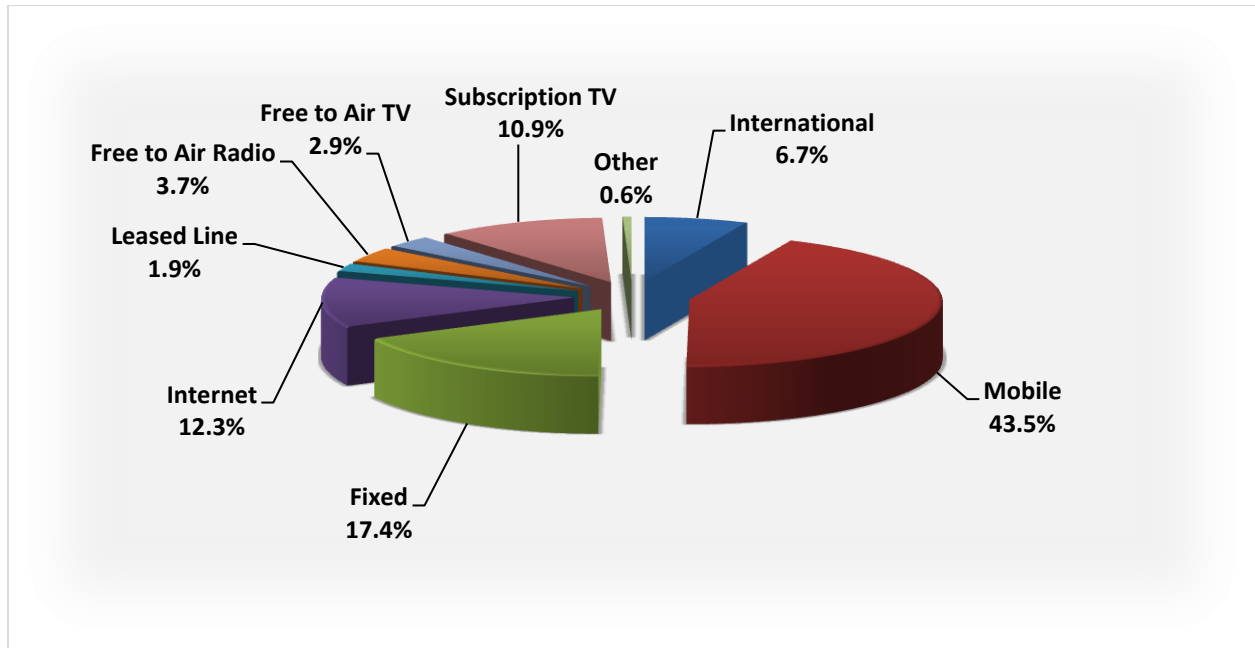
<sup>8</sup> Other revenues comprise revenues earned from both the telecommunications sector and the broadcasting sector such as revenues received from wholesale services and Production and Air time for local programming on Pay TV See sections 1.2.2 and 1.2.3 for further definitions

**Figure 1: Industry, Sectors and Markets Revenues 2010**



Source: TATT

**Figure 2: Percentage of Gross Revenues contributed by Markets 2010**



Source: TATT

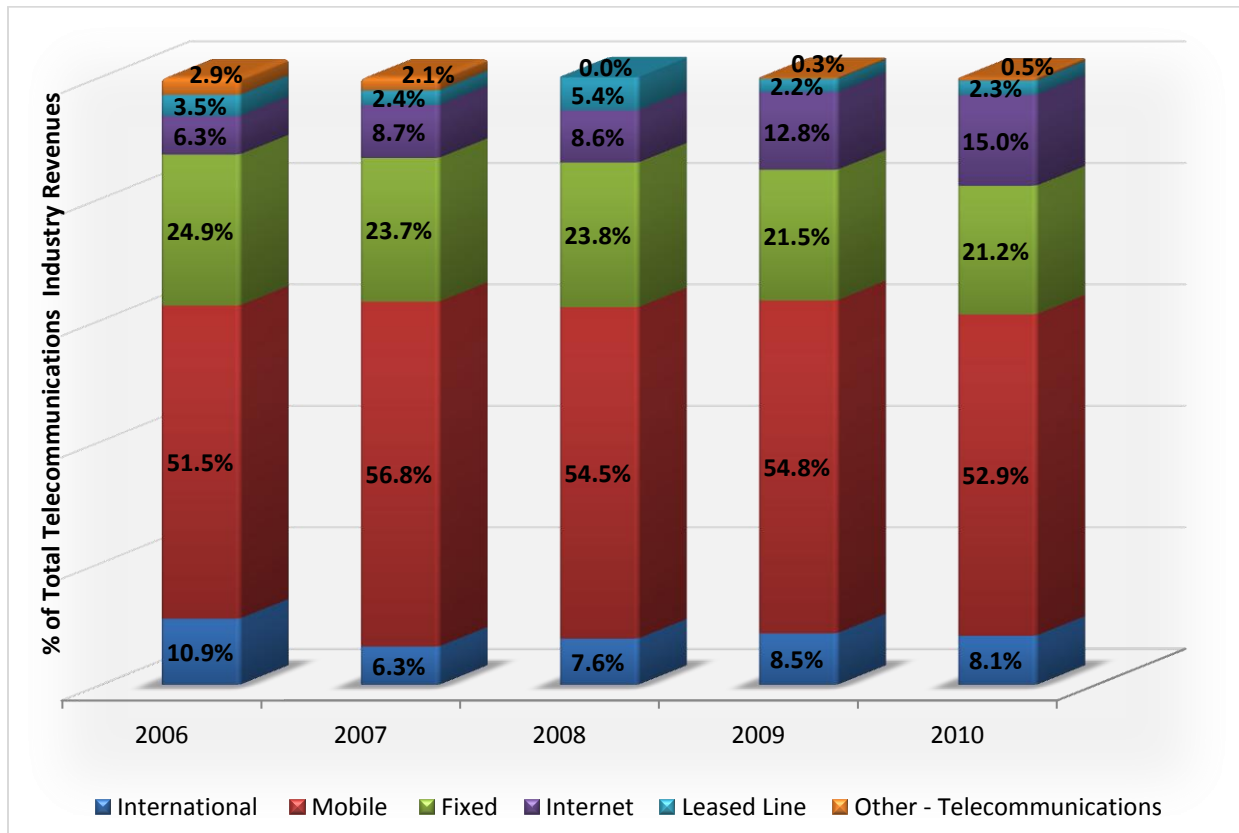
### **1.2.2 Trends in Market Revenue Contributions to the Telecommunications Sector**

For the 2010 period, \$3.6 billion or 82.3 per cent of overall industry revenue was contributed by the telecommunications sector. Of the five main markets within this sector, the mobile market continued to collect the majority of revenues, accounting for 52.9 per cent of total telecommunications revenues. The fixed telephony market generated the second highest revenues with 21.2 per cent, while revenues from the Internet and international markets followed thereafter with 15.0 percent and 8.1 percent respectively. The leased line market earned 2.3 per cent of telecommunications revenues and continued to be the smallest revenue contributor to the sector. ‘Other’ telecommunications revenues<sup>9</sup> contributed 0.5 per cent to total telecommunications revenues.

<sup>9</sup> Other telecommunications revenues earned from service providers in the telecommunications sector include other wholesale services (excluding leased line), high capacity links and two-way radios.

Figure 3 depicts the revenue contributions of the individual markets towards the telecommunications sector.

**Figure 3: Percentage Contributions of Telecommunications Markets towards Sector Revenues 2006 - 2010**



Source: TATT

Figure 3 reveals that the Internet market showed the most significant growth in telecommunications revenue contributions, increasing from 12.8 per cent in 2009 to 15.2 per cent in 2010.

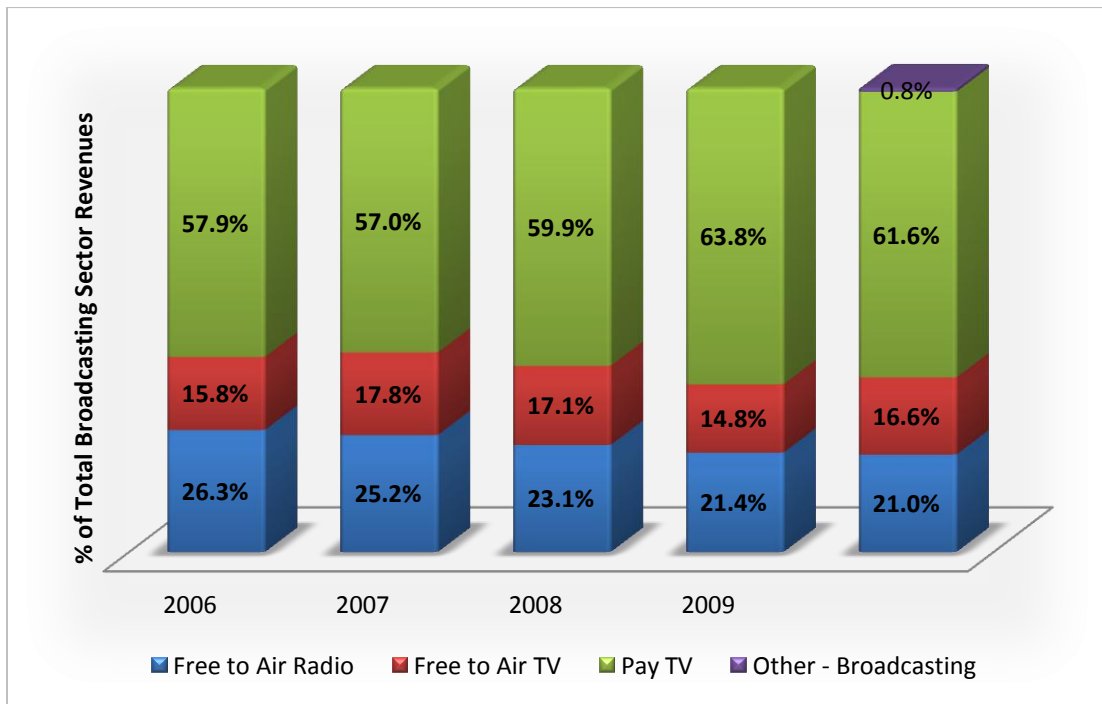
### **1.2.3 Trends in Market Revenue Contributions to the Broadcasting Sector**

For the review period, the broadcasting sector contributed \$794.5 million, or 17.7 per cent towards overall industry revenue. The broadcasting sector is divided into three main markets:

subscription television<sup>10</sup>, free to air television and free to air radio. Similar to the trends experienced over the last five years, the subscription television market continued to earn the majority of revenues in the broadcasting sector, making up 61.6 per cent of broadcasting revenues for 2010. Trailing significantly behind were the free to air radio and free to air television markets earning 21.0 per cent and 16.6 per cent of broadcasting revenues respectively. ‘Other’ broadcasting revenues<sup>11</sup> contributed 0.8 per cent to total broadcasting revenues.

Figure 4 highlights the yearly trends with respect to the revenue percentage contributions by the individual markets towards the broadcasting sector.

**Figure 4: Percentage Contributions of the Broadcasting Markets towards Sector Revenues 2006 - 2010**



Source: TATT

When compared to revenues generated in 2009, free to air television was the only broadcasting market showing any percentage growth for the 2010 period. The free to air radio and subscription TV television markets experienced marginal declines in their revenue contributions towards the broadcasting sector.

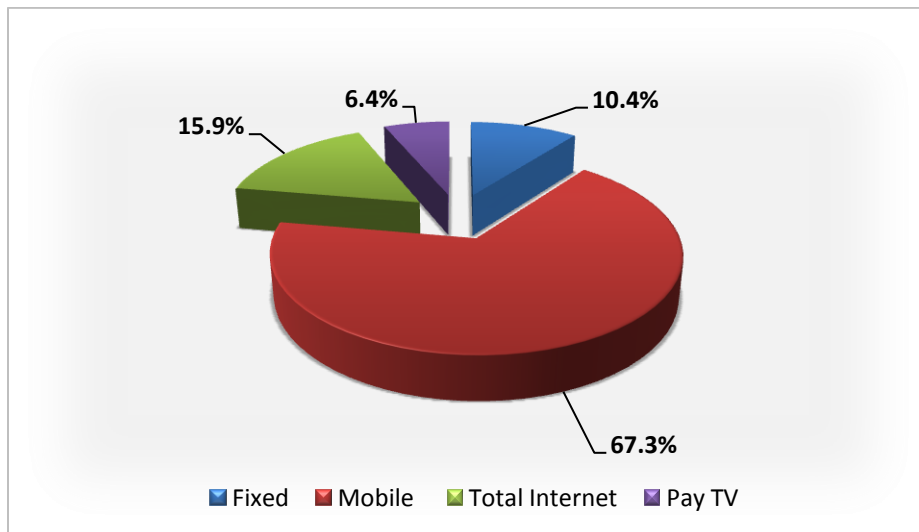
<sup>10</sup> Also known as Pay TV

<sup>11</sup> Other revenues earned from service providers in the broadcasting sector include Production and Air time for local programming on Pay TV

### 1.2.4 Telecommunications and Broadcasting Subscriptions

For the year ending December 2010, the number of subscriptions within the fixed, mobile, Internet and subscription television market segments totalled approximately 2.8 million. This represents an increase of 5.8 per cent or 154.3 thousand more subscriptions than 2009. While the fixed voice market contributed 10.4 per cent towards total subscriptions, a decline of 1.0 per cent from last year, mobile subscriptions comprised 67.3 per cent, also a decrease of 2.1 per cent from 2009. Conversely, total Internet subscriptions contributed 15.9 per cent growing by 3.5 per cent with fixed Internet increasing by 2.1 per cent and mobile Internet growing by 1.4 per cent. Subscription television contributed 6.4 per cent declining slightly from last year by 0.4 per cent. To graphically summarise, contributions by the various market segments towards total industry subscriptions are shown in Figure 5 while Figure 6 compares total industry subscriptions for the period 2006-2010.

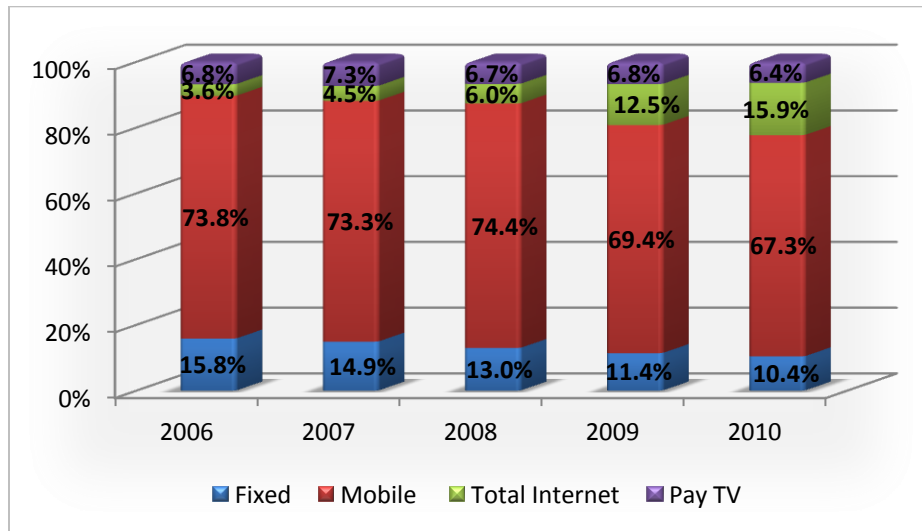
**Figure 5: Market Shares of Total Industry Subscriptions by Service as at December 2010**



Source: TATT



**Figure 6: Market Share of Total Subscriptions by Service for 2006-2010**



Source: TATT

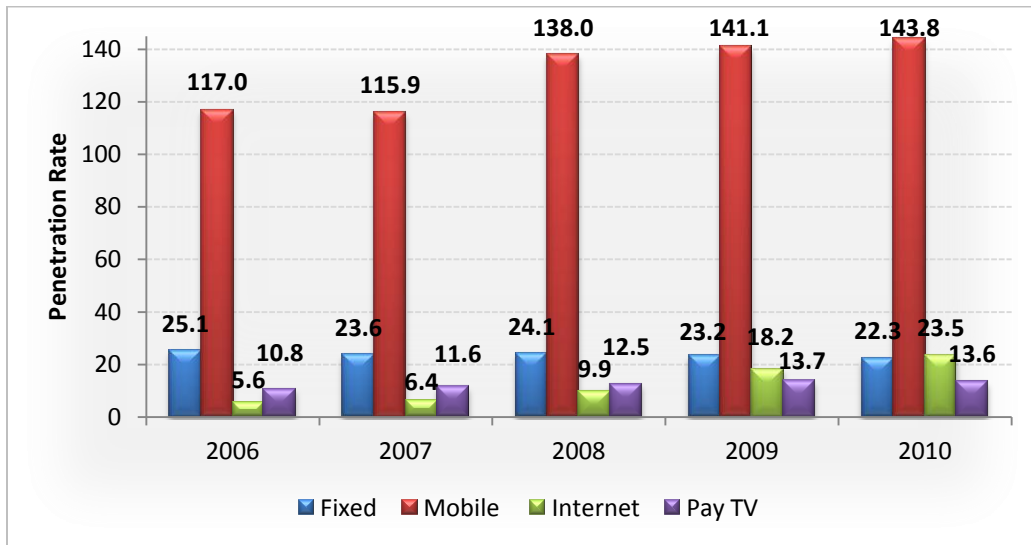
### **1.2.5 Subscription Penetration Rate**

The penetration rate is defined as the number of subscriptions per 100 inhabitants. As seen in Figure 7, the penetration rates<sup>12</sup> for the mobile and Internet markets increased while the penetration rates for fixed voice and subscription television decreased for the 2010 period. Mobile services, with a rate of 143.8, continue to record the highest penetration rate. Internet was the second highest with a penetration rate of 23.5 whilst fixed telephony and Subscription television<sup>13</sup> service followed with penetration rates of 22.3 and 13.6 respectively.

<sup>12</sup> Internet penetration includes both fixed and postpaid mobile Internet penetration

<sup>13</sup> Penetration rate is calculated as follows: (number of subscriptions to the service / population number) \* 100

**Figure 7: Penetration Rate of Subscriptions 2006-2010**



Source: TATT

## **Box 1: Summary Review of Domestic Economy**

Following the trends of the global economy, the domestic economy of Trinidad and Tobago contracted in 2009 due to the global financial crisis of the early twenty first century. This contraction was particularly concerning for Trinidad and Tobago, as it came after fifteen consecutive years of macroeconomic expansion.

However, Trinidad and Tobago emerged from its 3.5% contraction in 2009, and experienced relatively flat growth of 0.1% in 2010. The energy sector, which serves as the backbone of the Trinidad and Tobago economy, experienced moderate growth of 3% in 2010. However, the non-energy sector continued to decline, although at a rate of -1.9%, as compared to -7.2% in 2009. Table 1 below summarizes some key macroeconomic indicators for Trinidad and Tobago.

Table 1: Summary of Key Economic Indicators

<b>Economic Indicator</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Real GDP Growth - Total (2000 = 100)	13.4	4.8	2.4	-3.5	0.1
Real GDP Growth - Energy Sector	21.8	1.7	-0.2	2.6	3
Real GDP Growth - Non-Energy Sector	6.4	7.6	4.2	-7.2	-1.9
Inflation Rate (period average) (%)	9.3	7.9	12	7.2	10.5
Unemployment Rate (%)	6.2	5.5	4.6	5.3	5.8
Exports (% of GDP)	77	61.6	68.4	46.6	50.3
Imports (% of GDP)	35.3	35.3	35.2	35.4	31.5
Current Account Balance (% of GDP)	39.4	24.7	31.2	8.2	14.8
Capital Account Balance (% of GDP)	-33.3	-17.6	-21.3	-11.8	-12
Overall Balance	6.1	7.1	9.9	-3.6	2.8
Standard and Poor's Credit Rating	A-	A-	A	A	A
Exchange Rate (USD)	6.28	6.3	6.26	6.2	6.39
Population ('000)	1,297	1,303	1,308	1,310	1,317
GDP (Current Prices - \$Mn-TT)	115,951	136,953	170,938	124,116	129,753
GDP per capita (Current Prices - TT)	89,399	105,106	130,686	94,745	98,522
GDP per capita (Current Prices - US)	14,236	16,683	20,876	15,281	15,418

*Sources: Central Bank of Trinidad and Tobago (CBTT), Central Statistical Office (CSO)*

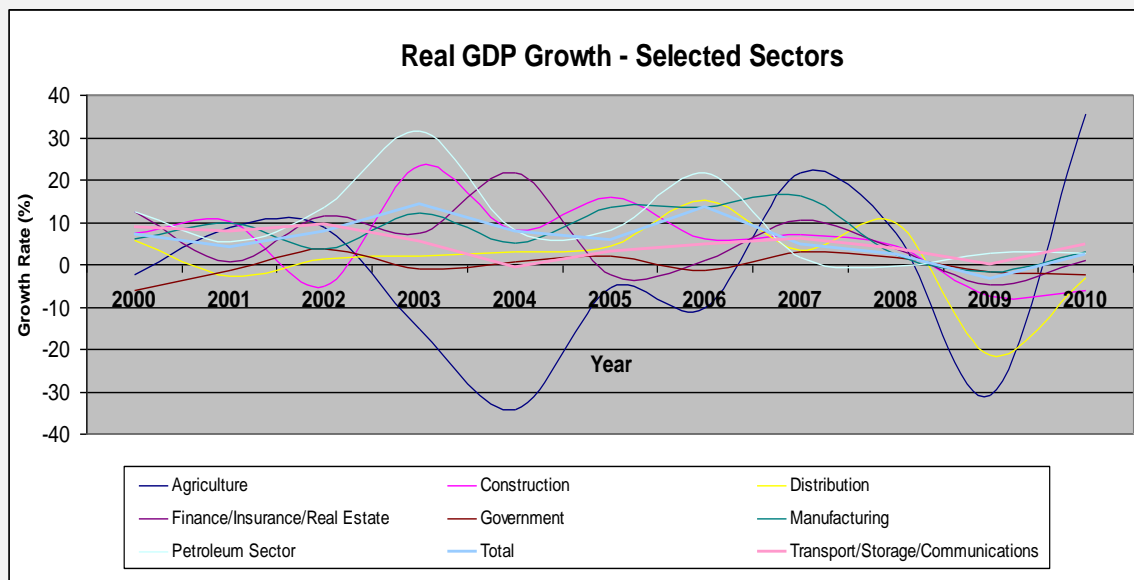
The performance of the energy sector can be attributed to increased output of natural gas and petrochemical production in 2010, outweighing the effects of declining crude oil production. This observation is much in line with the historic trend that Trinidad and Tobago is moving towards a gas economy rather than one based on traditional oil production. Output in many non-energy sub-sectors returned to non-negative growth, with the notable exceptions of the construction and distribution sectors, which remained relatively weak.

In 2010, the economy of Trinidad and Tobago also struggled with the core problems of both inflation and unemployment. The unemployment rate in 2010 was 5.8%, as compared to 5.1% in

the corresponding period for 2009. Furthermore, pressures on prices were evident, as the economy experienced an inflation rate of 10.5%, as compared 7.2% in 2009 (period average). These pressures on prices significantly affected citizens, as inflation peaked at 16.2% (year-on-year) in August 2010, and completing the year at 13.4%. Food prices, a key component of the Index of Retail Prices had a major role in this regard.

With the exception of Agriculture (which is historically subject to major fluctuations in Real GDP Growth Rate), the Transport, Storage and Communications sub-sector (of which the Telecommunications and Broadcasting Industry is a sub-sector) of the Non-energy Sector showed the most robust growth. The Transport, Storage and Communications sub-sector experienced a Real GDP Growth Rate of 4.9%, its highest rate since 2003. Figure 1 below shows the Real GDP Growth rates of selected sectors.

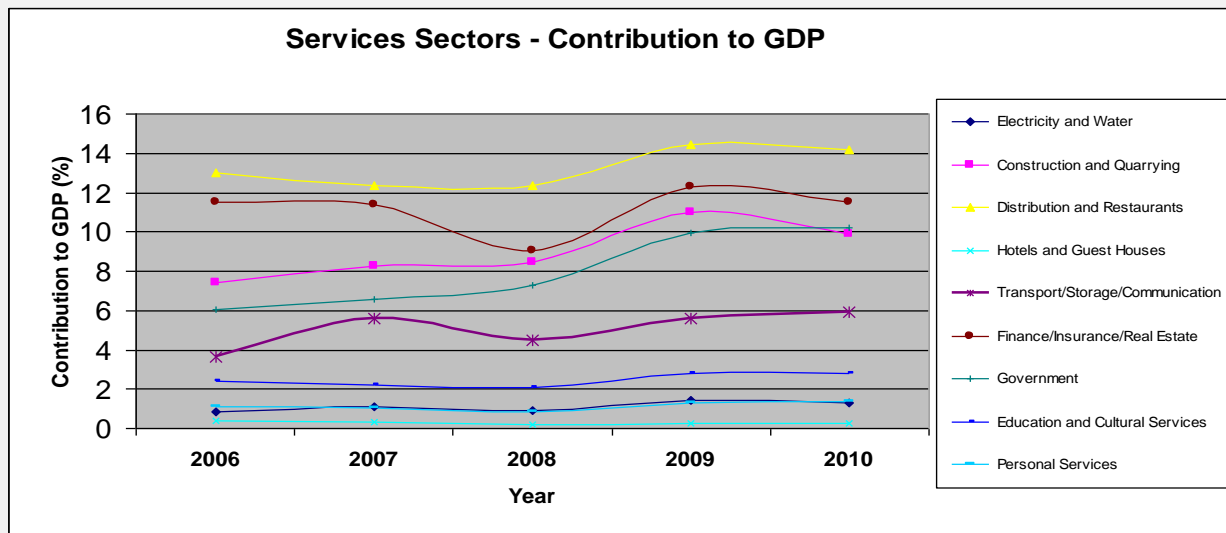
**Figure 1: Real GDP Growth in Selected Sectors**



*Source: Central Bank of Trinidad and Tobago Data Centre*

In terms of overall GDP contribution (at current market prices), the non-energy sector contributed 55.7%. The service industries contributed to 46.8% of this figure, with manufacturing and agriculture accounting for 0.5% and 8.4% respectively. Figure 2 below shows nine sub-components of the services industries, and their corresponding percentage contributions to GDP. Out of these nine subcomponents, the Transport, Storage and Communications sub-sector contributed 7.8% to GDP, surpassed only by Distribution and Restaurants (10.0%) and Finance, Insurance and Real Estate (12.8%). However, Transport, Storage and Communications is the only sub-sector to increase in its relative contribution to GDP from 2009. In fact, it is the only sub-sector to continuously increase in its relative contribution to GDP over recent years. Notable, the Telecommunications and Broadcasting Sector contributed 3.4% towards GDP in 2010.

Figure 2: Service Sectors contribution to GDP (current prices)



*Source: Central Statistical Office of Trinidad and Tobago*

As the global economy seems to have come out of its period of decline, the telecommunications and broadcasting sectors have critical potential in revitalizing the once strong growth pattern of the Trinidad and Tobago economy. Increased rollout of networks and services, the introduction of new offerings, and stronger competition all point towards anticipated growth of the telecommunications industry in 2011. Notwithstanding the economic potential, the role of the sector in social and cultural development can also never be understated.

## Key Market trends and Observations in the Fixed Telephony Market

- **Continuing decline in Fixed Line Subscriptions**
- **Moderate increase in Subscription Revenue**
- **8<sup>th</sup> highest penetration rate among Caricom countries**

## 2. Fixed Telephony Market Data

As at December 2010, there were eight (8) operators authorized to provide fixed domestic telecommunications services to the public over wired or wireless facilities. These operators are classified into the following geographic categories and include:

**Table 3: Operators Authorized to Provide Public Fixed Domestic Telecommunications Services as at 2010**

<b>Name of Provider</b>
1. Telecommunications Services of Trinidad and Tobago (TSTT)
2. Columbus Communications Trinidad Limited (FLOW)
3. Green Dot Limited
4. Three Sixty Communications
5. Lisa Communications Limited
6. Open Telecom Limited
7. Illuminat (Trinidad and Tobago Limited )

Source: TATT

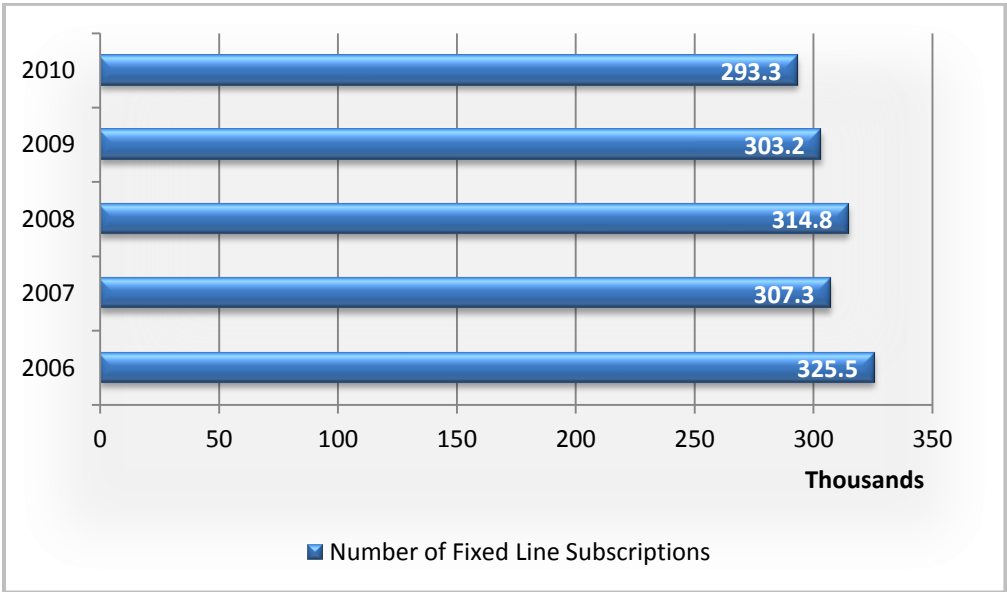
While the above eight operators were authorized by the Authority to provide fixed telecommunications services, only two operators offered domestic fixed voice services in 2010. TSTT offered fixed voice services through their Public Switched Telephone Network and FLOW via their Hybrid Fibre Coax network.

## 2.1 Fixed Voice Subscriptions

### 2.1.1 Annual Fixed Voice Subscriptions

Figure 8 shows the trend in fixed voice subscriptions over the last five years. In 2010, total subscriptions for the fixed voice market continued its downward trend as it recorded approximately 293.3 thousand subscriptions for the year. This represented an overall 3.3 per cent or 9.9 thousand fall in subscriptions from the last period, as opposed to the 3.7 per cent reduction recorded between 2008 and 2009.

**Figure 8: Fixed Voice Subscriptions 2006-2010**



Source: TATT

In general there has been a downward trend in the number of fixed voice subscriptions with the exception 2008 which showed a slight increase as a new player, FLOW entered the market. The

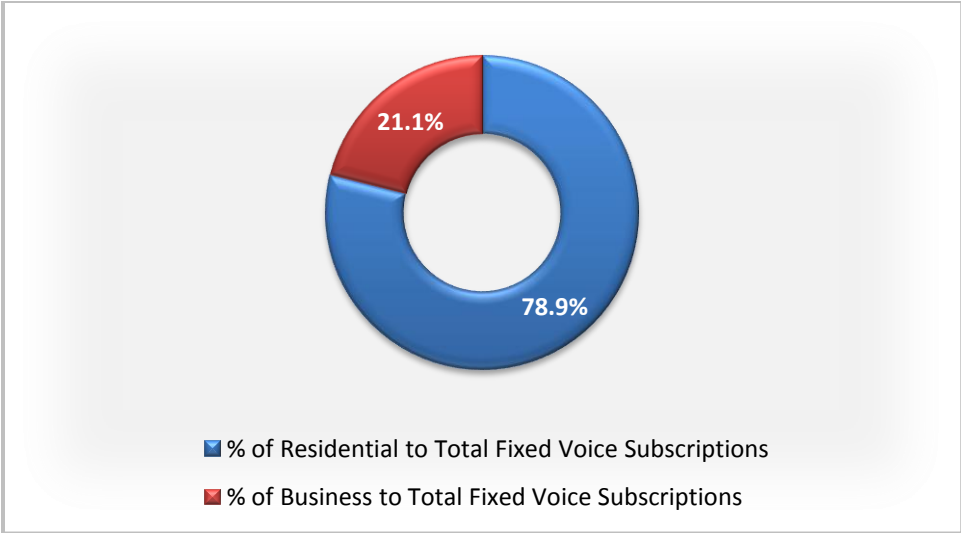
downward trend observed in the fixed voice market in recent years has been consistent with global trends due to the increased popularity of mobile phones. Furthermore, the Central Bank has declared that “economic growth in Trinidad and Tobago remained relatively flat in 2010”<sup>14</sup> which consequently may have reduced the amount of disposable income available to customers, possibly leading to termination of the fixed line service.

**2.1.2 Annual Residential and Business Fixed Voice Subscriptions**

The fixed voice market in Trinidad and Tobago can be grouped into two categories - residential subscriptions and business subscriptions (inclusive of companies subscribing to systems services, e.g. PBX trunks).

As at December 2010, out of the recorded 293.3 fixed voice subscriptions, 231.5 thousand or 78.9 per cent were residential, and 61.8 thousand or 21.1 per cent were business. Figure 9 illustrates the percentage breakdown of fixed voice subscriptions towards these two categories.

**Figure 9: Percentage breakdown of Residential and Business Fixed Voice Subscriptions 2010**



Source: TATT

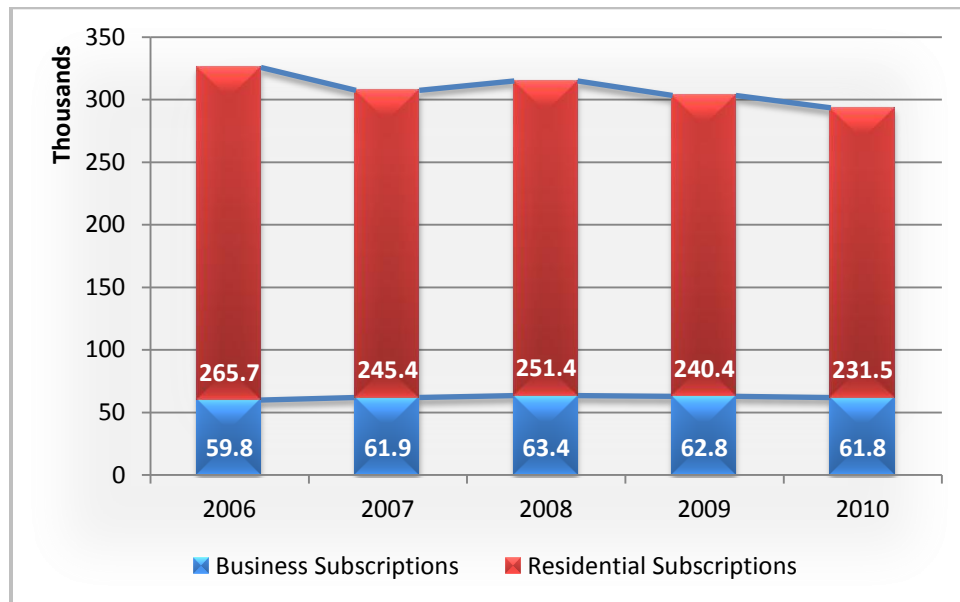
Although fixed voice subscriptions have fallen overall, the trends differed between business and residential categories. Compared to 2009, the number of residential subscriptions experienced a

<sup>14</sup> 2010 Annual Economic Survey, Central Bank of Trinidad and Tobago



greater decline of 3.6 per cent or 8.9 thousand subscriptions, while the business market experienced a less sizable reduction of 1.6 per cent or 691 subscriptions. This trend has been relatively consistent over the years as seen in Figure 10, where business subscriptions have been moderately stable over the period 2006 to 2010 with more pronounced fluctuations being experienced with residential subscriptions.

**Figure 10: Residential and Business Fixed Voice Subscriptions 2006-2010**

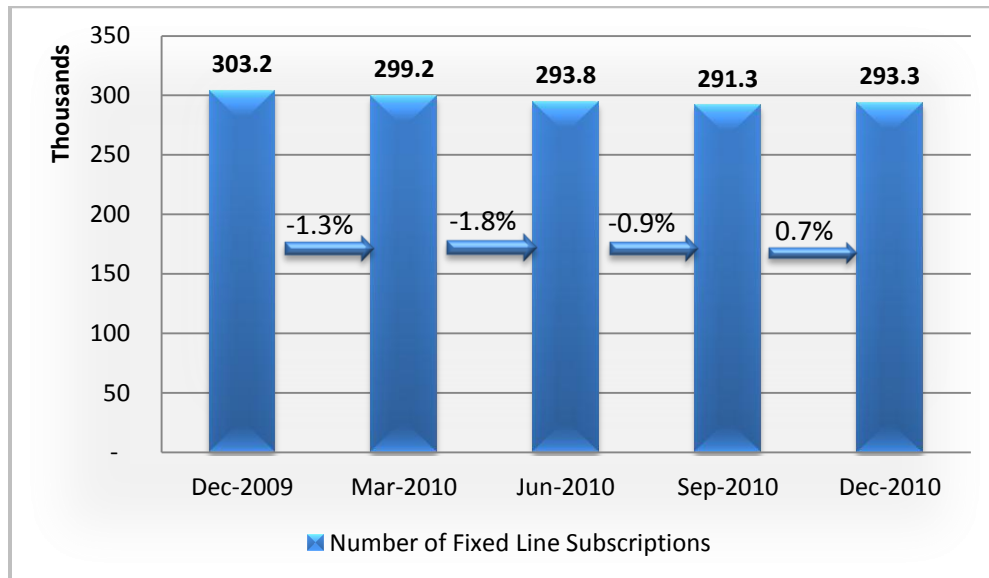


Source: TATT

### **2.1.3 Quarterly Fixed Voice Subscriptions**

Figure 11 shows the quarterly trend in fixed voice subscriptions during 2010. While subscriptions have consistently fallen during the first three quarters of 2010, a slight increase of 0.7% was evident in December 2010.

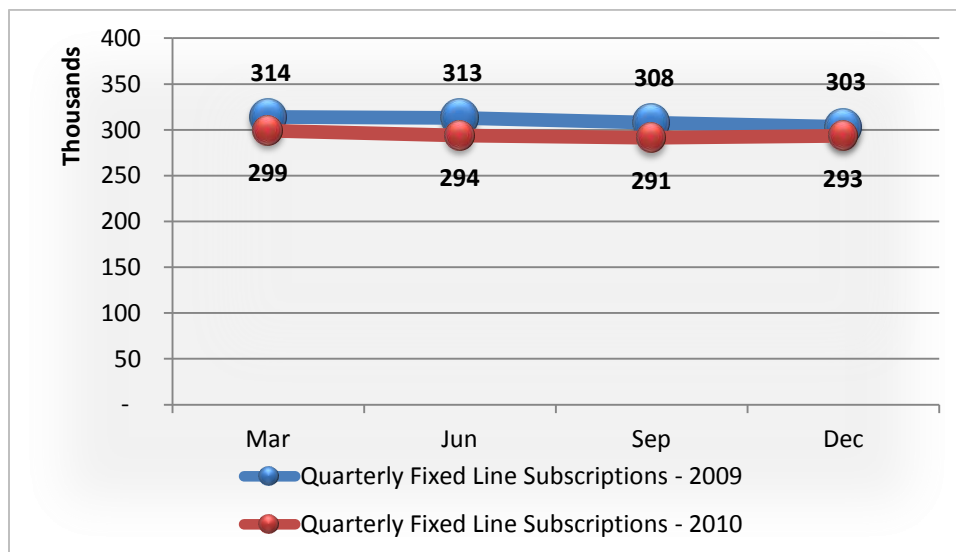
**Figure 11: Quarterly Fixed Voice Subscriptions 2010**



Source: TATT

In 2010, quarterly trends in fixed voice subscriptions remained relatively stable when compared to 2009. As seen in figure 12 below, fixed voice subscriptions gradually declined over both periods.

**Figure 12: Comparison of Quarters 2009 and 2010**

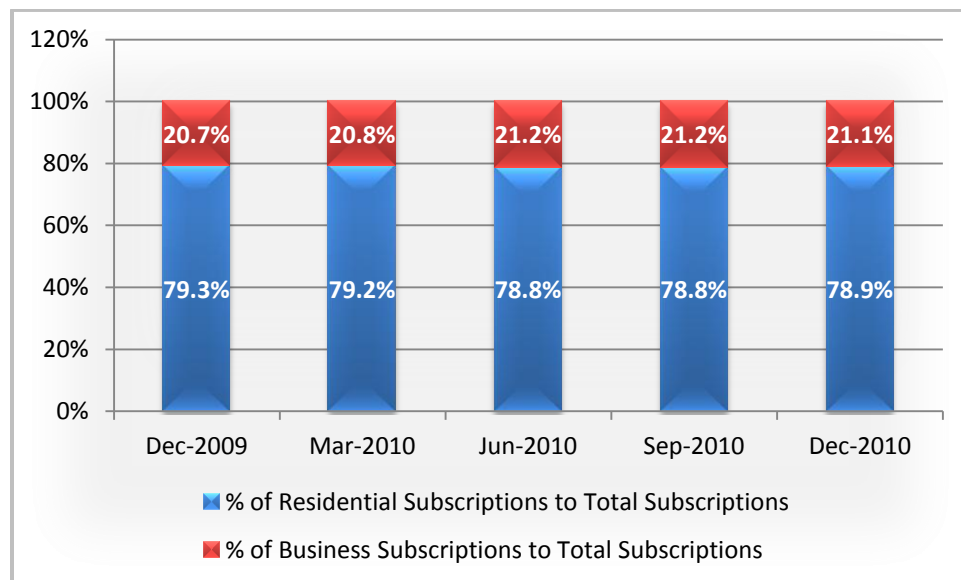


Source: TATT

## 2.1.4 Quarterly Residential and Business Fixed Voice Subscriptions

Figure 13 below shows a breakdown of residential and business fixed voice subscriptions as at the end of each quarter for 2010. As at the end of quarter one 2010 residential fixed voice subscriptions captured 79.2% of the market with just over 250 thousand subscriptions. On the other hand, business fixed voice subscriptions captured 20.8% of the market with just over 63 thousand subscriptions. This result remained relatively stable throughout the quarters of 2010 as residential subscriptions consistently constituted the majority of the fixed voice market. As at the fourth quarter 2010, residential fixed voice subscriptions decreased marginally from 79.2 per cent to 78.9 per cent while business subscription increased marginally from 20.8 per cent to 21.1 per cent.

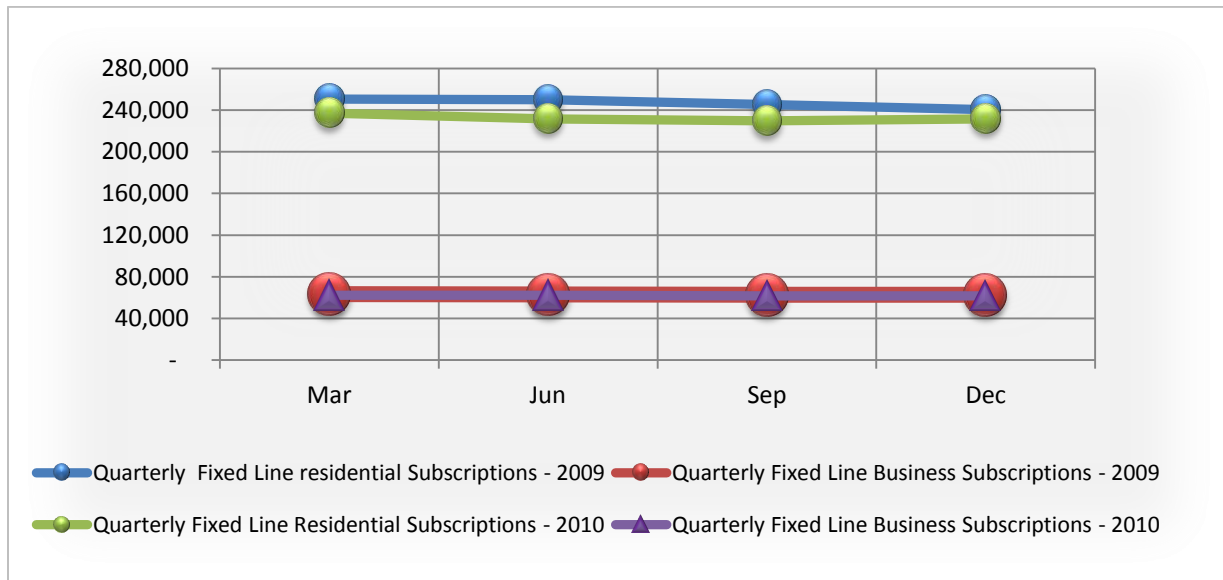
**Figure 13: Percentage Breakdown of Quarterly Residential and Business Fixed Voice Subscriptions 2010**



Source: TATT

Although overall declines were observed in both the number of residential and business fixed line subscriptions from 2008 to 2010 (see figure 10), a quarter on quarter comparison between 2009 and 2010 provides further insights into the variation of fixed line subscriptions. As figure 14 below shows, while quarterly fixed line residential subscriptions in 2010 diverged slightly from 2009, quarterly fixed line business subscriptions in 2010 remained relatively the same.

**Figure 14: Comparison of Residential Subscriptions between Quarters 2009 and 2010**



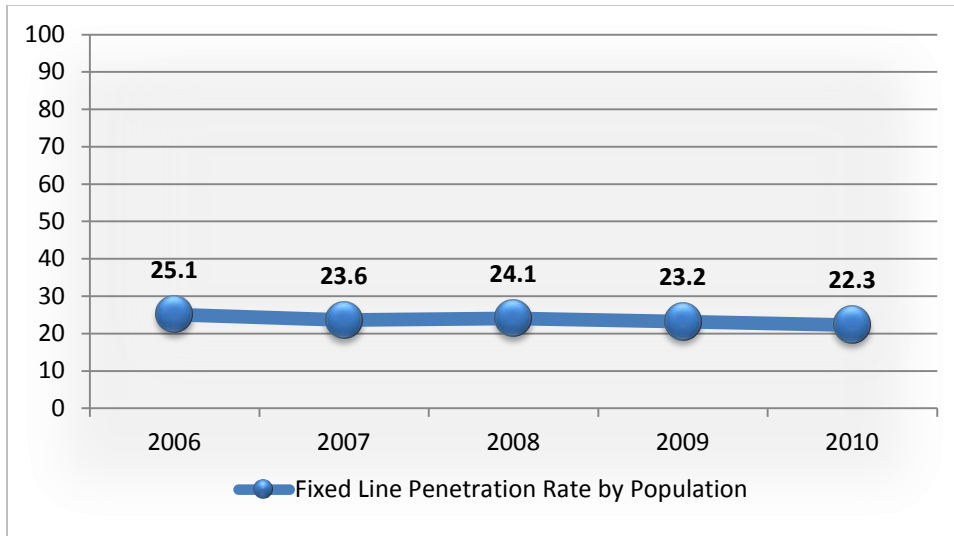
Source: TATT

## 2.2 Fixed Line Penetration

As the standard metric recognised internationally to measure the adoption of fixed voice services, fixed line penetration<sup>15</sup> is calculated based on the number of fixed voice subscriptions per 100 of the population. As at December 2010 fixed line penetration decreased slightly from 23.2 in 2009 to 22.3 in 2010, representing a 3.9 per cent fall. This means that in 2010 there were 22 fixed lines available to every 100 persons in Trinidad and Tobago. This result is consistent with the steady reduction in fixed line subscriptions over the last two years. An illustration of the fixed line penetration trend from 2006 to 2010 is given in Figure 15.

<sup>15</sup> Fixed line penetration = (number of residential fixed voice subscriptions / total population) \*100

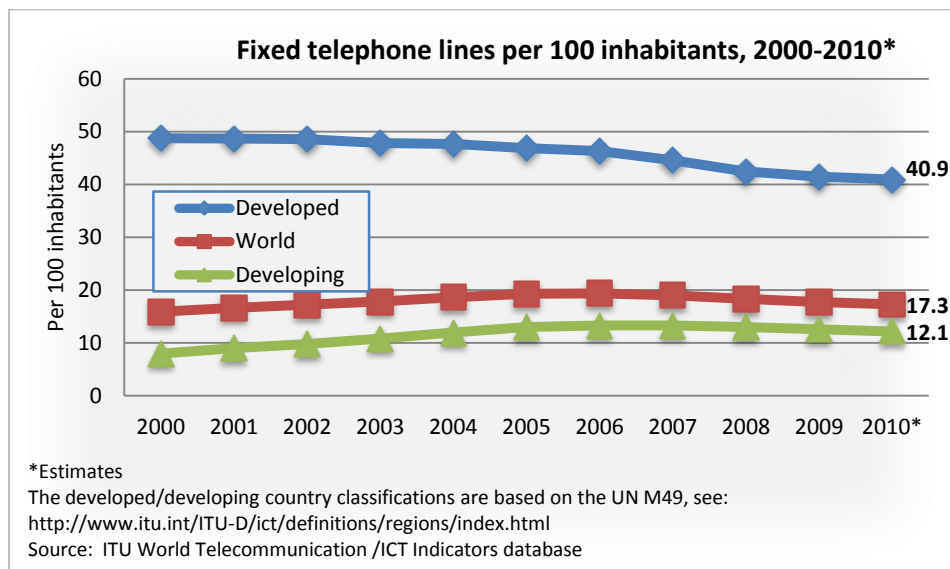
**Figure 15: Fixed Line Penetration 2006-2010**



Source: TATT

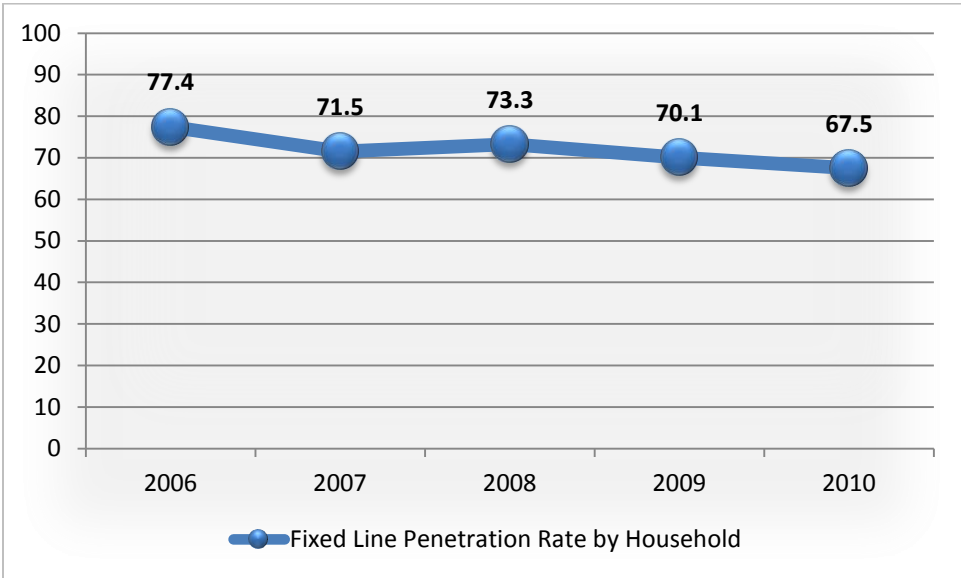
Global trends for fixed telephone line per 100 inhabitants over the past decade have also been declining. As seen in Figure 16 below, with a fixed line penetration of 22.3 Trinidad and Tobago falls considerably below the average fixed line penetration of countries in the developed world with an average of 41 fixed lines available for every 100 inhabitants. However, in 2010 the Trinidad and Tobago fixed voice market performed moderately better than the average for the developing countries with a penetration rate of 12.1 and the world with a penetration rate of 17.3.

**Figure 16: Global Comparison of Fixed Line Penetration 2000-2010**



Fixed line household penetration<sup>16</sup> also decreased from 70.1 in 2009 to 67.5 in 2010 signifying that approximately 68 out of every 100 households had access to fixed voice services as at the end of 2010. Overall, fixed line household penetration dropped by approximately 10 per cent from 2006 to 2010. Figure 17 shows the trend in fixed line household penetration for the past five years.

**Figure 17: Fixed Line Household Penetration 2006-2010**



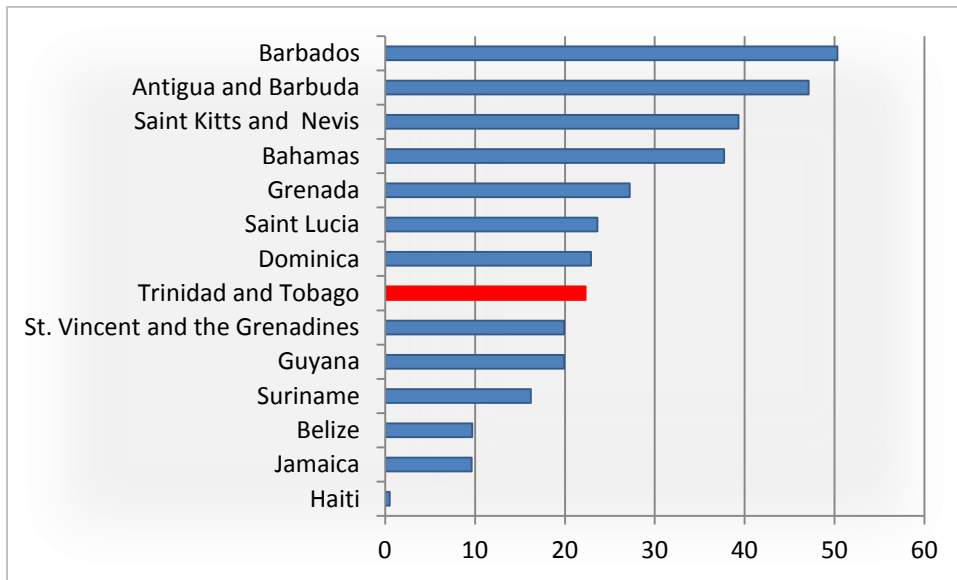
**2.2.1 Fixed Penetration Rates among the Caricom Countries**

Comparison among selected Caricom countries as listed in Figure 18 places Trinidad and Tobago eighth in terms of fixed line penetration rate. It is regionally observed that fixed line subscriptions have been declining and in fact, International publisher, Business Monitor International Limited (BMI), has reported that the “demand for fixed-line services is dwindling”<sup>17</sup> within the Caribbean region.

<sup>16</sup> Fixed line household penetration = (number of residential fixed voice subscriptions / total number of households) \*100. Number of household based on the 2000 Census.

<sup>17</sup> BMI Caribbean Telecommunications Report Q1 2011

**Figure 18: 2010 Fixed Line Penetration among Caricom Countries**

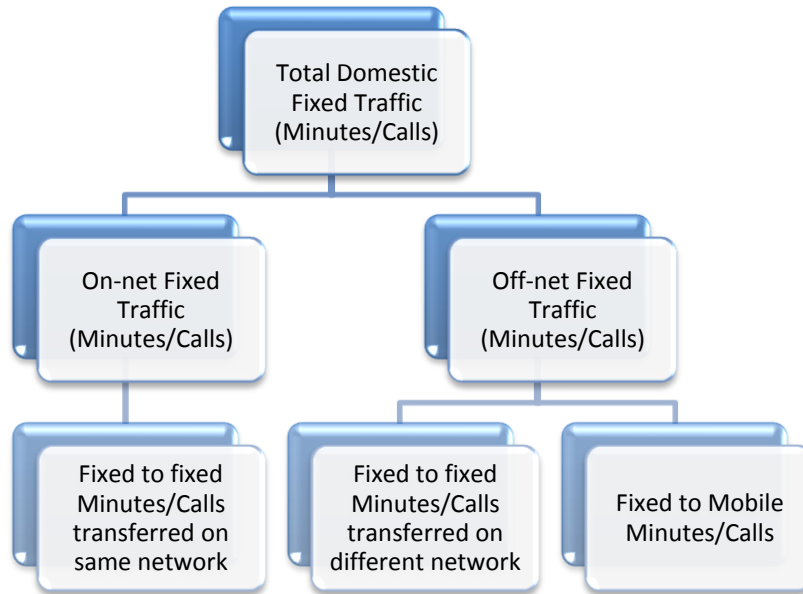


Source: ITU World Telecommunications Indicators ICT Database 2011 and TATT

### **2.3 Domestic Fixed Voice Traffic**

Domestic fixed voice traffic refers to the number of minutes or calls originating on the domestic fixed networks. This traffic can be categorised by the following traffic-types:

**Figure 19: Classification of Domestic Fixed Traffic**



Source: TATT

### **2.3.1 Annual Domestic Fixed Voice Traffic in Minutes**

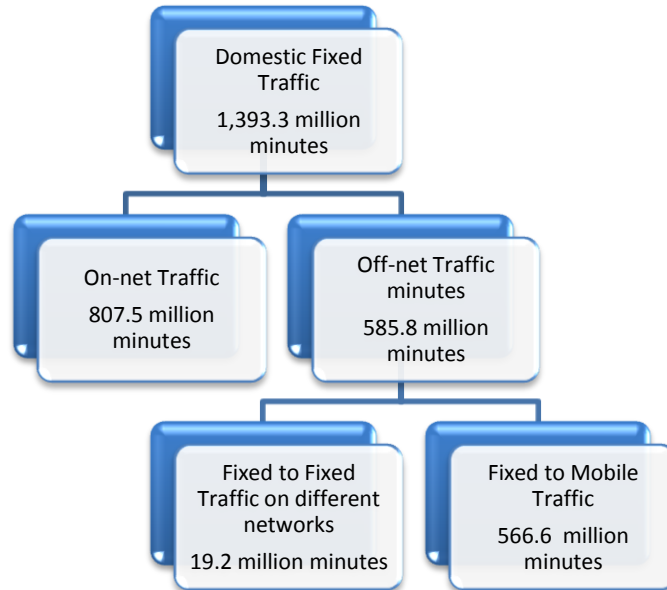
When compared to 2009, fixed voice traffic minutes dipped by 6.9 per cent in 2010 with a total of 1,393.3 million fixed voice minutes. Despite the overall shrinkage in fixed voice minutes, fixed to fixed minutes transferred on different networks continued to climb significantly. Figure 20 shows a breakdown of fixed voice minutes by traffic-types for 2010. Of the 1,393.3 million minutes of domestic fixed traffic, on-net<sup>18</sup> traffic totalled 807.5 million minutes, a reduction in traffic of 6.7 per cent from the last period. Similarly, off-net<sup>19</sup> traffic fell by 6.6 per cent, recording 585.8 million minutes in traffic. Fixed to fixed off-net minutes totalled 19.2 million, a 37.1 per cent growth over the 2009 period whilst fixed to mobile minutes decreased by 7.6 per cent to 566.6 million minutes.

<sup>18</sup> On-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on the same fixed network.

<sup>19</sup> Off-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on another network (intra and inter service provider). For example, a call originating on TSTT's fixed network and terminating on Flow, bmobile or Digicel's network will be included in these minutes.



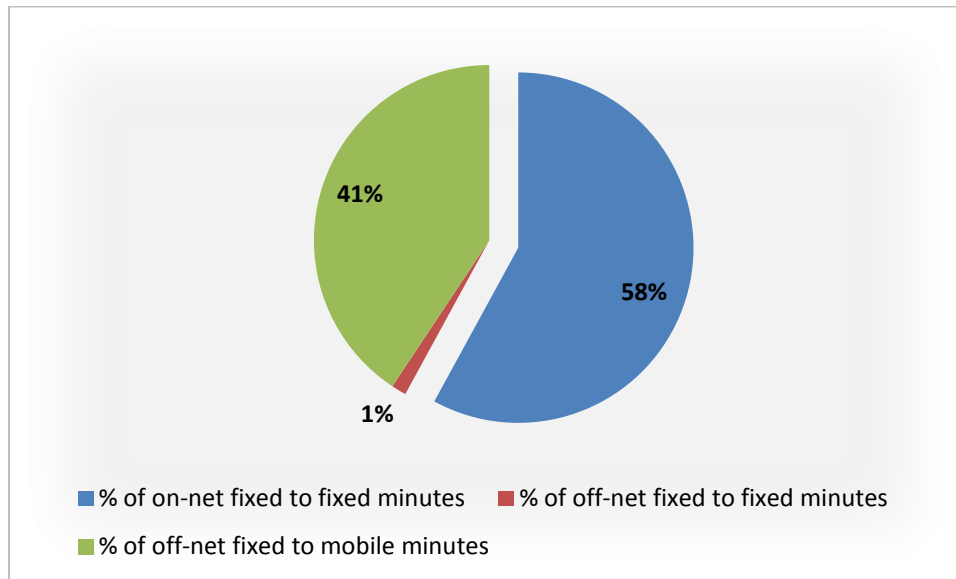
**Figure 20: Breakdown of fixed domestic traffic minutes 2010**



Source: TATT

The proportion of on-net traffic minutes to off-net traffic minutes remained relatively stable as compared to 2009 with 807.5 million or 58 percent of minutes being on-net traffic and 585.8 million or 42 per cent being off-net traffic. Off-net fixed to mobile minutes comprised the majority of total off-net minutes with 566.6 million minutes contributing 41 per cent to total fixed voice traffic minutes. Alternatively, off-net fixed to fixed minutes comprised the minority with 19.2 million minutes contributing to 1 per cent to total fixed voice traffic minutes. The percentage breakdown of minutes by traffic-types is shown in Figure 21 below:

**Figure 21: Percentage Breakdown of Total domestic fixed traffic minutes by traffic-types 2010**



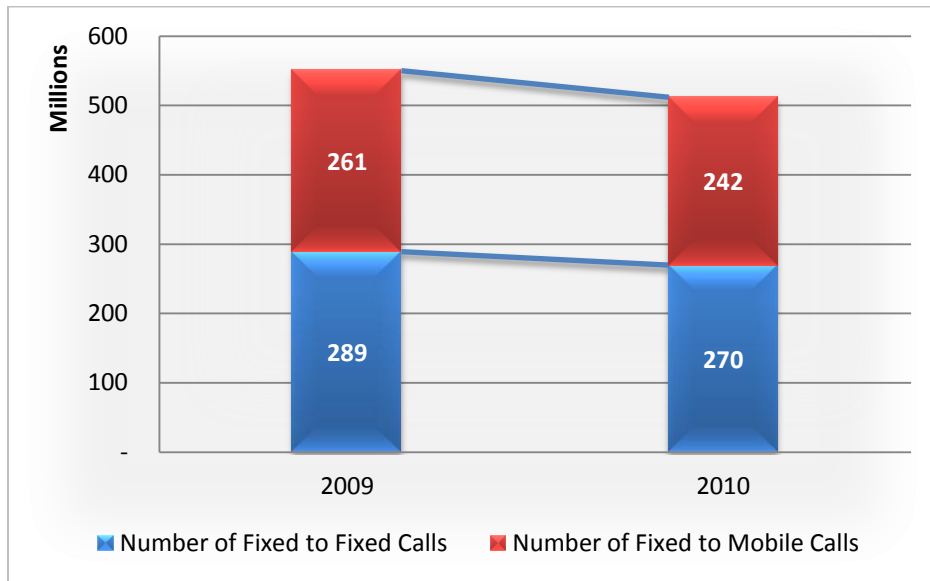
Source: TATT

### **2.3.2 Annual Domestic Fixed Voice Call Volumes**

The number of domestic fixed voice calls totalled 511.8 million during the 2010 period. This represents a 6.9 per cent dip when compared to the 2009 period. Similar to fixed voice minutes, call volumes can be broken down into different traffic-types. Fixed to fixed calls accounted for 269.7 million<sup>20</sup> or 52.7 per cent of total fixed voice calls. Fixed to mobile calls accounted for 242.1 million calls or 47.3 per cent of total fixed voice calls. When compared to 2009, total fixed to mobile calls decreased by 7.2 percent while fixed to fixed calls also declined by 6.7 per cent. Figure 22 below compares the breakdown of domestic call volume by traffic-type for 2010.

<sup>20</sup> This figure includes both fixed to fixed on-net and off-net minutes.

**Figure 22: Comparison of Domestic Call Volume Traffic Type 2009-2010**

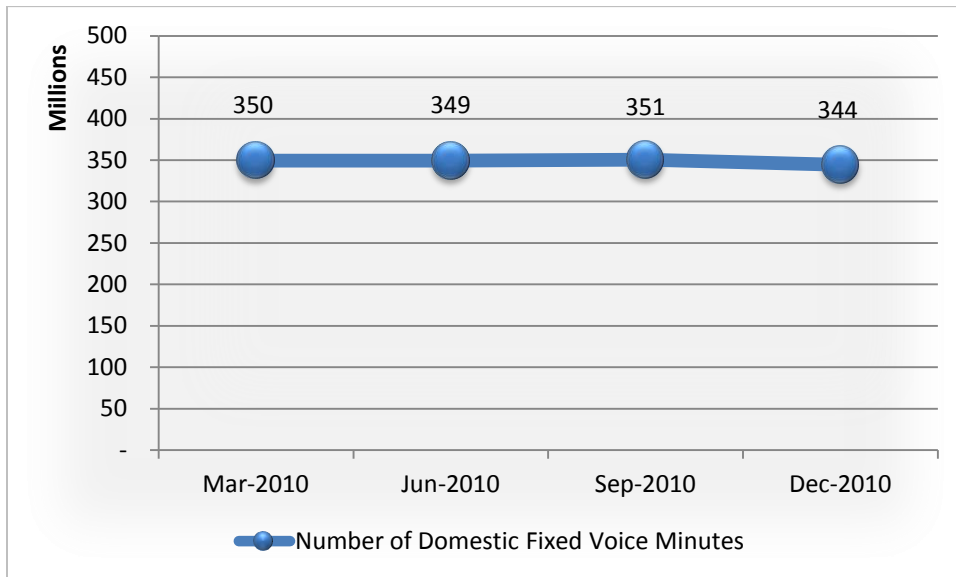


Source: TATT

### **2.3.3 Quarterly Domestic Fixed Voice Traffic**

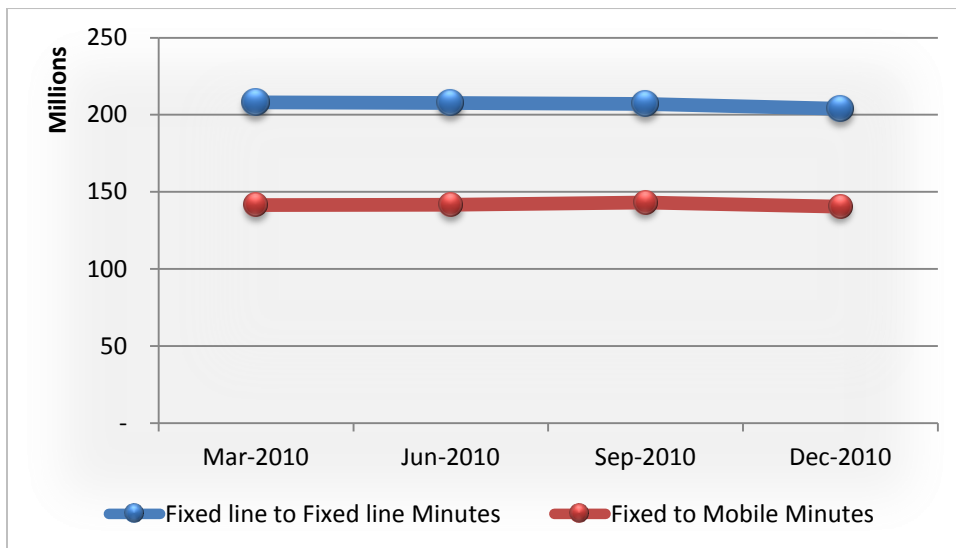
Despite the overall decline, fixed voice minutes remained relatively steady between Q1 2010 and Q4 2010. Total domestic fixed voice traffic dipped by 5.2 million minutes between Q1 and Q4 from 349.5 million minutes to 344.3 million minutes, a 1.5 per cent decline between periods. Additionally, the proportion of fixed-to-fixed traffic minutes to fixed-to-mobile traffic minutes also remained relatively stable during 2010. For the first quarter of 2010, fixed-to-fixed traffic minutes totalled 208.0 million minutes or 60 per cent of total domestic fixed voice traffic minutes. This share gradually decreased to 203.8 million minutes or to 59 per cent of total domestic traffic minutes by the fourth quarter of 2010. Synonymous with this decrease in the share of fixed-to-fixed traffic minutes is the increase in the share of traffic minutes to mobile networks. The trend in the quarterly fixed voice traffic minutes for 2010 is shown in Figure 23 while the quarterly trend by traffic-type is depicted in Figure 24.

**Figure 23: Quarterly Fixed Voice Traffic 2010**



Source: TATT

**Figure 24: Quarterly Fixed Voice Traffic Minutes by Type 2010**



Source: TATT

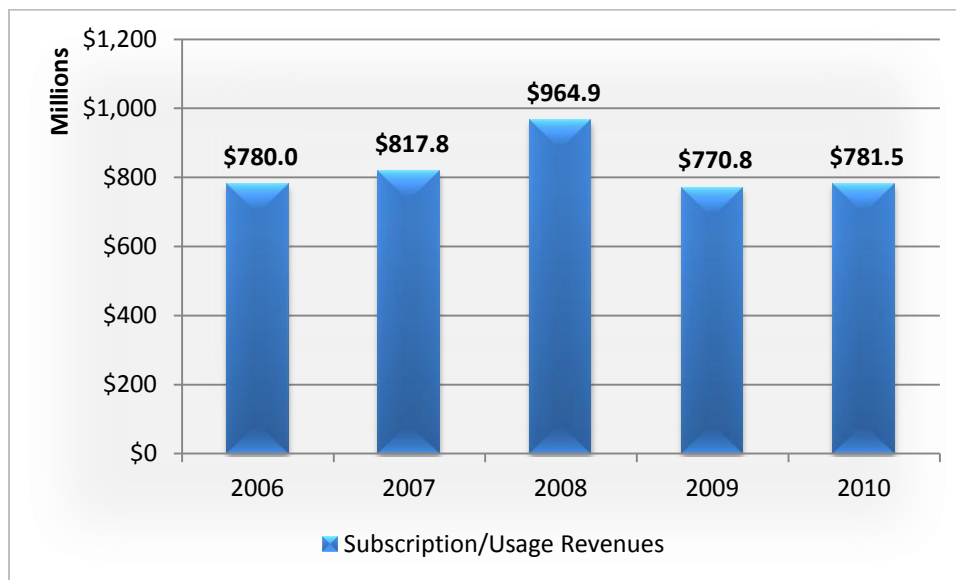
## 2.4 Fixed Telephony Revenues

### 2.4.1 Annual Fixed Voice Revenues

Gross revenues received from all fixed voice services<sup>21</sup> totalled \$783.4 million in 2010 as compared to \$773.6 million in 2009, a 1.3% increase. Similarly, gross revenues received from fixed voice subscriptions for 2010 amounted to \$781.5 million as compared to \$770.8 million for 2009 resulting in an increase of \$10.7 million or 1.4 per cent. The \$1.9 million difference between total fixed voice revenues and fixed voice subscription revenues represented monies generated from auxiliary fixed voice services such as payphones, calling cards and late fees charged by service providers.

The annual trend in fixed telephony subscription revenues for the period 2006 to 2010 is illustrated in Figure 25.

**Figure 25: Fixed Voice Subscription Revenues 2006-2010**

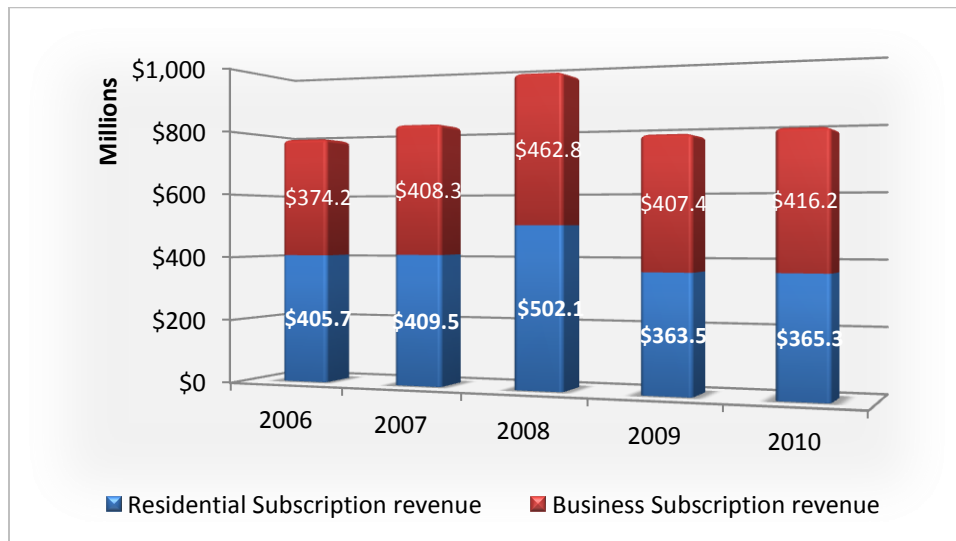


Source: TATT

<sup>21</sup> Fixed voice services include revenues from voice subscriptions, payphones, calling cards, and miscellaneous services.

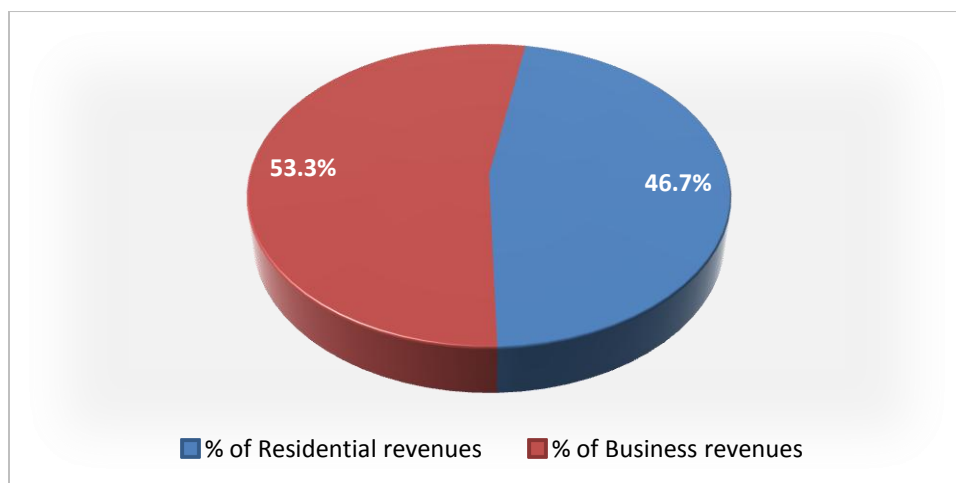
Within the subscription categories, residential subscriptions accounted for \$365.3 million or 47.2 per cent of total fixed voice subscription revenues, a 0.5 per cent increase from 2009. Similarly, business subscriptions accounted for \$416.2 million or 53.3 per cent of total fixed voice subscription revenue, a larger increase of 2.2 per cent from 2009. Figure 26 shows the separation of annual revenues according to residential and business categories over the past 5 years while Figure 27 illustrates the percentage of revenue contribution for the 2010 period.

**Figure 26: Residential and Business Fixed Voice Revenues 2006-2010**



Source: TATT

**Figure 27: Percentage breakdown of Residential and Business Revenues 2010**

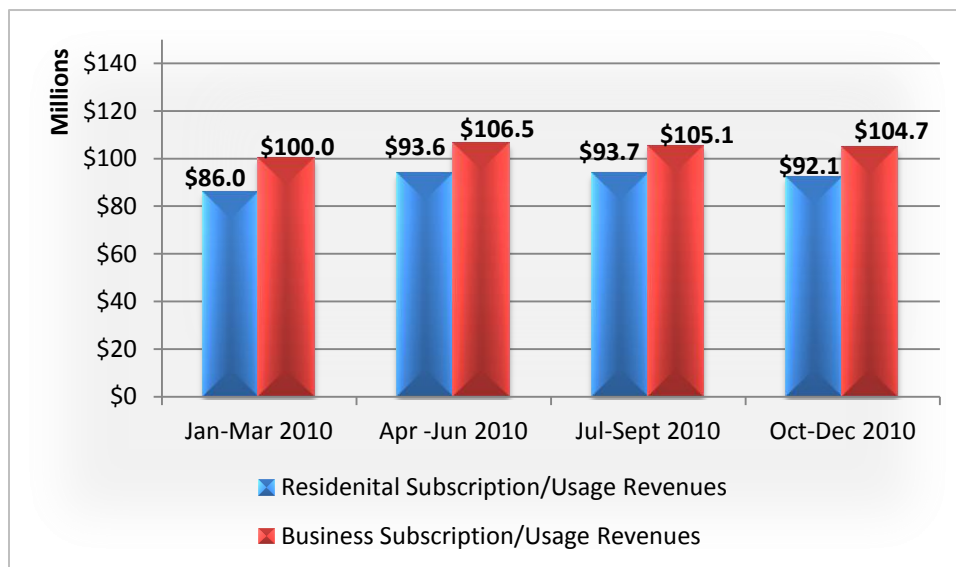


Source: TATT

## 2.4.2 Quarterly Fixed Voice Subscription Revenues

During 2010 quarterly fixed voice revenues fluctuated during the period, resulting in an overall 6 per cent increase in gross fixed voice subscription revenues between Quarter 1 and Quarter 4. Notably, the second quarter of 2010 recorded the highest revenue contribution by residential subscription for the year while the third quarter of 2010 recorded the highest revenue contribution by business subscription. The quarterly residential and business revenues for 2010 are depicted in Figure 28 below.

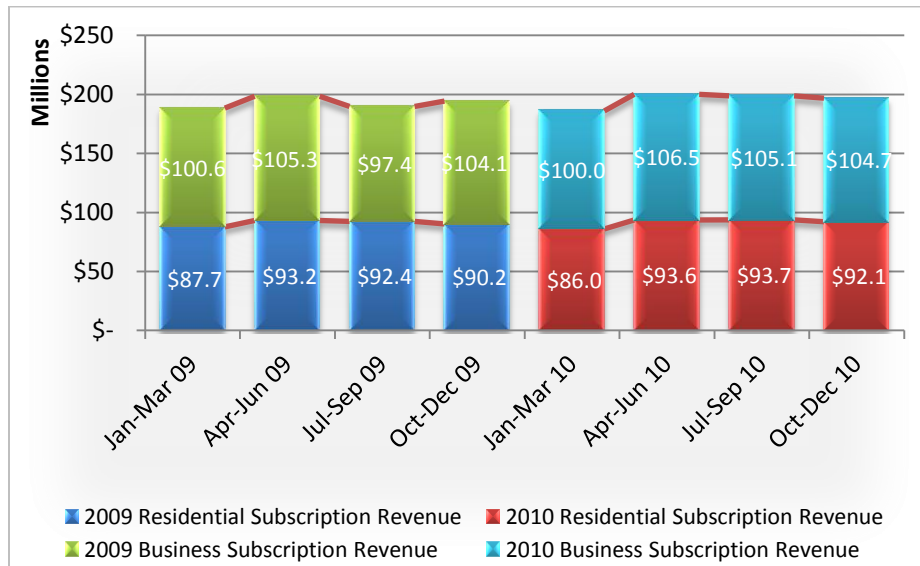
**Figure 28: 2010 Quarterly Residential and Business Voice Subscription Revenues**



Source: TATT

Gross fixed voice revenues started strongly with positive movements in revenue during the first half of 2010 for both residential and business categories. However, this was followed by moderate declines subsequently during the second half of 2010 for both residential and business categories, with the exception of third quarter for residential subscription revenues. This trend was also observed in 2009 with gross subscription revenues experiencing similar changes on a quarterly basis. Figure 29 illustrates.

**Figure 29: Comparison of 2009 and 2010 Quarterly Residential and Business Voice Subscription Revenues**



Source: TATT

## 2.5 Fixed Market Concentration

Consistent with the Authority’s Price Regulation Framework, the Hirschman-Herfindahl Index (HHI)<sup>22</sup> has been adopted to measure the level of market concentration and the state of competitiveness in the market.

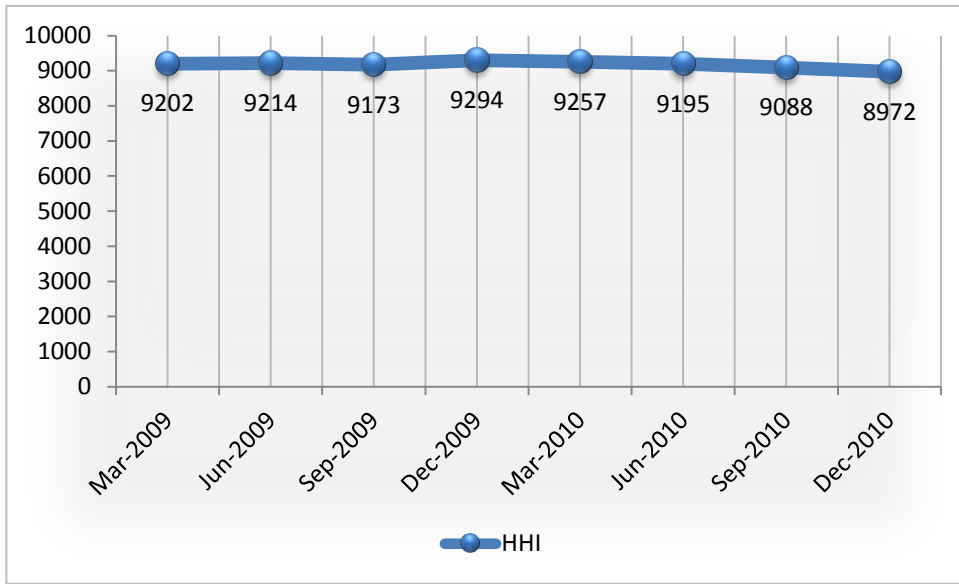
At December 2010, the HHI calculated for the fixed voice market was 8972<sup>23</sup> compared to 9294 in December 2009. While these figures indicate that the market remains lowly contested and concentrated, there has been a slight decrease in the level of concentration. This decrease in level of concentration implies a minor shift in the proportion of subscriptions between the players in the fixed voice market. As graphically illustrated in Figure 30, while the HHI has remained relatively stable during 2010, overall declines in subscription continue to place downward pressures on the HHI of this market.

<sup>22</sup> HHI is a useful tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market shares of all firms in the market. The guidelines used for market concentration are: HHI < 1,000 – **Unconcentrated**, 1,000 < HHI < 1,800 – **Moderately Concentrated** and HHI > 1,800 **Concentrated**. In addition, according to the Authority’s Price Regulation Framework ([www.tatt.org.tt](http://www.tatt.org.tt)), the Authority defines competitiveness as follows: HHI ≤ 1,800 – **Competitive**, HHI > 1,800 – **Contested**, HHI = 10,000 – **Uncontested**.

<sup>23</sup> Based on subscription market share



**Figure 30: HHI for the Fixed Voice Market 2009- 2010**



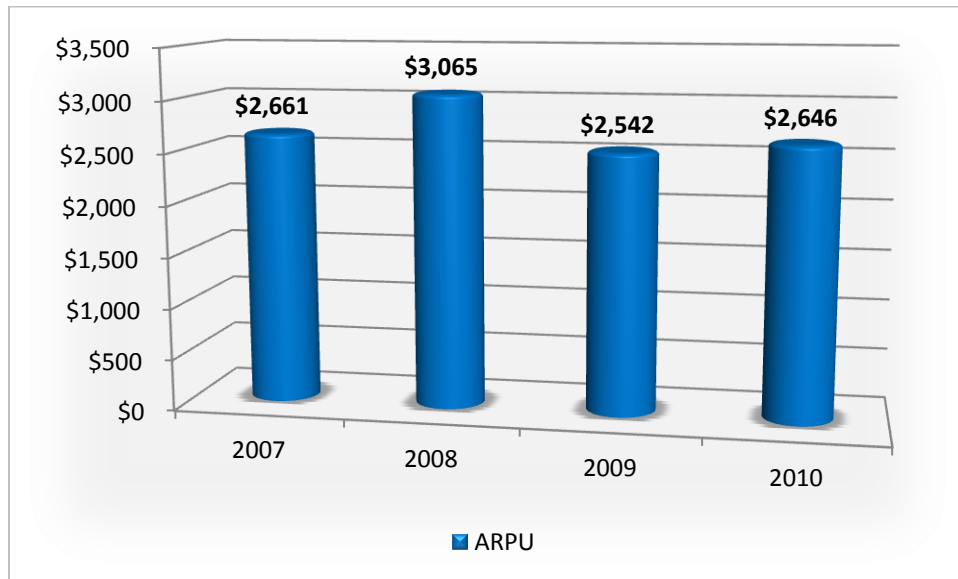
Source: TATT

## 2.6 Average Revenue per User (ARPU)

For the year 2010, customers spent an average of TT \$2,646 for fixed voice services. This represents an increase of TT\$104.4 or 4.1 per cent in the average revenue per user (ARPU)<sup>24</sup> over the amount recorded for 2009. The changes in ARPU for the last four years are highlighted in Figure 31.

<sup>24</sup> ARPU measures the average revenue generated by one subscriber. It is calculated = (Total revenues for fixed voice subscriptions / Total number of fixed subscriptions)

**Figure 31: ARPU Fixed Voice Services 2007 – 2010**

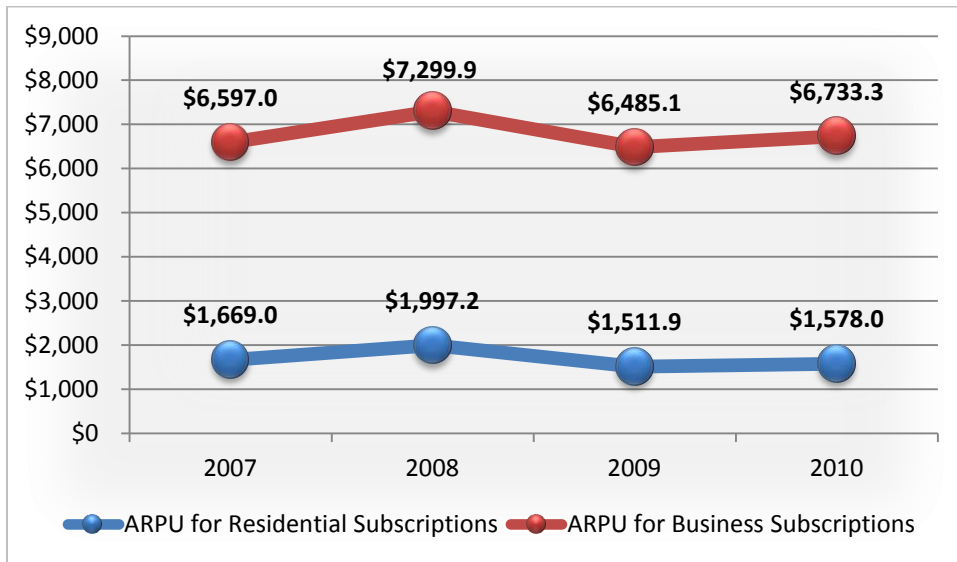


Source: TATT

On a smaller scale residential consumers spent an average of TT\$1,566 on fixed voice subscription services, an increase of 3.6 per cent over 2009. Similarly, business consumers spent an average of TT\$6,705 on fixed voice subscription services, climbing by 3.4 per cent. The trend in ARPU for residential and business consumers is illustrated in Figure 32.

The 4.1 per cent overall increase in ARPU is consistent with the combined 1.4 per cent increase in revenue and the 3.3 per cent fall in subscriptions experienced in the fixed voice market for the period.

**Figure 32: ARPU for Fixed Residential and Business Voice Services 2007-2010**



Source: TATT

## Key Market trends and Observations in the Mobile Voice Market

- Marginal increase in mobile voice subscriptions
- Higher growth rate for postpaid subscriptions than prepaid subscriptions
- Minimal decrease in gross revenues from mobile voice subscriptions

### 3. Mobile Market Data

During 2010, there were two mobile service providers authorized to provide public domestic mobile telecommunications services on a national basis in Trinidad and Tobago. They were:

1. Telecommunication Services of Trinidad and Tobago, TSTT (bmobile);
2. Digicel Trinidad Limited

The mobile market data compiled below is representative of these two operators for the period January to December 2010.

#### 3.1 Mobile Voice Subscriptions<sup>25</sup>

##### 3.1.1 Annual Mobile Subscriptions

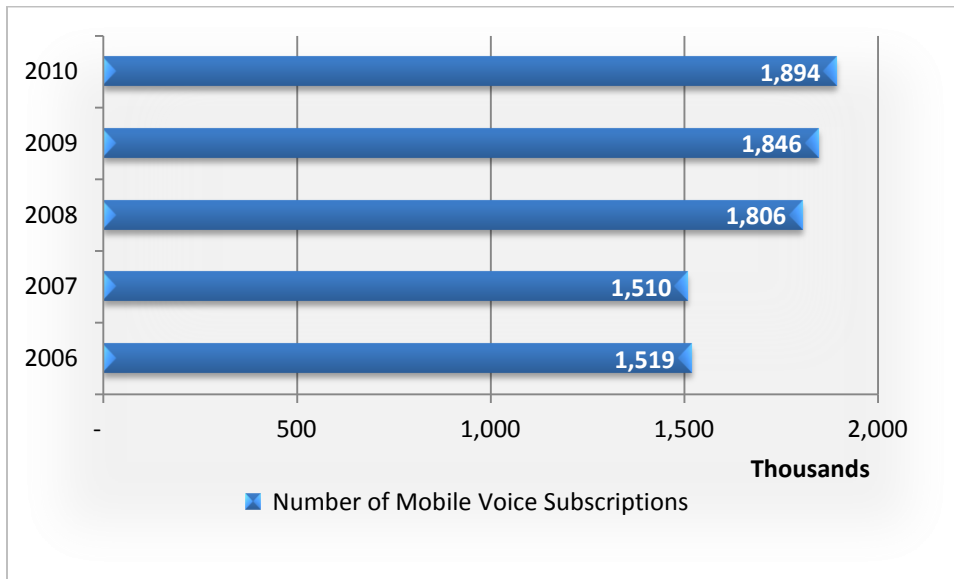
As at December 2010, the mobile market recorded a total of 1.89 million subscriptions of which 1.70 million were prepaid subscriptions and 192.5 thousand were post paid. This total represents an increase of 47.9 thousand or 2.6 per cent over the 1.85 million subscriptions recorded in 2009. Over the last two years the mobile voice market has grown moderately.

Figure 33 below highlights the trend in mobile subscriptions for the period 2006 to 2010.

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<sup>25</sup>A mobile voice subscription refers to an activated (pre-paid or post-paid) SIM card that enables the user to make and/or receive a call.

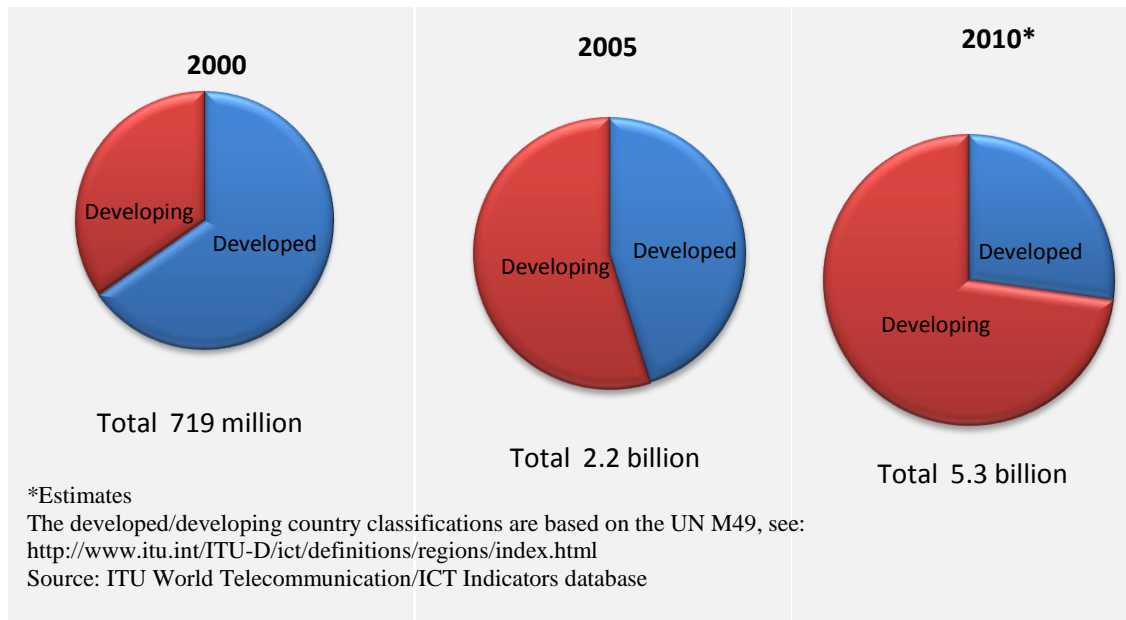
**Figure 33: Mobile Subscriptions 2006-2010**



Source: TATT

Given the relatively affordable cost of mobile services and devices as well as the widespread geographical coverage, the uptake of mobile services has been quite rapid worldwide and more so amongst the developing world. As seen in figure 34 below, mobile subscriptions in the developing world have increased sharply, more than doubling over the past decade. With over 5 billion mobile subscriptions worldwide, approximately 73 per cent belong to the developing world. Consistent with this observation, the uptake of mobile subscriptions in Trinidad and Tobago continues to grow.

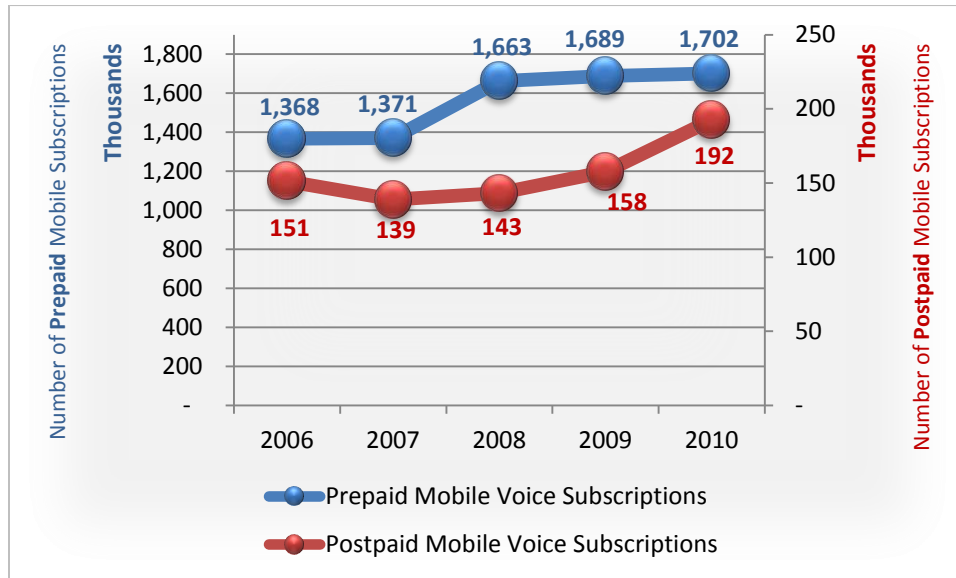
**Figure 34: Global Mobile cellular subscriptions, by level of Development**



Mobile subscriptions are sub-divided into prepaid and postpaid. The number of prepaid subscriptions continues to grow with 1.7 million prepaid subscriptions being recorded as at December 2010, a 2.6 percent increase over the 2009 period. Picking up slightly from a 1.5 per cent growth rate in 2009, the prepaid market has remained relatively stable over the last two years. On the other hand, the postpaid market continued to soar with 192.5 thousand subscriptions being recorded as at December 2010, a 22.2 percent increase over the 2009 period. Figure 35 below depicts the trend in prepaid and postpaid mobile subscriptions over the last 5 years. The data shows a new trend emerging; one in which the growth rate of postpaid mobile subscriptions significantly outweighs the growth rate in prepaid subscriptions. As highlighted in the 2009 Annual market report<sup>26</sup>, aggressive marketing strategies by service providers to encourage the take-up of postpaid smart-phone packages by customers as well as competitive monthly fees to contract customers may explain the sudden growth in postpaid mobile subscriptions as opposed to prepaid subscriptions, see Box 2.

<sup>26</sup> TATT Annual Market Report 2009

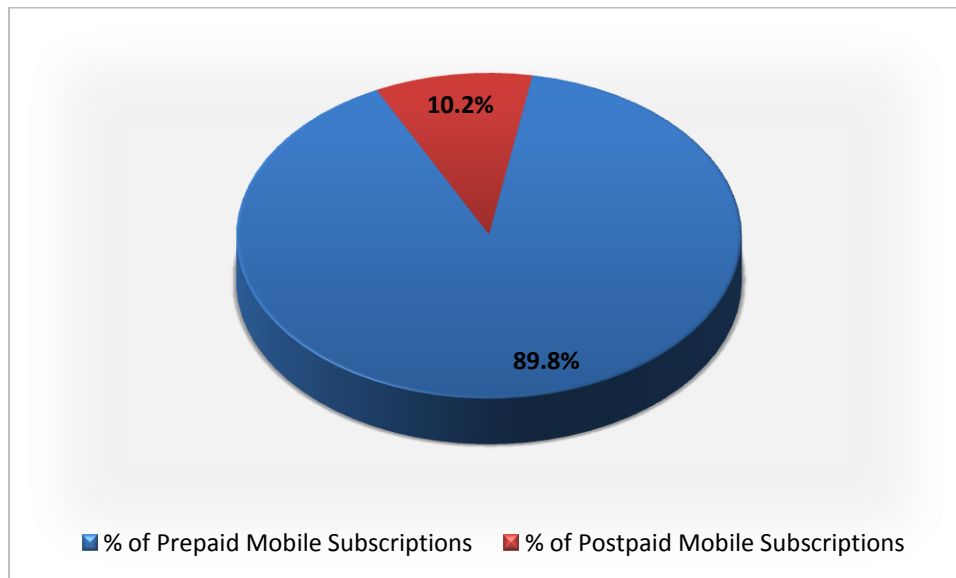
**Figure 35: Mobile Prepaid and Postpaid subscriptions 2006 – 2010**



Source: TATT

Although there was a more marked growth rate recorded in postpaid subscriptions, prepaid subscriptions continue to account for the majority of the mobile market with approximately 89.8 per cent market share as at December 2010. Postpaid subscriptions accounted for the remaining 10.2 per cent share of the market. Globally, surveys have suggested that subscribers prefer prepaid packages to postpaid packages as there are no contractual commitments and it gives consumers, especially those within the lower income bracket, the flexibility to use mobile services only when they can afford it. The pie chart in Figure 36 illustrates the percentage breakdown in subscriptions.

**Figure 36: Percentage of Prepaid and Postpaid Subscriptions in 2010**



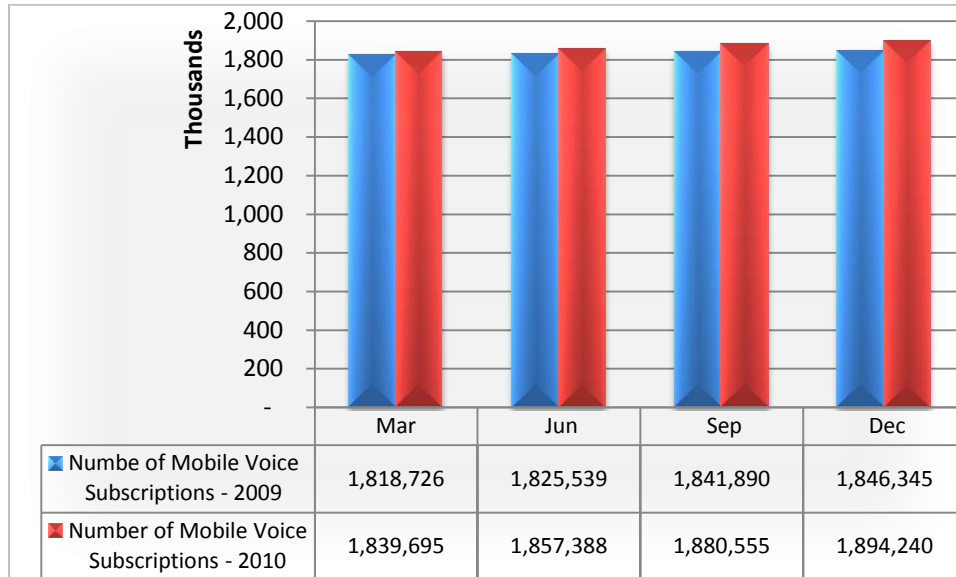
Source: TATT

### **3.1.2 Quarterly Mobile Subscriptions**

Quarterly trends in mobile voice subscriptions show a steady increase in subscriptions during 2010. Overall, mobile voice subscriptions grew 3 per cent from 1.83 million as at the end of the Quarter 1 (January to March 2010) to 1.89 million at the end of Quarter 4 (October to December 2010). Mobile voice subscriptions increased by 1.0 per cent from first quarter to second quarter, by 1.2 percent from second to third quarter and by only 0.7 per cent from third quarter to fourth quarter. Figure 37 below illustrates the quarterly trend for 2009 and 2010.



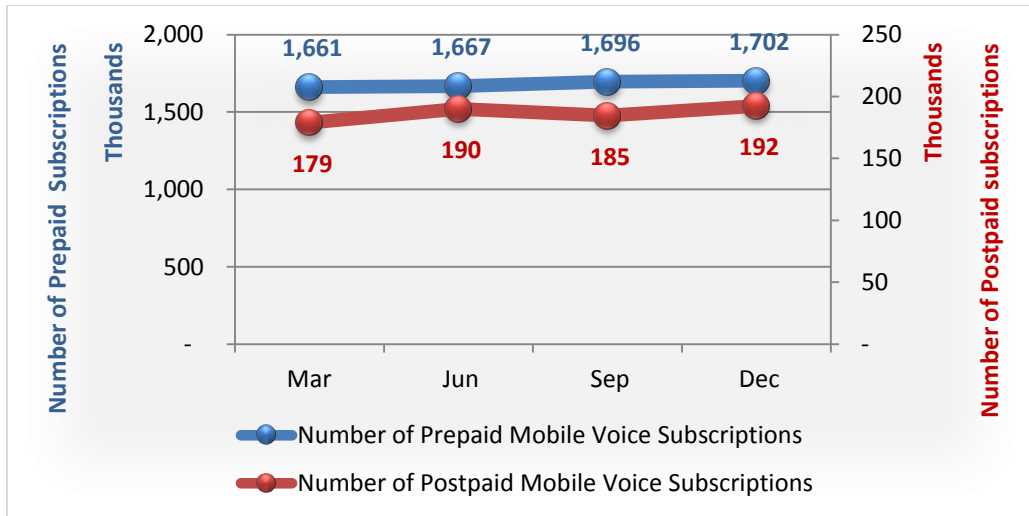
**Figure 37: Quarterly Number of Subscriptions 2009 and 2010**



Source: TATT

Figure 38 below shows the quarterly trend for both prepaid and postpaid subscriptions during the 2010 period. While prepaid experienced minimal growth throughout the four quarters, postpaid subscriptions fluctuated between quarters. Prepaid subscriptions increased by 2.5 percent from first quarter to fourth quarter increasing on average around 0.8 percent between quarters. Conversely, there was a sharp increase of 7.5 percent in postpaid subscriptions from first quarter 2010 to fourth quarter. Although there was a decline of 2.9 percent in postpaid subscriptions from quarter two to quarter three, this was offset by steep increases between quarter one and two as well as quarter three and four of 6.2 percent and 4.3 percent respectively.

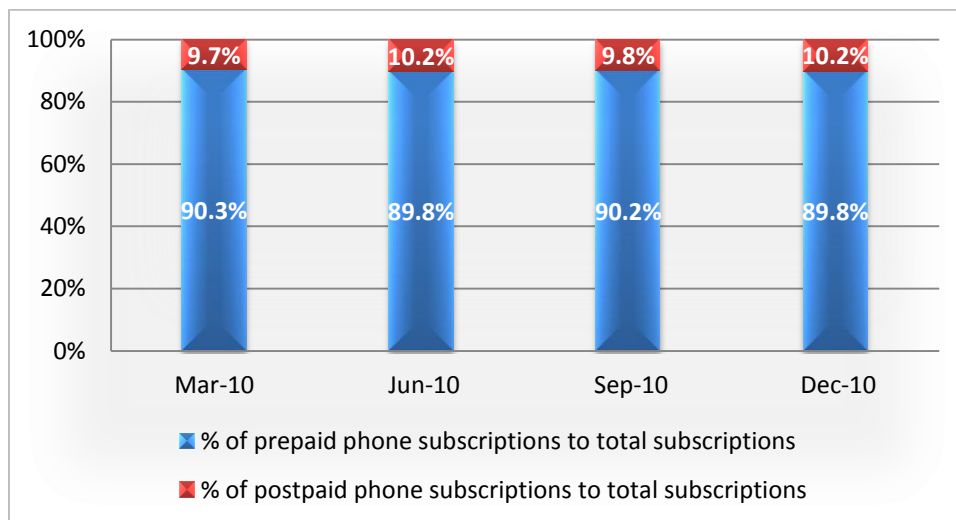
**Figure 38: 2010 Quarterly Prepaid and Postpaid Subscriptions**



Source: TATT

In terms of the breakdown of mobile subscriptions into prepaid and postpaid, prepaid subscriptions on a quarterly basis averaged 90.0 percent during 2010 as it continued to comprise the majority of the mobile market subscriptions. With the exception of the third quarter, postpaid subscriptions constantly increased during the quarters of 2010. Figure 39 illustrates.

**Figure 39: Percentage of prepaid and postpaid subscribers on Quarterly Basis 2010**



Source: TATT

### *Is your mobile phone a Smartphone?....or... a not as smart phone?*

There has been much ado about Smartphones globally and surely its proliferation has been heightened in the local industry. In the year 2010, specifically, much of the local print and audio promotional offers have centered on the infamous Blackberry (BB), iPhone, NOKIA C3 and other android-powered phones such as the Samsung Galaxy and Xperia X10 and respective tailor-made data plans.

The Smartphone has caught the likes of the socialite, entrepreneur, young adult, teenager and elderly alike. The main differentiation between the Smartphone and other contemporary feature-phones lies in its use of operating systems which make them almost equivalent to portable computers. Such features have revolutionized the traditional use of the mobile phone from voice calls to data connectivity which facilitates a broad spectrum of mobile software applications such as video conferencing, mobile internet/ email connectivity and various innovative applications such as mobile banking.

By examining the local promotions on Smartphones over the period January to December 2010, one can deduce several reasons for its popularity in Trinidad and Tobago.

Firstly, there is a growing need locally for social connectivity. The RIM messenger service known as BBM and the iPhone's "WhatsApp" are household names which accommodate many friendships, events planning and business platforms. The need for internet connectivity has also spanned further than email use, with social networking sites such as Facebook and Twitter being the chosen medium for communicating and staying connected. Both mobile providers promoted such social connectivity. Some examples include "Digicel's "0.facebook.com - Free data access to facebook", "Go Social Plans from \$25", "Waat? You don't have BBM?" and bmobile's social characters named T.A.S.H & D Dynamic Duo, and "Socialize while you mobilize."

The Smartphone is also popular in Trinidad and Tobago because its price and related data plans have become considerably more affordable since the first introduction of the Blackberry in 2002. While handset prices have become more competitive, data plans have become more affordable

and accessible to users as both mobile providers offer prepaid and postpaid data options. In fact, the market statistics indicate that there has been a 48.7% increase in the uptake of postpaid mobile phones with internet access in 2010 from 2009. Such competitive data plans have also allowed for affordable communication via net- based instant messaging services such as MSN Messenger, Yahoo! Messenger and Google Talk, to name a few. Also, mobile software applications such as BBM and WhatsApp messenger services allow for communication amongst its users at no incremental charge per message. This has single-handedly made communication in real time and in a convenient mode significantly inexpensive.

A review of the promotional landscape confirms that the promotional offers made by local service providers have centered around price reductions for new handset purchases, in particular, blackberry handsets and android-powered phones. In fact, the year started off with both providers offering Blackberry handset and data deals for the Carnival season. This included Digicel's "Show off your Curves for carnival" and "Free BlackBerry Internet service" which related to deals for the purchase of the BB curve 8520 and "Score BIG with Digicel & BlackBerry!" with the Tag Line "Don't be caught without one!". Bmobile's "Party like a soca star at the bmobile BlackBerry International Soca Monarch Finals" and "Soca sale Blackberry Carnival Specials" also offered very low prices for the BB Curve 8520 and 8900.

Throughout the year, handset promotions continued to be competitive for the BB curve but also centered around offering competitive rates for upgraded Smartphones such as the BB bold 9700, Storm 2, the Pearl Smartphone Model 9100, BB Torch, NOKIA C3 and other android powered phones such as the Samsung Galaxy and Xperia X10. As the year progressed, both providers advertised competitive prepaid and postpaid data plans, and continued to offer deals, discounts and special offers for Smartphones, markedly at occasions such as Mother's Day, Father's Day and Christmas.

Such activity generated revenues from mobile internet users of \$102 Mn in 2010.

Indeed, the evidence suggests that the Smartphone has become extremely popular in Trinidad and Tobago and surely there has been a paradigm shift from traditional mobile phone usage amongst such users. These users desire internet and social connectivity and the ability to run a host of computer applications on mobile phones at price most affordable to them.

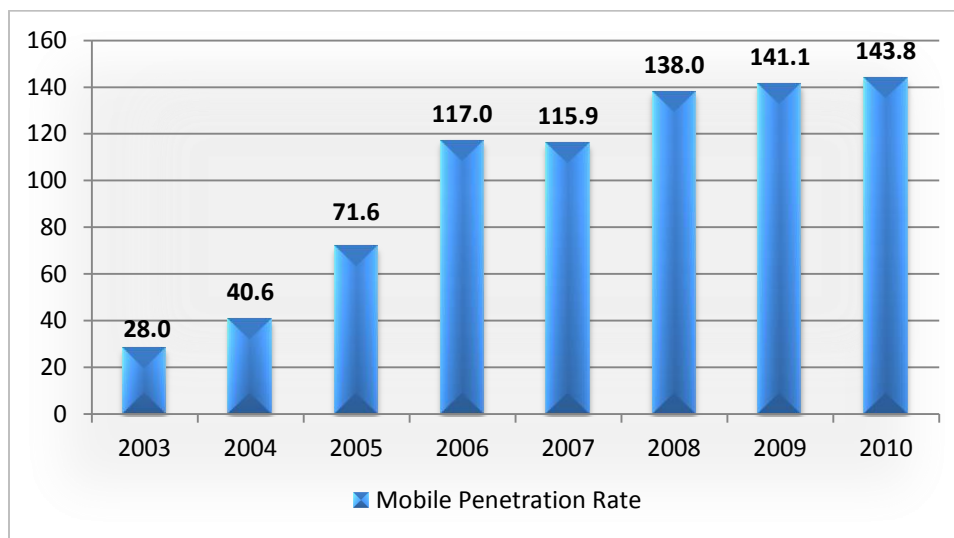
## 3.2 Mobile Penetration

### 3.2.1 Mobile Penetration Rate in the Domestic Market

Mobile penetration<sup>27</sup> has climbed relatively steadily over the last three years and stood at 143.8 as at December 2010, a 1.9 per cent growth from 2009. This marginal increase in penetration is consistent with increased mobile subscriptions of a similar magnitude.

Figure 40 shows the varying levels of penetration rates from 2003 to 2010.

**Figure 40: Mobile Penetration Level per 100 Inhabitants for Trinidad and Tobago 2003-2010**



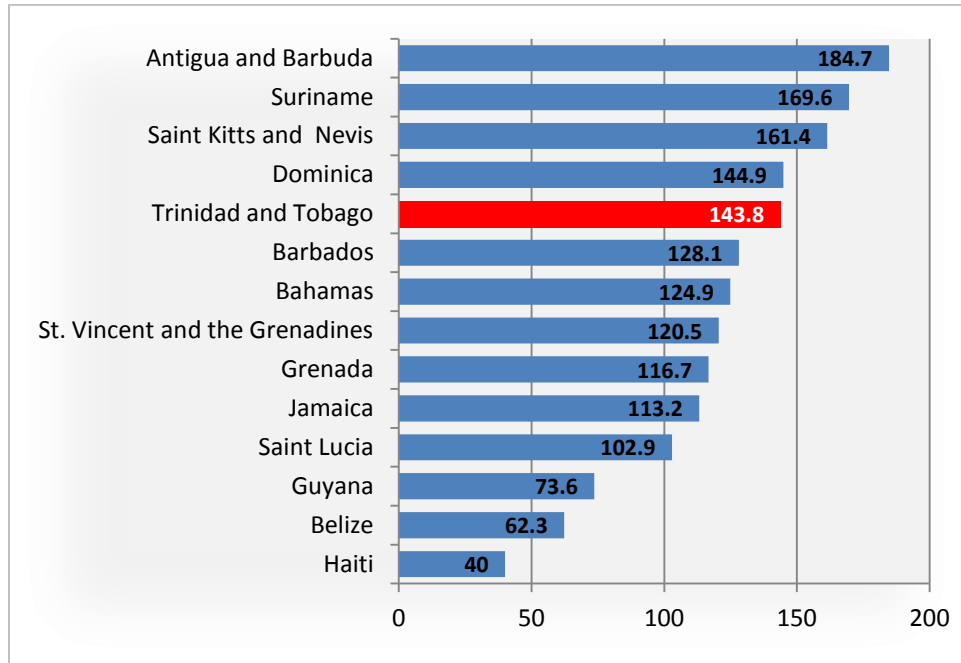
Source: TATT

### 3.2.2 Regional Mobile Penetration Rates

Figure 41 compares the mobile penetration rates for selected Caribbean countries where Trinidad and Tobago recorded the fifth highest mobile penetration rate of 143.8 for the 2010 period. At the top of the scale is Antigua and Barbuda with a mobile penetration of 184.7 with Haiti at the other end of the scale with 40.0.

<sup>27</sup> Mobile Penetration is calculated by the number of mobile subscriptions divided by total population times 100

**Figure 41: 2010 Mobile Penetration Rates among Caricom Countries**

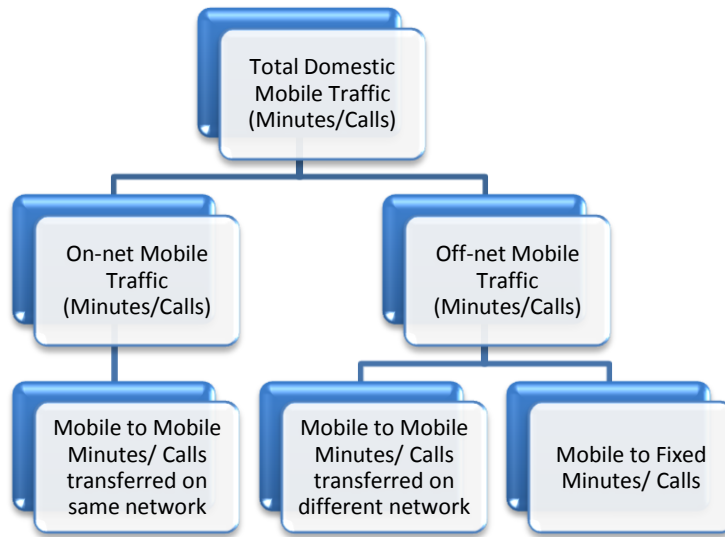


Source: ITU Telecommunications World ICT Indicators Database 2011 and TATT

### **3.3 Domestic Mobile Voice Traffic**

Domestic mobile voice traffic refers to the number of minutes or calls originating on domestic mobile networks. This traffic can be categorised as follows:

**Figure 42: Classification of Domestic Mobile Traffic**



Source: TATT

### **3.3.1 Annual Domestic Mobile Voice Traffic in Minutes**

As illustrated in Figure 43 below, domestic mobile voice traffic totalled 5.1 billion minutes for the 2010 period, a 1.5 per cent increase from 2009.

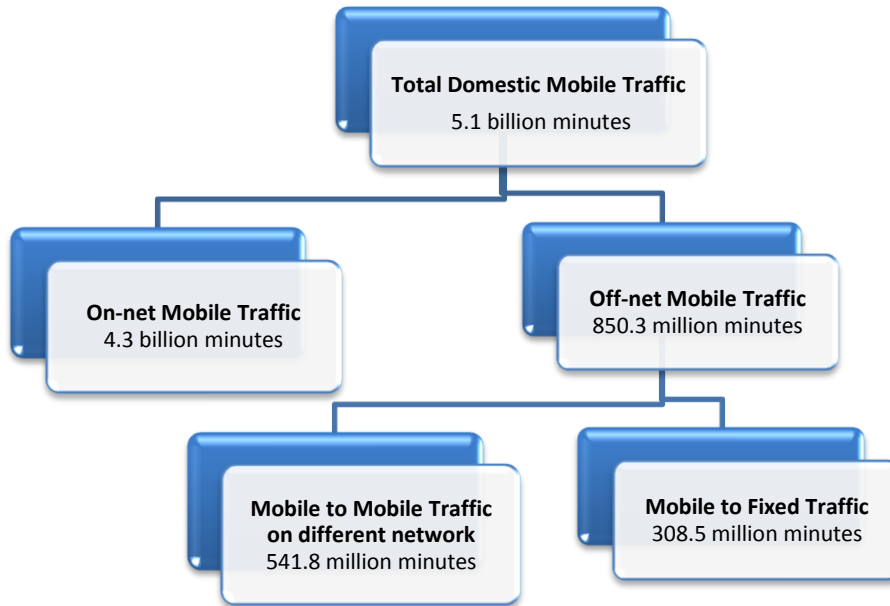
Of the 5.1 billion minutes of domestic mobile traffic, on-net<sup>28</sup> traffic totalled 4.3 billion minutes while off-net<sup>29</sup> traffic recorded 850.3 million minutes. There were 541.8 million mobile to mobile off-net minutes, while 308.5 million mobile to fixed minutes comprised the remaining off-net traffic. The marginal increase in mobile voice traffic is attributable mainly to the increase in mobile to mobile on-net minutes as service providers introduced promotions to encourage longer on-net mobile voice calls.

A breakdown of the subcategories of mobile traffic minutes for 2010 is shown below.

<sup>28</sup> On-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on the same mobile network.

<sup>29</sup> Off-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on another network (intra and inter service provider). For example, a call originating on Digicel's network and terminating on bmobile, Flow or TSTT's fixed network will be included in these minutes.

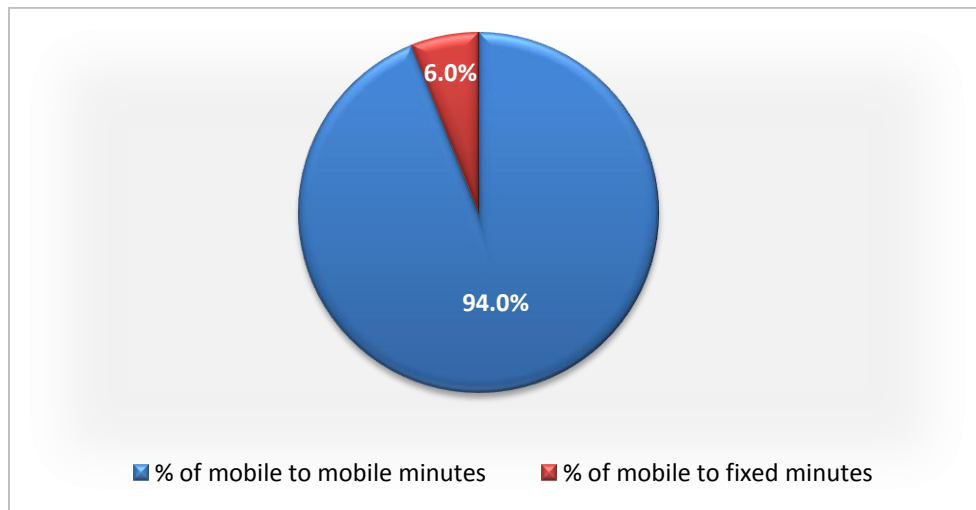
**Figure 43: Breakdown of Domestic Mobile Traffic Minutes 2010**



Source: TATT

Furthermore, the percentage of total mobile minutes terminating on a domestic mobile network was estimated to be 94.0 per cent, while 6.0 per cent represented the number of mobile minutes terminating on a domestic fixed network. Figure 44 gives a representation of the percentage contribution.

**Figure 44: Percentage Breakdown of Fixed and Mobile Contribution to Total Mobile Voice Minutes 2010**



Source: TATT

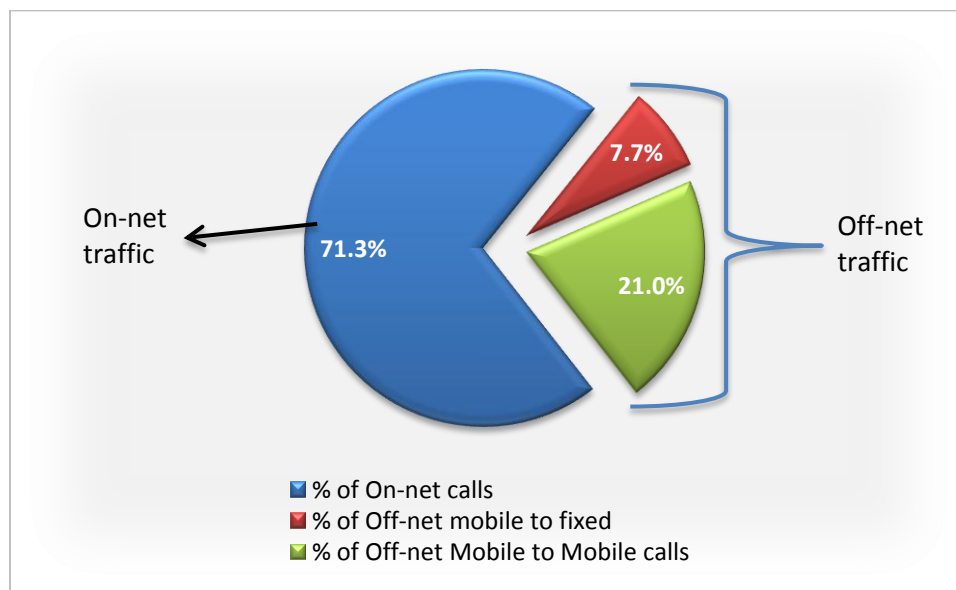


### 3.3.2 Annual Domestic Mobile Voice Call Volumes

Domestic mobile voice calls totalled 2.9 billion for the 2010 period. Of the 2.9 billion calls, on-net traffic totalled 2.1 billion calls or 71.3 per cent of total mobile calls, whilst off-net traffic recorded 830.2 million calls or 28.7 per cent of total mobile calls. Further divided, off-net traffic comprised 223.5 million mobile to fixed calls or 7.7 per cent of total mobile calls, with the remaining 606.7 million calls representing mobile to mobile off-net traffic, 21.0 per cent of total mobile calls.

A breakdown of the subcategories of traffic is shown in Figure 45 below.

**Figure 45: Breakdown of domestic Mobile Traffic Calls 2010**



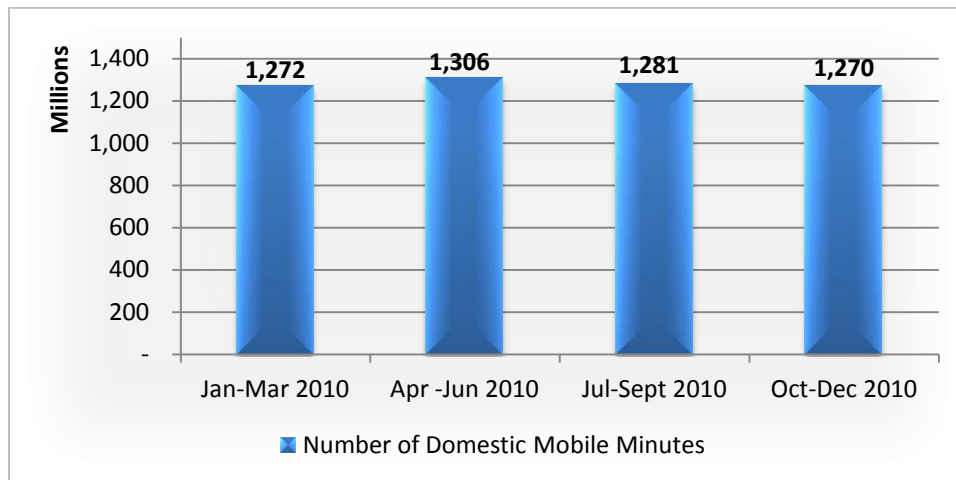
Source: TATT

### 3.3.3 Quarterly Domestic Mobile Voice Traffic

Total domestic mobile voice traffic decreased slightly between Q1 and Q4 from 1,271 million minutes to 1,270 million minutes, a 0.1 per cent decrease between periods. For the first quarter of

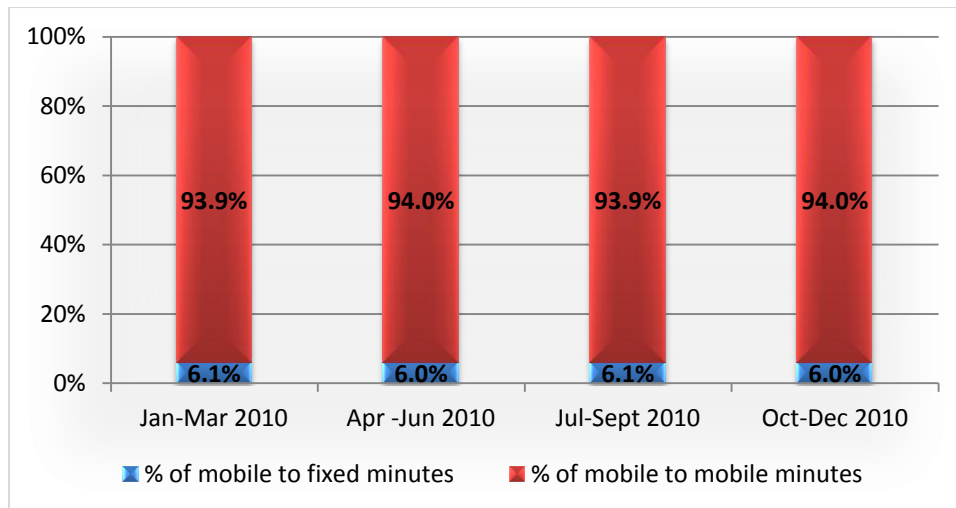
2010, mobile-to-fixed traffic represented 6.1 per cent of total domestic mobile voice traffic. This share decreased slightly to 6.0 per cent of the total volume of domestic mobile traffic in the fourth quarter of 2010. Synonymous with this decrease in the share of mobile-to-fixed traffic is the increase in the share of mobile-to-mobile traffic. The share of traffic from mobile-to-mobile networks increased slightly from 93.9 per cent in Q1 to 94.0 per cent of total mobile traffic in Q4. Quarterly mobile voice traffic for 2010 is shown in Figure 46 whilst the quarterly trend by traffic by type is depicted in Figure 47.

**Figure 46: Quarterly Mobile Voice Traffic 2010**



Source: TATT

**Figure 47: Quarterly Mobile Voice Traffic by Type 2010**



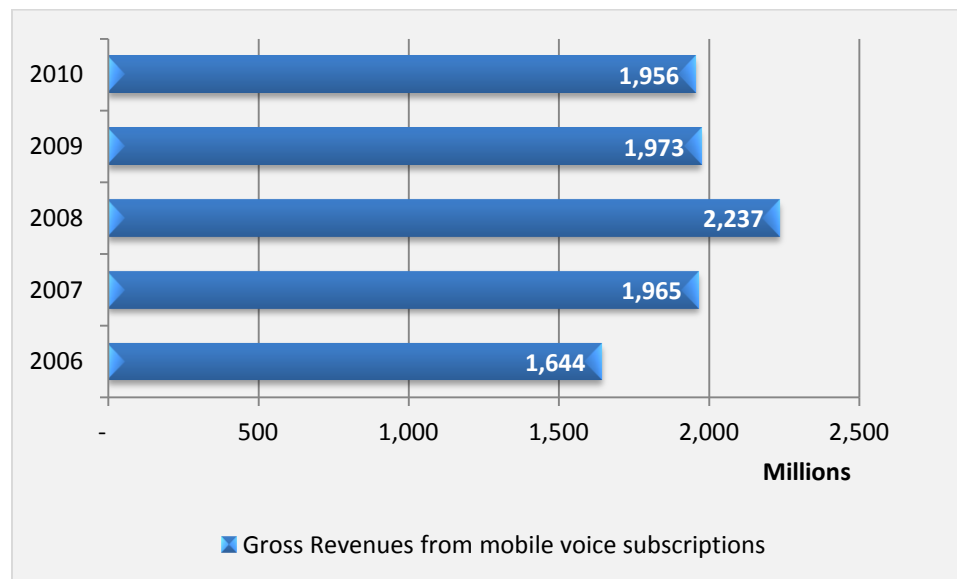
Source: TATT

### 3.4 Mobile Voice Revenues

#### 3.4.1 Annual Revenues from Mobile Voice Subscriptions<sup>30</sup>

For 2010, annual revenues from mobile voice subscriptions totalled TT\$1,907 million continuing its downward trend from 2009. This decline from 2009 to 2010 amounted to TT\$16.8 million, a decrease of 0.9 per cent. The annual revenue trend from 2006 to 2010 is illustrated in Figure 48.

**Figure 48: Annual revenues from Mobile Voice Subscriptions 2006 – 2010**



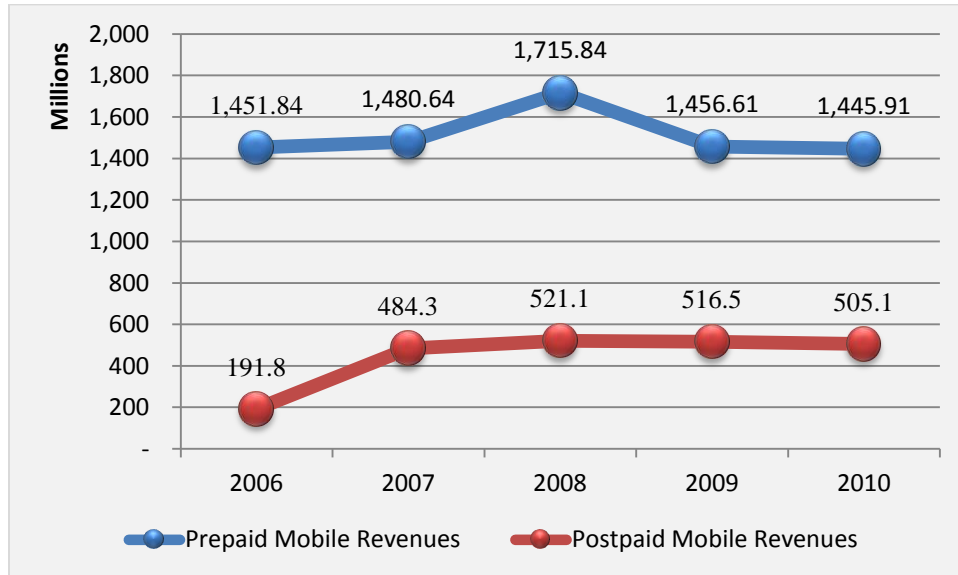
Source: TATT

Prepaid revenue accounted for the larger portion of revenues with a contribution of TT\$1,446 million or 73.9 per cent of total mobile voice revenues. This represents a 0.7 per cent fall in prepaid revenues from 2009. Postpaid revenues contributed TT\$505.1 million representing 25.8 per cent of the total mobile earnings. This represents a decrease of 2.2 per cent fall in postpaid revenues from 2009. Notably, when compared to 2009, the proportion of prepaid revenues to post paid revenues remained relatively the same with the percentage of prepaid revenues in 2010 increasing by only 0.1 per cent.

<sup>30</sup> These revenues exclude mobile Internet revenue which is reported within the Internet section of this report.

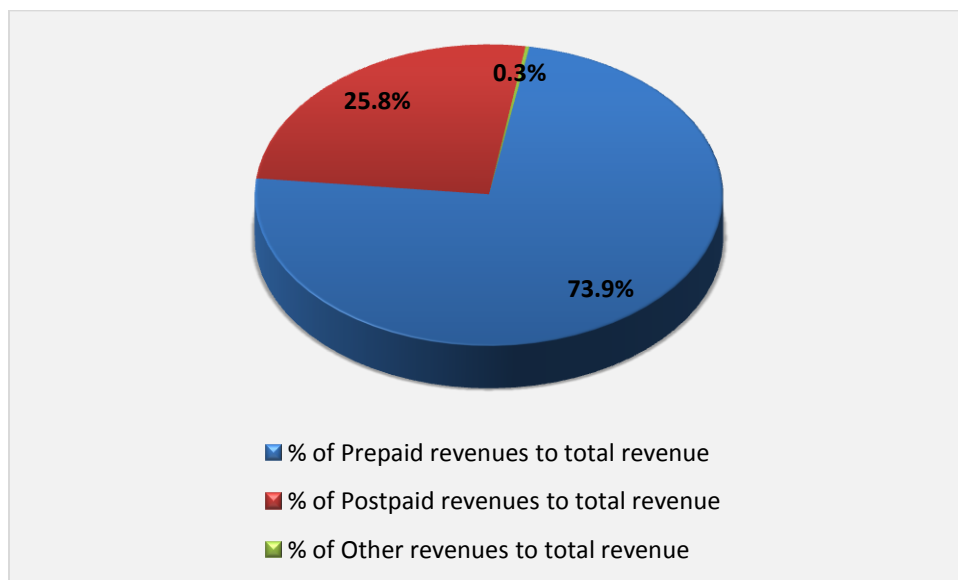
The trend in prepaid and postpaid revenues for the period 2006-2010 is shown in figures 49 whilst the percentage contributions to revenues for the 2010 period is shown in figure 50.

**Figure 49: Revenues from Mobile Voice Subscriptions-Prepaid and Postpaid 2006 – 2010**



Source: TATT

**Figure 50: Percentage of Prepaid and Postpaid Contributions to Revenues from Mobile Voice Subscriptions for 2010**

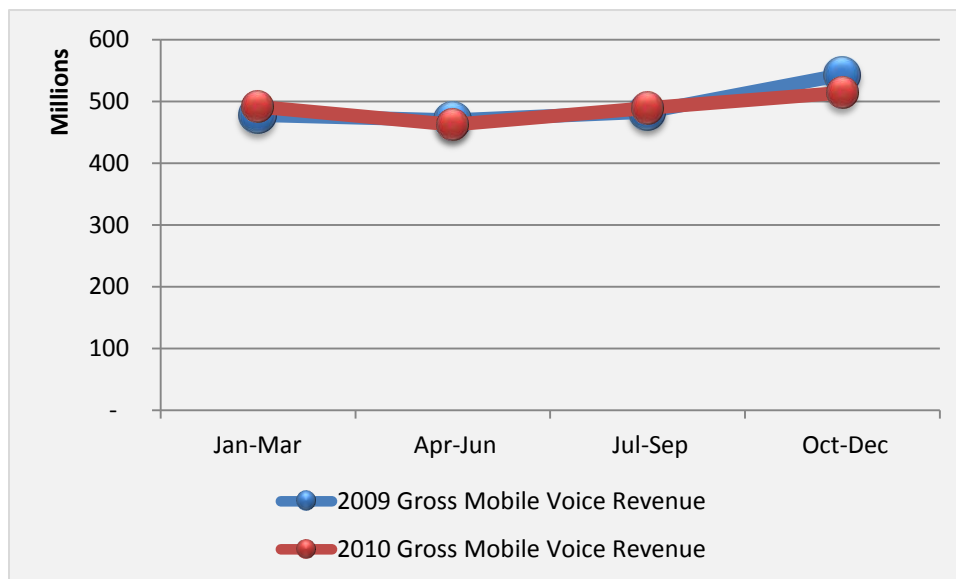


Source: TATT

### 3.4.2 Quarterly Revenues from Mobile Voice Subscriptions

The mobile voice market saw a 4.6 per cent increase in the amount of revenues generated from \$491.1 million as at the end of Quarter 1 to \$513.9 million at the end of Quarter 4. When compared to 2009 quarterly mobile voice revenues exhibited similar trends. During Quarter 2 mobile voice revenues dipped for both 2009 and 2010. Likewise, the same pattern of increasing revenues during the third and fourth quarters was noticed for 2009 and 2010 which may be attributed to seasonal fluctuations from the school vacation period and the Christmas season. Figure 51 compares the quarterly mobile revenues for 2009 and 2010.

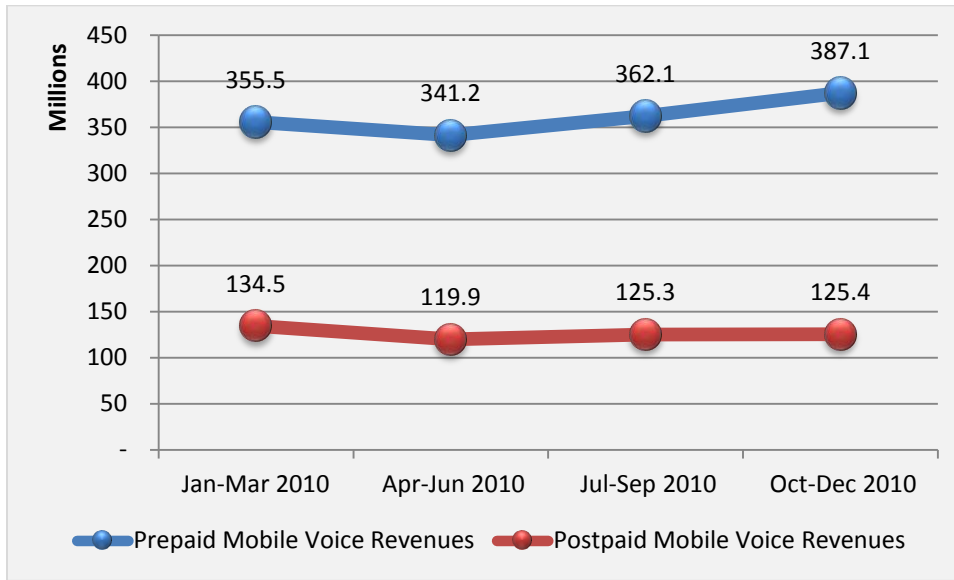
**Figure 51: Comparison of 2009 and 2010 Quarterly Mobile Revenues**



Source: TATT

Prepaid revenues increased by 8.9 per cent between Quarter 1 and Quarter 4 while postpaid revenues decreased by 6.9 percent for the same period. Figure 52 shows the quarterly revenue trends for 2010 with both prepaid and postpaid revenues experiencing the same seasonal fluctuations as experienced with gross mobile voice revenues.

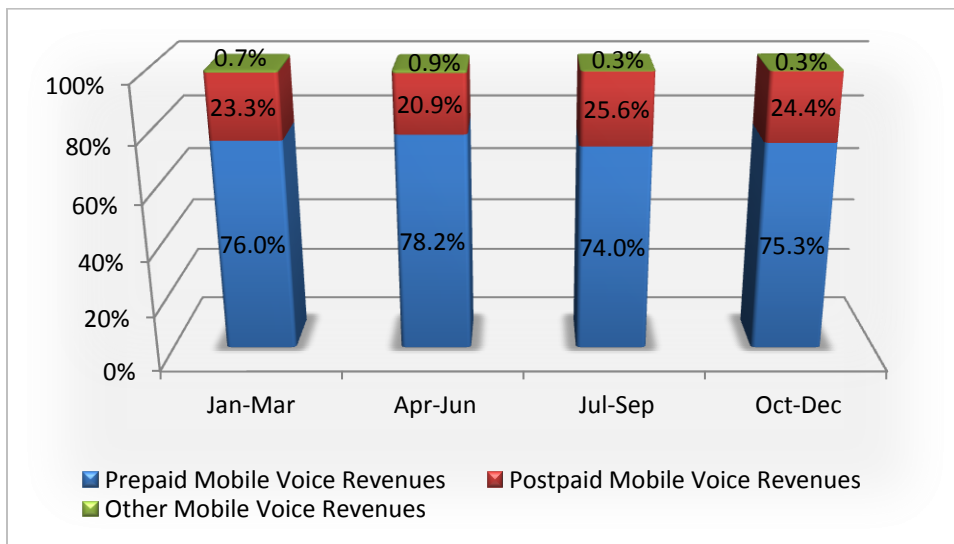
**Figure 52: 2010 Quarterly Prepaid and Postpaid Revenues**



Source: TATT

From a market share position, prepaid subscriptions contributed the majority of mobile market voice revenues with a quarterly average of 73.9 per cent market share while postpaid subscriptions contributed the remaining 25.8 per cent. As figure 53 illustrates the proportion of prepaid to postpaid revenues fluctuated during each quarter of 2010. Other mobile voice revenues contributed an average of 0.3 per cent of gross revenues during the 2010 period.

**Figure 53: Percentage of Revenues Contributed by Prepaid and Postpaid Mobile Voice Subscriptions**

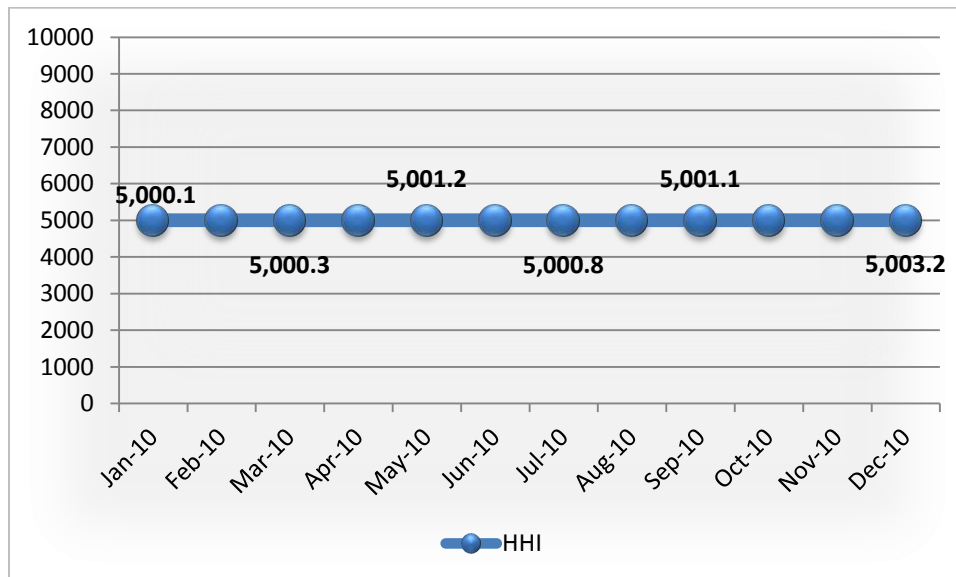


Source: TATT

### 3.5 Mobile Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration in the mobile market of Trinidad and Tobago for the year ending December 2010. ‘Number of subscriptions’ was used to determine market share for the service providers. The result reveals that there was an HHI of approximately 5,003 at the end of December 2010, an insignificant increase of 0.1 per cent over the figure reported for December 2009. Figure 54 illustrates the HHI trend for 2010.

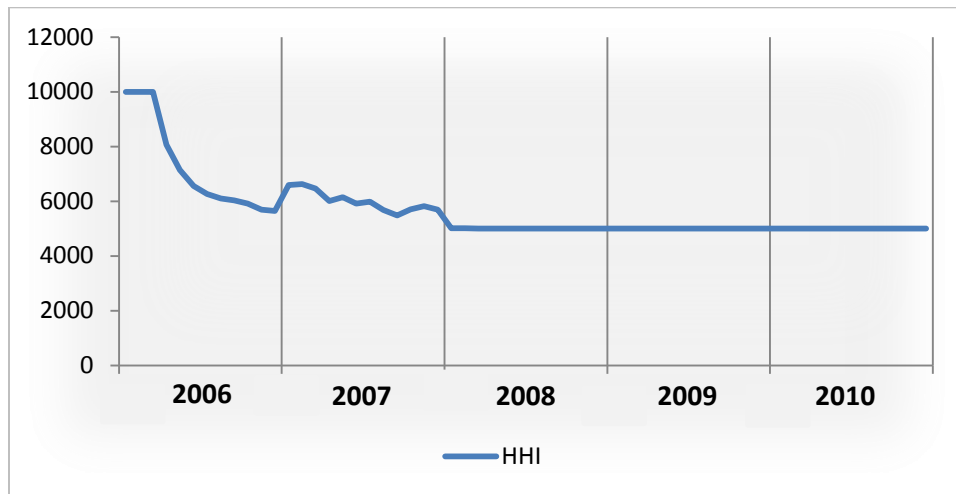
**Figure 54: Hirschman-Herfindahl Index for the Mobile Market January–December 2010**



Source: TATT

On comparing the last five years, Figure 55 shows the effects of market competition reducing the HHI in the mobile market from a monopoly of 10,000 in 2006 to 5,003 in 2010. However the results also indicate that there is a duopolistic position held by both mobile service providers in the market.

**Figure 55: Hirschman-Herfindahl Index for the Mobile Market 2006 - 2010**



Source: TATT

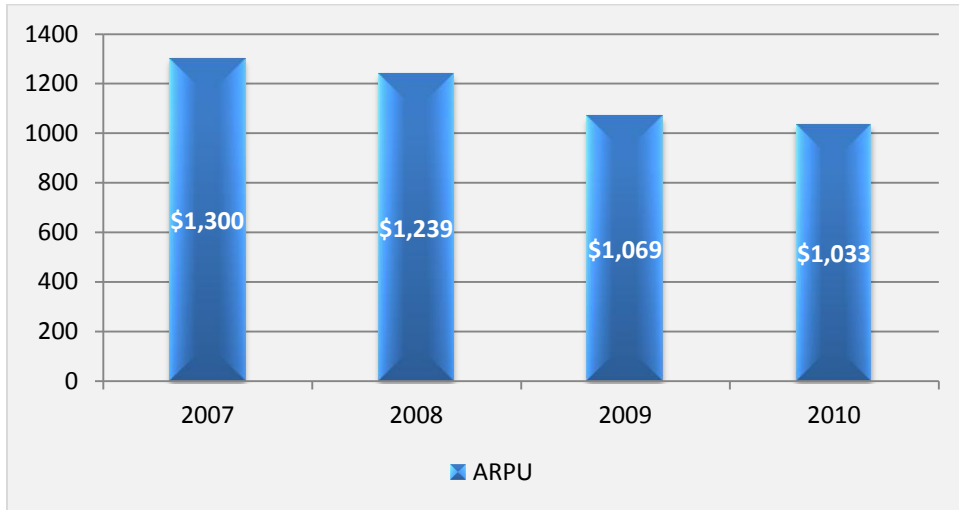
### 3.6 Average Revenue per User

During 2010, customers of mobile subscriptions spent an average of TT \$1,033 for mobile services<sup>31</sup>. This represents a decrease of TT\$35.9 or 3.4 per cent in the average revenue per user (ARPU) over the amount recorded for 2009. The ARPU generated for prepaid mobile subscriptions stood at \$850, a fall of \$12.9 or 1.5 per cent when compared to 2009, while the ARPU generated for postpaid subscriptions was \$2,624, a decrease of \$654 or 25 per cent. Figure 57 compares the ARPU earned for prepaid and postpaid subscriptions from 2009 to 2010.

<sup>31</sup> ARPU from mobile services excludes Mobile Internet services.

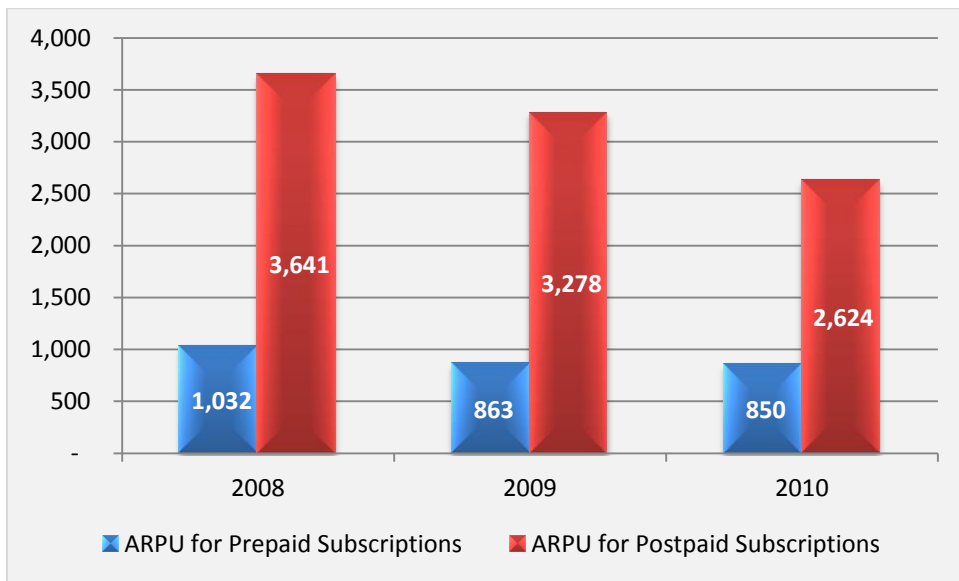


**Figure 56: ARPU for Mobile services 2007-2010**



Source: TATT

**Figure 57: ARPU for Prepaid and Postpaid Subscriptions**



## Key Market trends and Observations in the Internet Market

- **Internet subscriptions continue to rise**
- **Increased Internet penetration fuelled mainly by increased uptake in mobile Internet**
- **Significant uptake of broadband Internet services**
- **More than half the population estimated to regularly use the Internet**

### 4. Internet Market Data

This section provides information on the provision of Internet services in Trinidad and Tobago, over public domestic fixed (wired or wireless) and mobile telecommunications networks.

In 2010, there were seven (7) operators authorized to provide fixed domestic telecommunications services which included the provision of Internet services. All of the concessionaires as listed below currently provide fixed internet services:

- Telecommunications Services of Trinidad and Tobago (TSTT),
- Columbus Communications Trinidad Limited (CCTL),
- Green Dot Limited
- Three Sixty Communications Limited
- Illuminat (Trinidad & Tobago) Limited
- Lisa Communications Limited
- Open Telecom Limited

There also existed two mobile operators that are authorized and currently provide domestic mobile telecommunications services, including the provision of Internet services to the public. They were:

- Telecommunications Services of Trinidad and Tobago (bmobile)<sup>32</sup>, and
- Digicel Trinidad Limited

### **Broadband Wireless Access (BWA) Services**

Since 2007, the Authority has granted a number of concessions for the provision of broadband Internet access, fixed telephony and/or subscription broadcasting services (hereafter termed, “Broadband Wireless Access (BWA) services”) over fixed wireless domestic telecommunications networks. As at December 2010 concessions for the provision of BWA services were granted to GreenDot, TSTT and Digicel. A concession was also recommended to the Minister for Telestar. TSTT has deployed a WiMAX network with a wireless broadband Internet access service using spectrum awarded in the 2.5 GHz band. Additionally, GreenDot has launched a wireless subscription broadcasting service using spectrum awarded in the Lower 700 MHz band. Furthermore, there are three incumbent BWA spectrum users, Open Telecom Limited (operating in the 2.5 GHz band), Illuminat Limited and Lisa Communications Limited (both operating in the 3.5 GHz band) who have all been regularized and are poised to expand their wireless broadband Internet services to residential consumers.

#### **4.1 Internet Subscriptions**

The market for Internet services experienced significant growth in 2010 as a result of the increased accessibility of mobile Internet services and continued take-up of fixed Internet services. Internet subscriptions for 2010 comprising both fixed and mobile postpaid<sup>33</sup> Internet totalled 309.9 thousand. This represented an increase of 71.6 thousand or 30 per cent in Internet subscriptions over 2009.

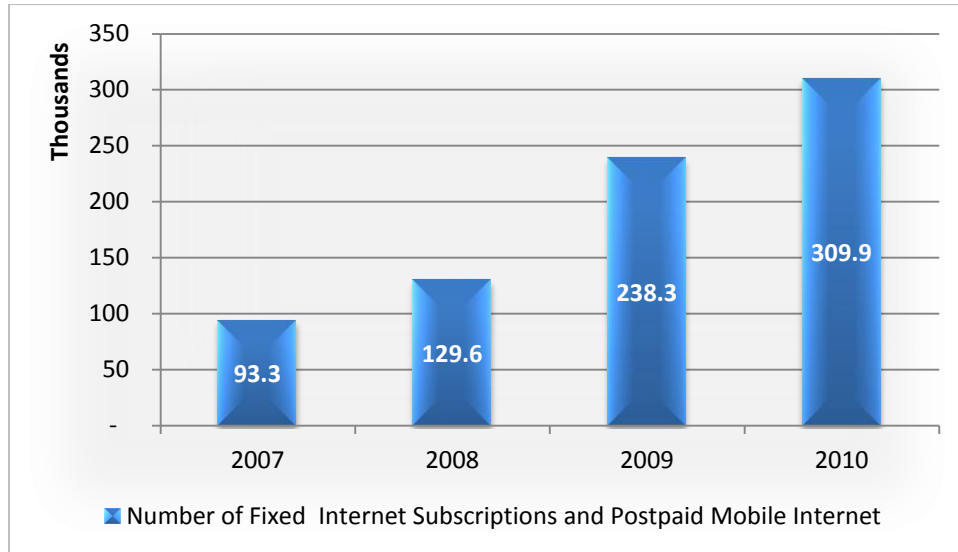
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<sup>32</sup> bmobile is the mobile services division of TSTT, therefore their Internet services are recorded as one concessionaire.

<sup>33</sup> Only fixed Internet subscriptions and mobile Internet postpaid subscriptions were included in the calculations for total Internet subscriptions. The reason for using postpaid mobile internet only in the calculation of total internet subscriptions is explained in Section 1.1.2

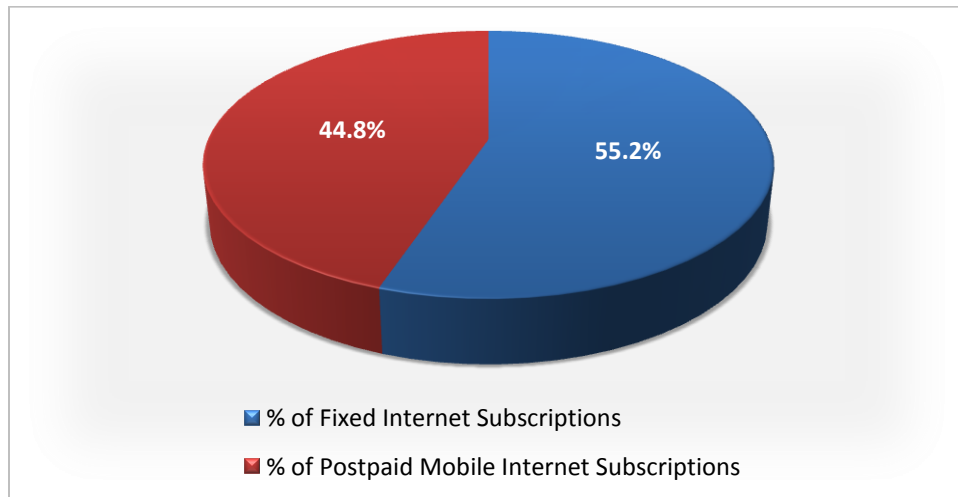
Figure 58 illustrates the increasing trend of Internet subscriptions from 2007 to 2010, while Figure 59 portrays the percentage of fixed and postpaid mobile Internet subscriptions contributing to total Internet subscriptions.

**Figure 58: Total Number of fixed and mobile postpaid Internet Subscriptions 2007 - 2010**



Source: TATT

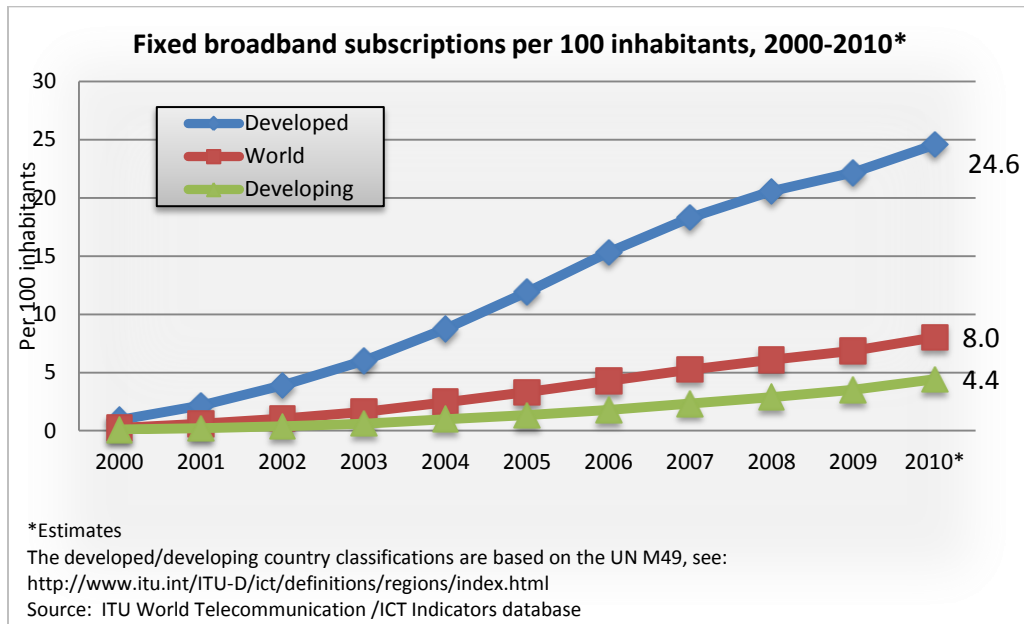
**Figure 59: Percentage of Fixed and Mobile Internet Subscribers for 2010**



Source: TATT

Global statistics from the International Telecommunications Union (ITU) has indicated that over the last decade, the uptake of broadband Internet has grown significantly over the years. Figure 60, sourced from the ITU, illustrates.

**Figure 60: Global Trend in Broadband Subscriptions**

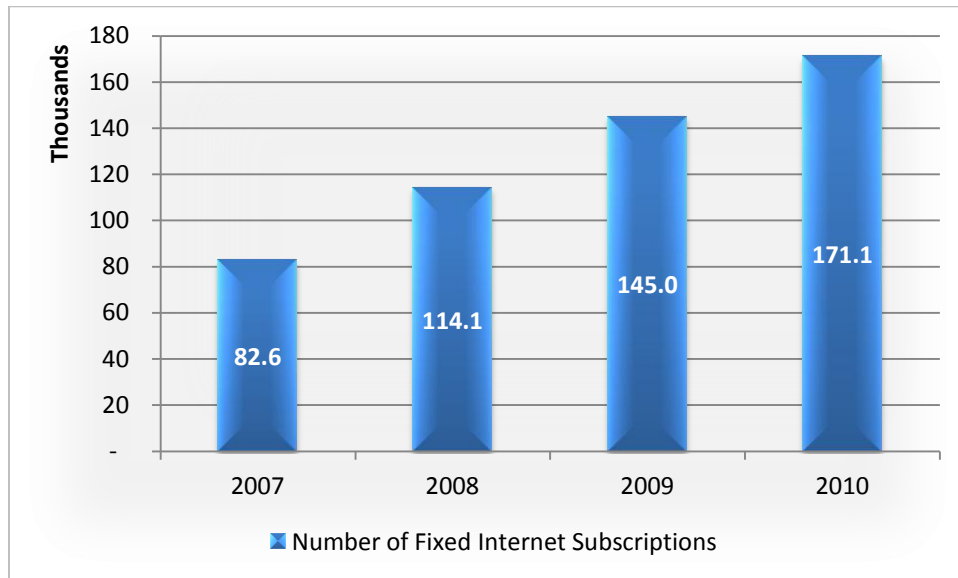


Source: ITU

**4.1.1 Fixed (Wired and Wireless) Internet Subscriptions**

As at December 2010, the number of fixed Internet subscriptions grew by 18.0 per cent totalling in excess of 171.1 thousand subscriptions. This increase of 26.1 thousand subscriptions over the last year may be attributed to the increased level of competitive tactics among providers in the market to attract new customers. During 2010 several promotional activities were targeted at both attracting new customers as well as configuring packages to better suit the changing needs of Internet customers. The yearly trend of fixed Internet subscriptions from 2007 to 2010 is shown in Figure 61.

**Figure 61: Fixed Internet Subscriptions 2007-2010**



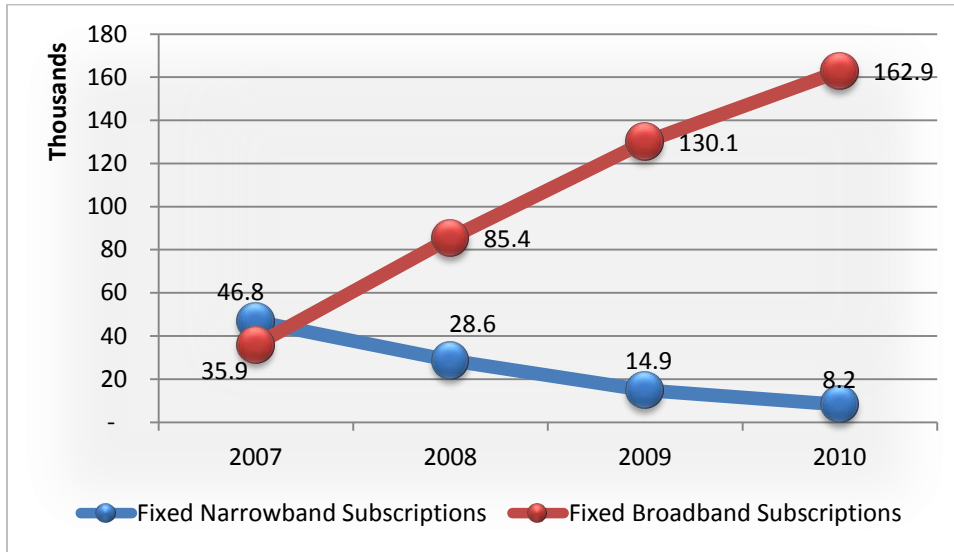
Source: TATT

Fixed broadband<sup>34</sup> Internet subscriptions accounted for 162.9 thousand or 95.2 per cent of total fixed Internet subscriptions while fixed narrowband<sup>35</sup> Internet subscriptions accounted for 8.2 thousand or 4.8 per cent. Over the last four years fixed broadband subscriptions have significantly outnumbered fixed narrowband subscriptions as illustrated in Figure 62 and further highlighted in figure 63 below, which depicts the percentage of broadband and narrowband subscriptions to total fixed Internet subscriptions at the end of 2010.

<sup>34</sup> Broadband can be defined as speeds > 256 kbits per second

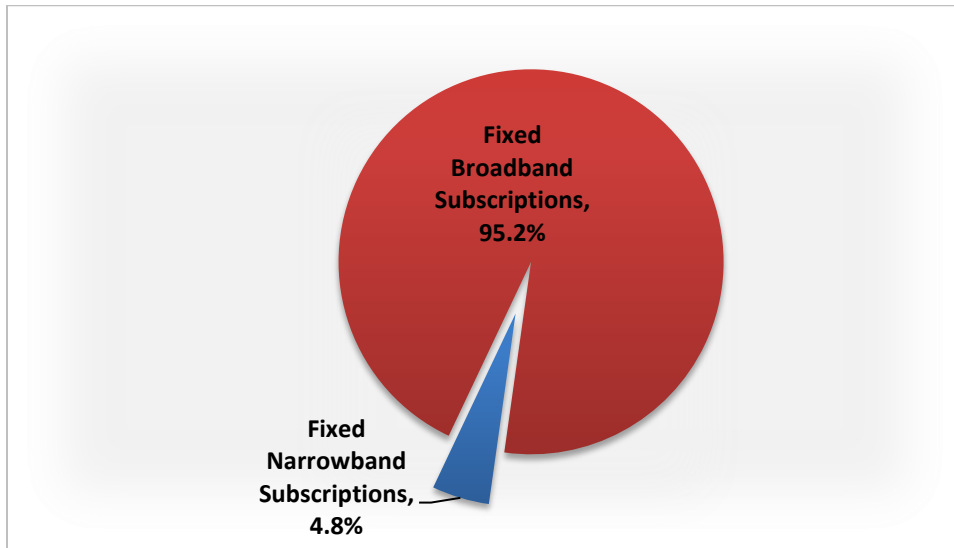
<sup>35</sup> Narrowband can be defined as speeds ≤ 256 kbits per second

**Figure 62: Fixed Narrowband and Broadband Subscriptions 2007- 2010**



Source: TATT

**Figure 63: Percentage of Broadband and Narrowband Fixed Internet Subscriptions 2010**



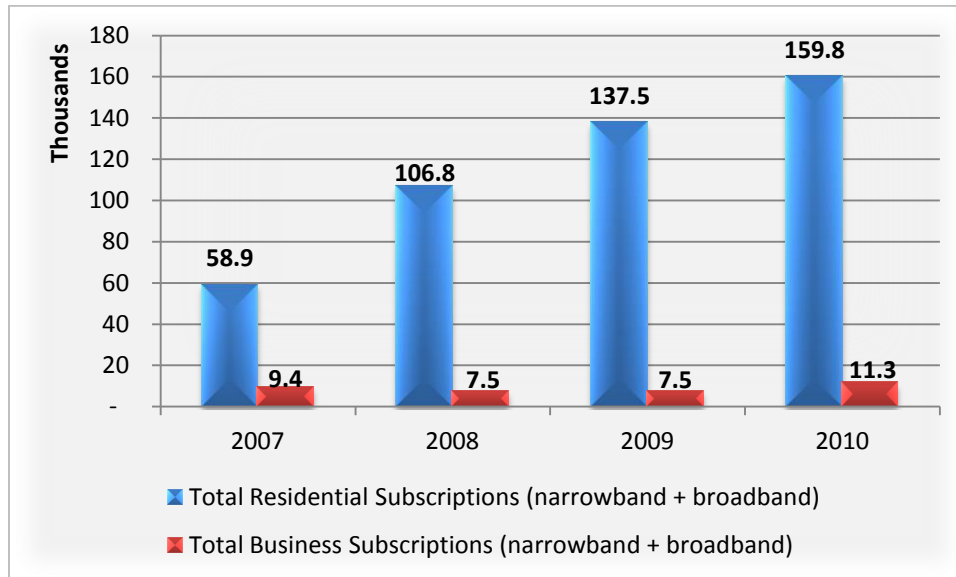
Source: TATT

In comparison to 2009, broadband subscriptions increased by 25 per cent or an estimated 32.8 thousand subscriptions, whereas narrowband subscriptions decreased by 44.6 per cent or about 6.7 thousand subscriptions. The continued substitution of narrowband subscriptions to broadband services may be a direct result of service providers in the market upgrading their services such that customers can now enjoy faster broadband speeds at comparable or even better prices than were previously offered for narrowband services. It has been observed that in 2010, some service

providers in the industry have been significantly increasing the speed of their broadband service with little or no change in the price of their packages. Additionally, several promotions were observed to attract new customers. These marketing strategies have contributed to the strong growth of subscriptions in the fixed Internet market.

The number of fixed Internet subscriptions can be further grouped into residential and business categories. In 2010 the number of residential subscriptions amounted to approximately 159.8 thousand, representing a growth rate of 16.3 per cent or a 22.4 thousand rise in subscriptions from 2009. Also, business subscriptions measured roughly 11.3 thousand, expanding from 2009 by 50.4 per cent or 3.8 thousand subscriptions. Figure 64 illustrates the trend of residential and business fixed Internet subscriptions for 2007 to 2010.

**Figure 64: Residential and Business Fixed Internet Subscriptions 2007-2010**

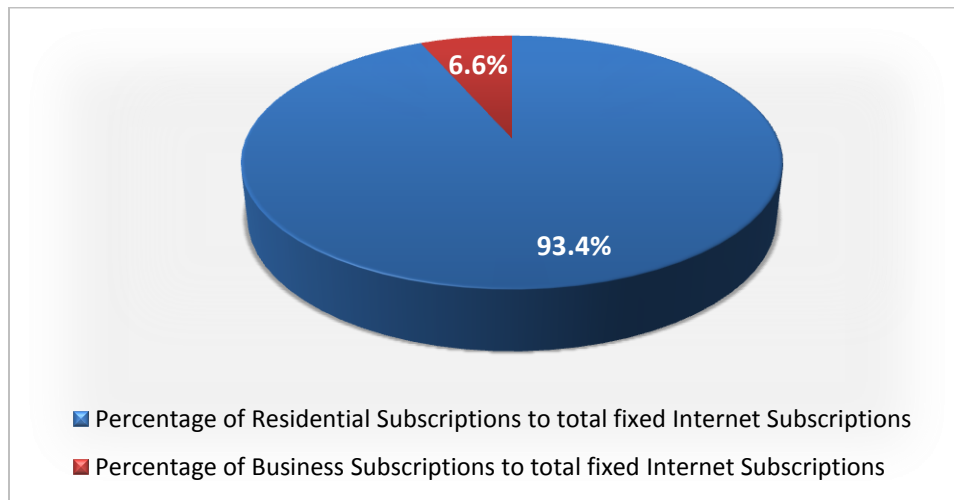


Source: TATT

Figure 65 presents the percentage distribution of fixed Internet subscriptions between residential and business categories.



**Figure 65: Percentage of Residential and Business Fixed Internet Subscriptions 2010**

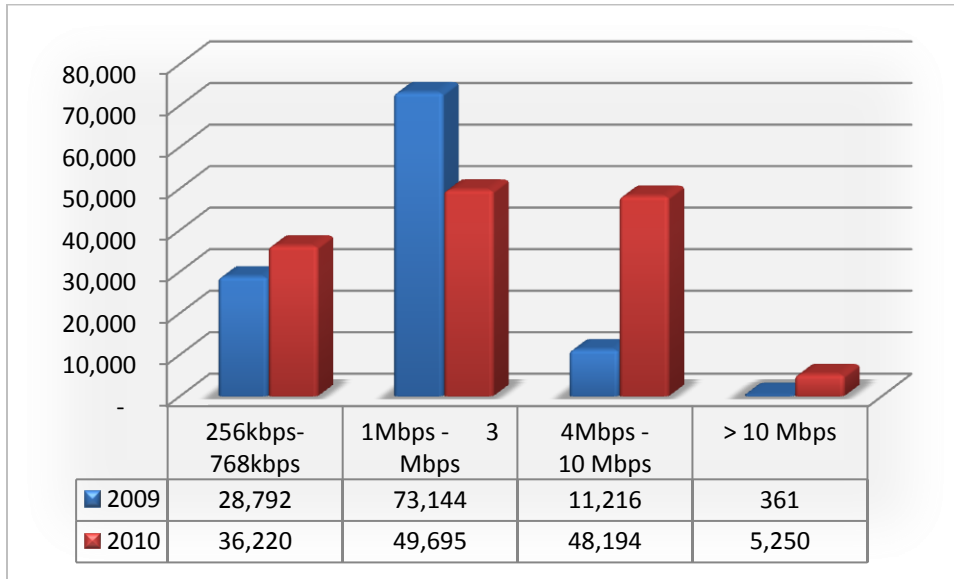


Source: TATT

The broadband market also showed that the majority of residential customers subscribed to packages offering download speeds between 1MB to 3MB and 4MB to 10MB, whereas Internet speeds greater than 10MB are more popular among business customers. It can be noted that significant changes to subscriptions in the afore-mentioned download speeds were observed. For residential subscriptions in the 1MB - 3MB download speeds, subscriptions decreased by approximately 23 thousand or 32.1 per cent. On the other hand, residential subscriptions in the 4MB - 10MB download speeds increased by 37 thousand or 329.7 per cent. As explained in Section 4.1.1, this significant increase in subscriptions in the 4MB - 10MB download speeds is mainly attributable to service providers upgrading the speeds of their broadband service with little or no change in the price of their packages.

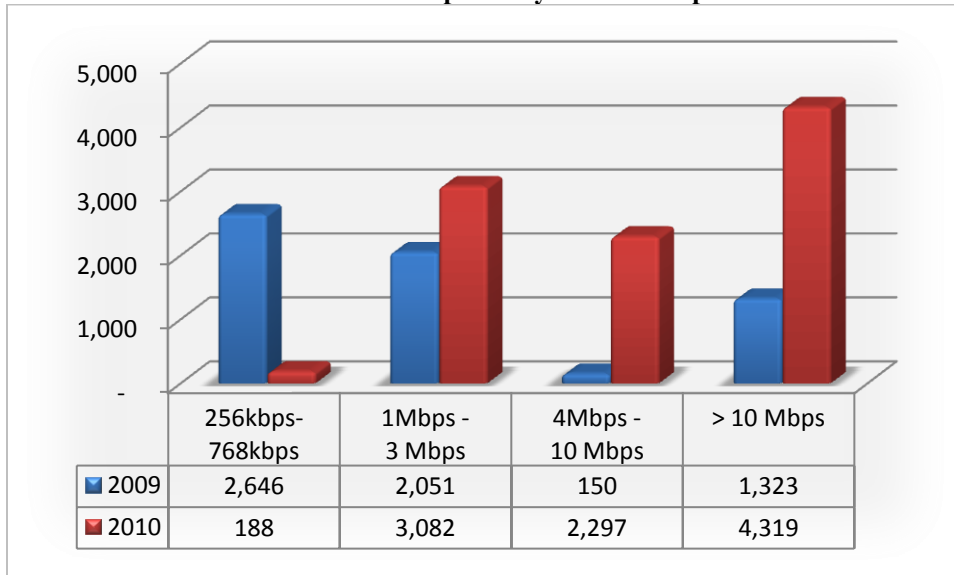
Likewise, business subscriptions to packages offering download speeds greater than 10MB expanded by approximately 3 thousand or 226.5 per cent. Figure 66 and 67 illustrate subscriptions by download speed.

**Figure 66: Number of Broadband Residential Subscriptions by Download Speed 2010**



Source: TATT

**Figure 67: Number of Broadband Business Subscriptions by Download Speed**

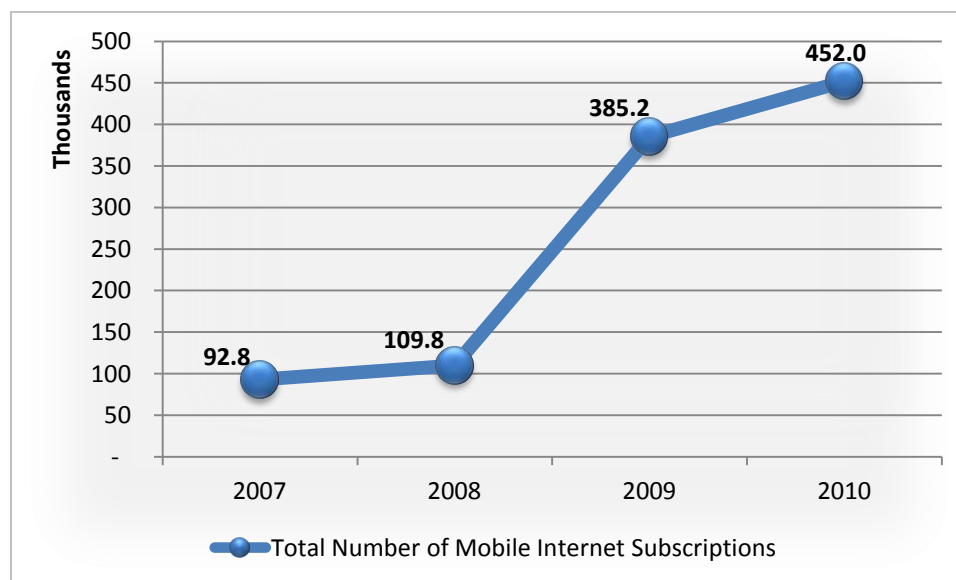


Source: TATT

#### 4.1.2 Mobile Subscriptions with Internet Access

The number of mobile subscriptions with Internet access<sup>36</sup> continued to grow strongly in 2010 with a total of 452.2 thousand subscriptions, a 17.3 percent increase over the 2009 period. With the number of mobile voice subscriptions recorded for 2010 just under 2 million, it is estimated that 23.9 per cent<sup>37</sup> of the mobile population can access the Internet using their phones. Figure 68 compares the number of mobile subscriptions with Internet access trend from 2007-2010. It is noted that the steep increase in mobile Internet experienced between 2008 to 2009 was largely attributed to the redefinition of the term in 2009 to ‘mobile subscriptions with Internet access’ which was broadened to measure the level of mobile Internet accessibility available to subscribers rather than only usage of the service.

Figure 68: Number of Mobile Subscriptions with Internet Access 2007-2010



Source: TATT

Subscriptions for this category can be divided into postpaid and prepaid mobile subscriptions with Internet access. Postpaid customers are provided with monthly Internet airtime and are

<sup>36</sup> The definition used in the collection of data from service providers is as follows: *Number of mobile users with Internet access refers to (prepaid and postpaid) subscribers of the mobile cellular network who can access the Internet via a mobile phone.* This definition differs from mobile Internet subscriptions which specifically refer to mobile postpaid Internet subscriptions.

<sup>37</sup> This estimate was derived using the formula: number of mobile subscriptions with Internet access / number of mobile subscriptions.

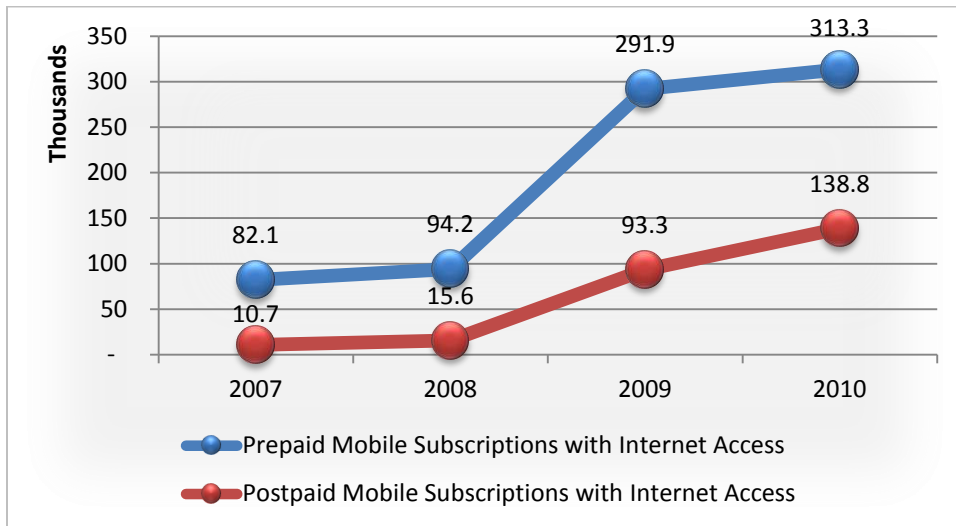
billed accordingly. These persons are considered actual users of the service are thus defined as ‘true’ mobile Internet subscribers. On the other hand, any prepaid mobile subscriber with an Internet compatible phone and sufficient ‘top up’ credit is also counted as having mobile Internet access, as the user has the capability of automatically accessing the Internet. These users are not billed at the end of the month but instead the charge for Internet airtime is immediately deducted from the prepaid credit. As a result, mobile service providers count these prepaid subscribers as mobile Internet subscribers as they have the option of accessing the Internet on their phones.

***For this reason, this report only considers actual mobile Internet users to be postpaid mobile subscriptions with Internet access at this time. The Authority is currently working with service providers to obtain data on mobile Internet utilization amongst prepaid mobile customers.***

As shown in Figure 69 below, 313.3 thousand were estimated to be prepaid mobile subscriptions with Internet access, which is an increase from 2009 of 21.4 thousand subscriptions or 7.3 per cent. Additionally, 138.8 thousand were counted as postpaid mobile subscriptions, a 45.2 thousand increase in subscriptions or 48.7 per cent growth from the last period. Even though a stronger growth rate was recorded with postpaid subscriptions, prepaid continued to account for 69.3 per cent of total mobile subscriptions with Internet access, with postpaid mobile subscriptions accounting for the remaining 30.7 per cent. This percentage distribution is shown in Figure 70.

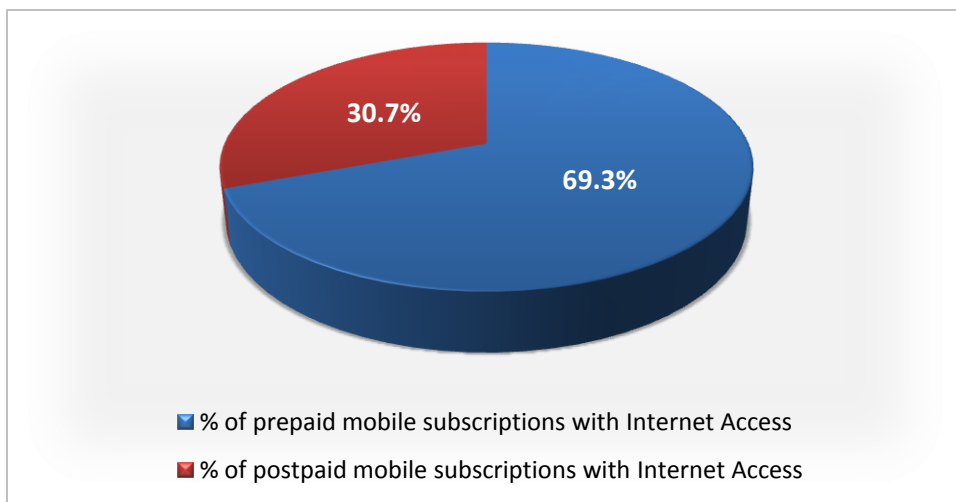
Contributing to the rise in mobile subscriptions with Internet access may be the increased popularity of smart phones in Trinidad and Tobago. During 2010 both players in the mobile market had numerous advertising campaigns and promotions for customers to adopt the use of Smart phones (see box 3). Downward pressures on the prices of Smartphone handsets and the wide range of mobile Internet packages may have also contributed to the increased use of Smart phones by customers.

**Figure 69: Number of Prepaid and Postpaid mobile subscriptions with Internet Access for 2007-2010**



Source: TATT

**Figure 70: Percentage of Prepaid and Postpaid Mobile Subscriptions with Internet Access 2010**

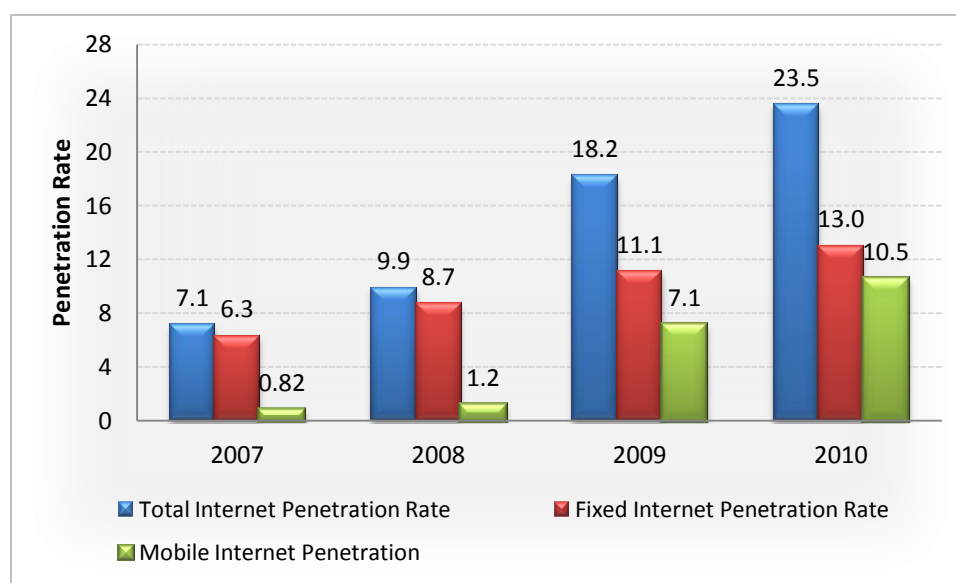


Source: TATT

## 4.2 Internet Penetration

For 2010, Trinidad and Tobago recorded a fixed Internet penetration<sup>38</sup> of 13.0 while mobile Internet penetration<sup>39</sup> measured 10.5. Combined, a total Internet penetration rate<sup>40</sup> of 23.5 was achieved, increasing by 5.3 from 2009. This increase in the penetration rate is largely as a consequence of the growth in the number of mobile subscriptions with Internet access for the period under review. Figure 71 below looks at the Internet penetration trend from 2007 to 2010.

**Figure 71: Internet Penetration 2007-2010**



Source: TATT

One of the ITU's main objectives contributing towards the Millennium Development Goals is to facilitate the building of an inclusive Information society. The Broadband Commission<sup>41</sup> has specifically highlighted the importance of Broadband Internet by describing it as 'a revolution in how services are delivered, industrial processes are managed and research is carried out'. The Broadband Commission also states it is 'essential that countries and communities everywhere are

<sup>38</sup> Fixed Internet penetration is calculated: (total number of Fixed Internet Subscriptions / Total Population) \* 100

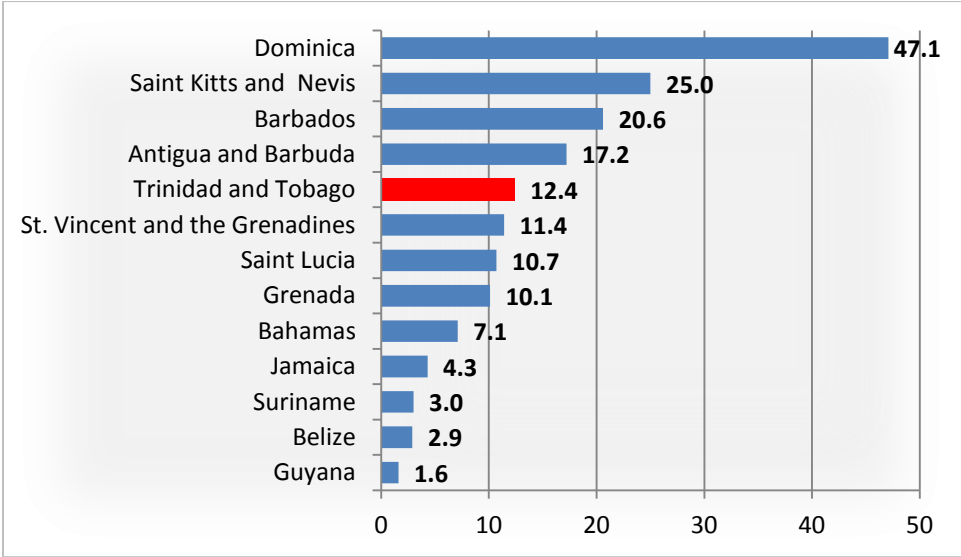
<sup>39</sup> Mobile Internet penetration is calculated: (total number of Postpaid Mobile Internet Subscriptions / Total Population number) \* 100. It must be noted that mobile Internet penetration is calculated using only postpaid mobile subscriptions as these are considered 'true' mobile Internet subscriptions. Reference can be made to section 4.1.2.

<sup>40</sup> Internet penetration rate is calculated: (total number of Internet Subscriptions / Total Population) \* 100

<sup>41</sup> Broadband: A Platform for Progress. A Report by the Broadband Commission for digital development

enabled to take advantage of this revolution. If they are not, they will lose the opportunity to reap the economic and social benefits that broadband brings'. In 2010, fixed broadband Internet penetration stood at 12.4 up by 24.3% when compared to 2009. Compared regionally among Caricom countries, Trinidad ranks fifth in terms of broadband Internet penetration as highlighted in figure 72 below.

**Figure 72: Fixed Broadband Internet Penetration among Caricom Countries 2010**

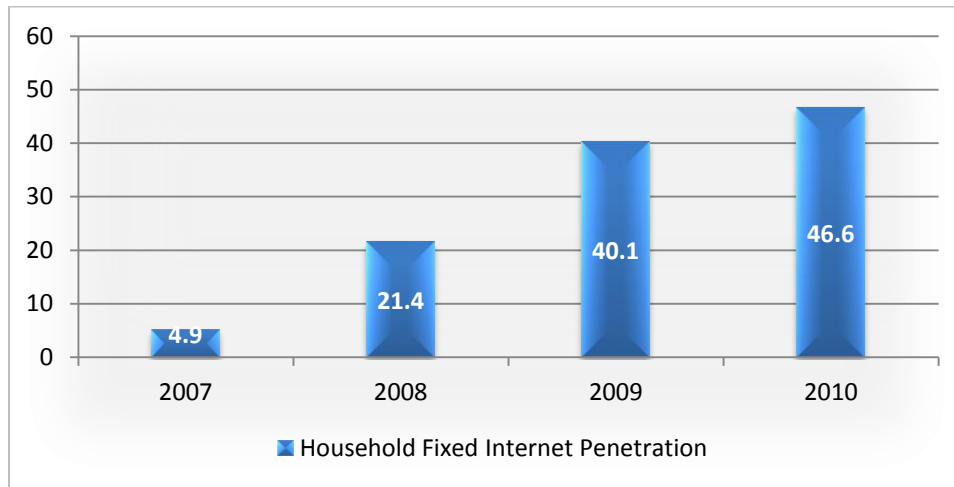


Source: International Telecommunications Union and TATT

Similar to Internet penetration, Internet household penetration<sup>42</sup> can be used to measure the proportion of households with Internet access at home. For 2010, Internet household penetration measured approximately 46.6. This indicates that approximately 47 out of every 100 households subscribe to a fixed Internet package. Figure 73 below depicts the growth in Internet household penetration for the period 2007 to 2010.

<sup>42</sup> Internet household penetration = (number of residential fixed Internet subscriptions / total number of households) \* 100

**Figure 73: Internet Household Penetration 2007-2010**



Source: TATT

#### **4.2.1 Internet Users**

Another useful indicator to measure progress towards an Information society is the number of Internet users<sup>43</sup> penetration. In 2007, the Authority conducted a Digital Divide survey<sup>44</sup> which showed that approximately 33 in every 100 persons (approximately 429,000 persons) in Trinidad and Tobago regularly used the Internet. Since no other survey was conducted after 2007, the Authority estimates the total number of Internet users to be the summation of the number of fixed Internet subscriptions for the year multiplied by the average number of persons residing within a household<sup>45</sup> and the number of post paid mobile Internet users. For 2010, this approximates to 823, 144 Internet users or 63 out of every 100 persons who regularly use the Internet. Figure 74 below shows the growth in number of Internet users (both Fixed and mobile) over the years.

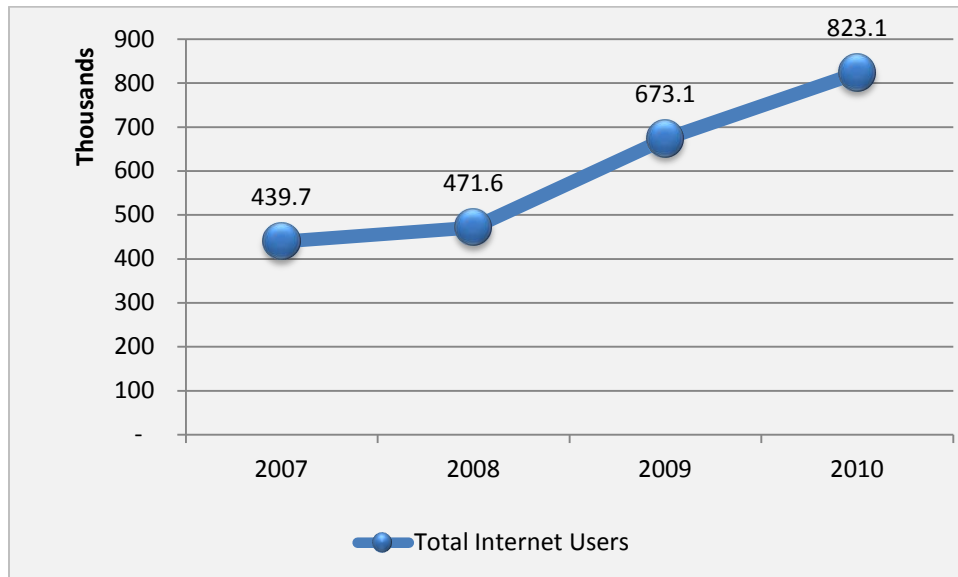
<sup>43</sup> Persons who regularly use the Internet. A person does not have to have a personal Internet subscription to be considered an Internet user.

<sup>44</sup> The complete Digital Divide Report 2007 can be found on the Authority's website: [www.tatt.org.tt](http://www.tatt.org.tt)

<sup>45</sup> The Central Statistical Office estimated that an average of four (4) persons reside within a household in its 2000 Census Report.



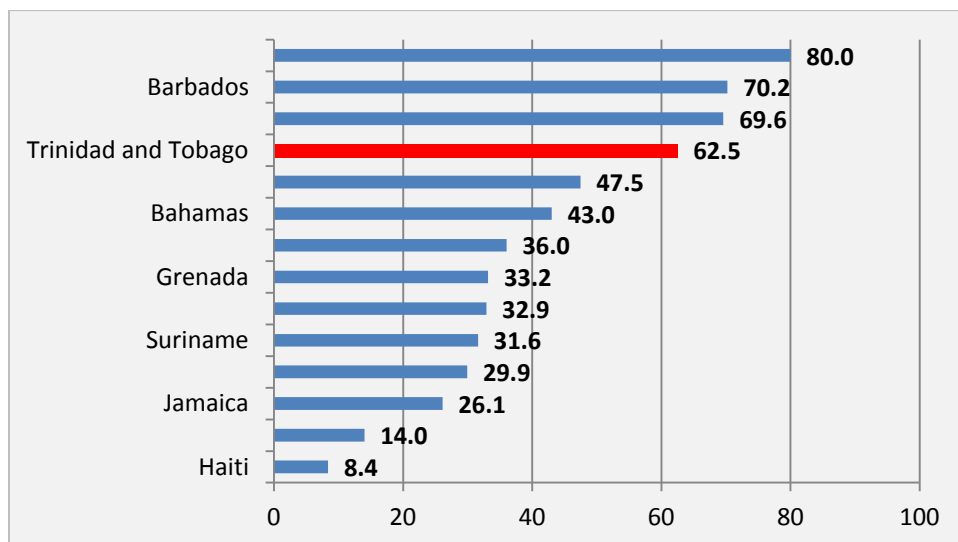
**Figure 74: Number of Internet Users (fixed and Mobile) 2007-2010**



Source: TATT

In comparison with other Caricom countries, Trinidad and Tobago ranks fourth after Antigua and Barbuda, Barbados and St. Vincent and the Grenadines in the number of Internet users per 100 inhabitants. Figure 75 illustrates.

**Figure 75: Internet Users per 100 inhabitants among Caricom Countries 2010**



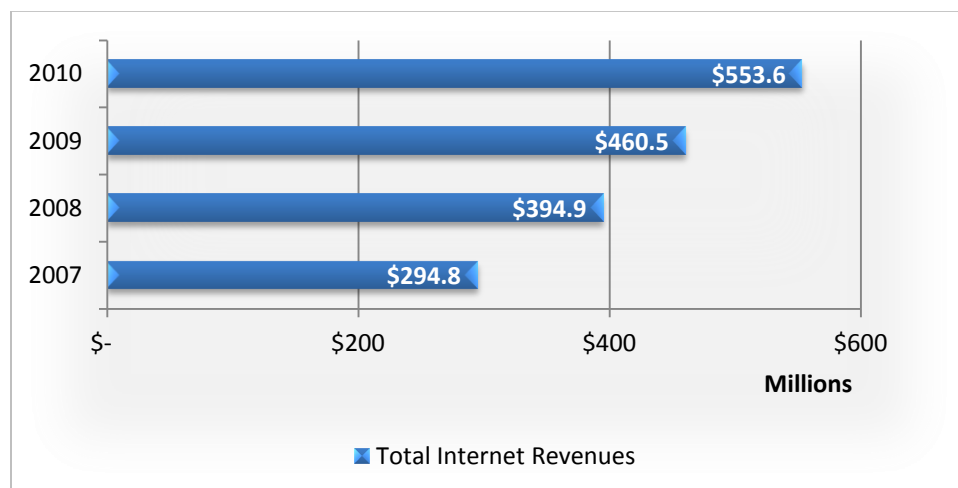
Source: International Telecommunications Union, TATT

### 4.3 Total Internet Revenues

Revenues generated from fixed and mobile (prepaid and postpaid) Internet services totalled TT\$553.6 million, an increase of TT\$93.1 million or 20.2 percent when compared to 2009. The continued rise in revenues is attributed to the growth in Internet accessibility as evidenced by increased subscriptions in the Internet market.

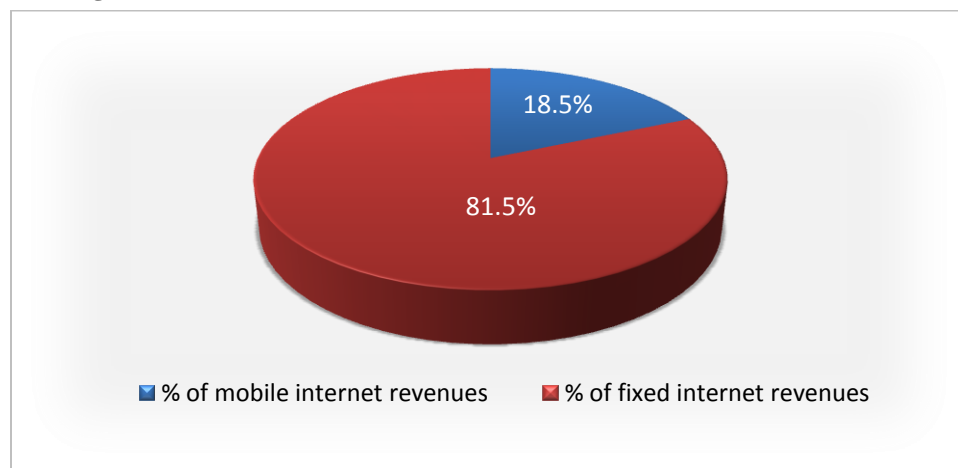
Figure 76 shows the Internet revenues trend from 2007 to 2010. Figure 77 also depicts the percentage of revenue contributions made by the fixed Internet and mobile Internet markets.

**Figure 76: Total Internet Revenues 2007-2010**



Source: TATT

**Figure 77: Percentage of Fixed and Mobile Contributions to Internet Revenues**



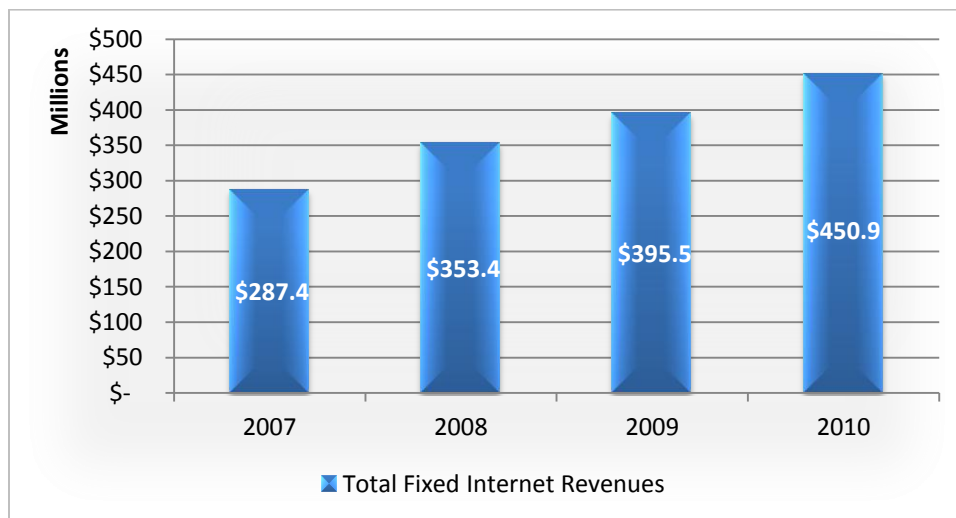
The individual categories of fixed and mobile Internet revenues are discussed below.

### 4.3.1 Fixed Internet Revenues

For the period under review, the total estimated gross revenues for the fixed Internet market stood at TT\$450.9 million, an increase of TT\$54.4 million or 14.0 per cent over the revenues reported in 2009. Of this amount, narrowband Internet accounted for TT\$16.5 million and broadband Internet contributed TT\$434.4 million.

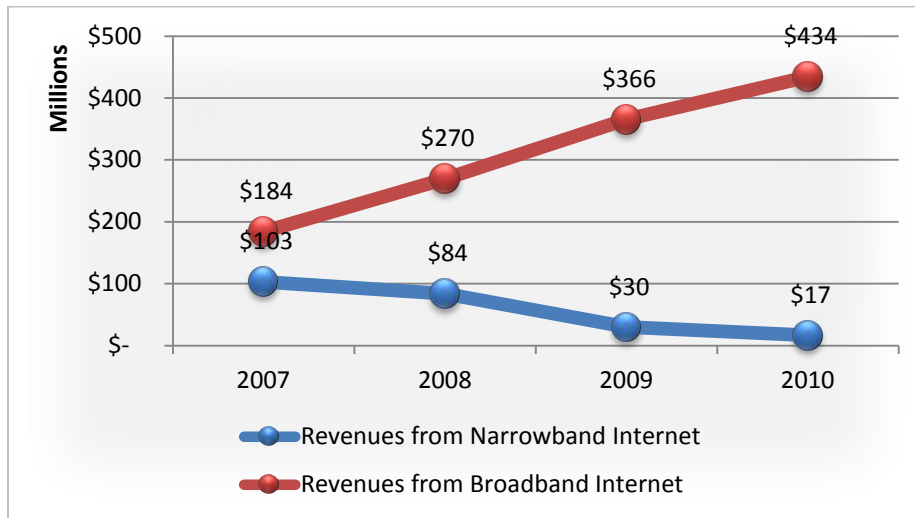
As the migration of subscriptions from narrowband to broadband services continued in 2010, narrowband revenues declined by TT\$13.4 million or 44.8 per cent where as broadband revenues rose by TT\$68.9 million or 18.8 per cent when compared to the 2009 period. Figures 78 and 79 highlight the annual revenue trend in the fixed Internet market from 2007 to 2010.

**Figure 78: Fixed Internet Revenues 2007-2010**



Source: TATT

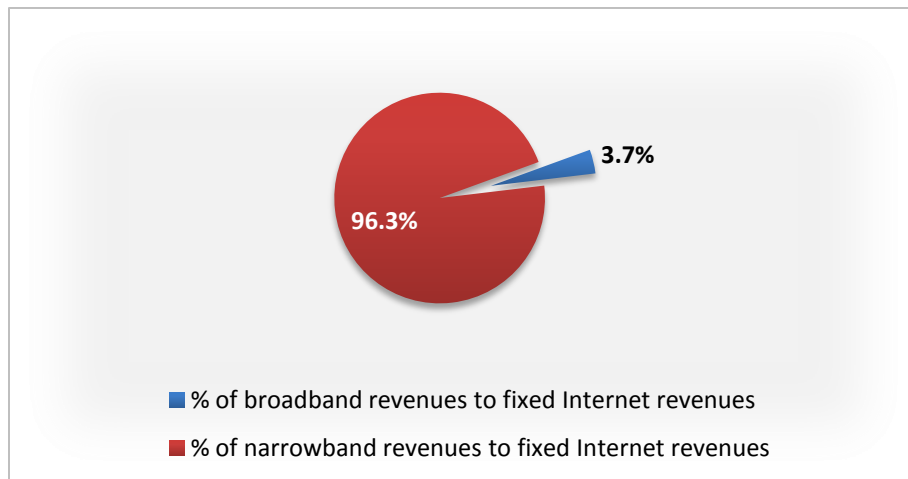
**Figure 79: Revenues from Fixed Narrowband and Broadband subscriptions 2007 - 2010**



Source: TATT

With broadband being the predominant choice of service in the market, broadband contributed 96.3 per cent to total fixed Internet revenues while narrowband contributed only 3.7 per cent. Figure 80 portrays the revenue percentage contributions for 2010.

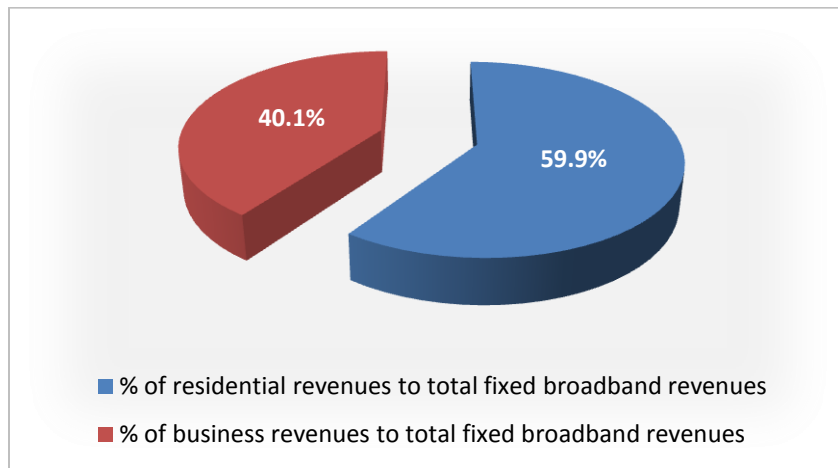
**Figure 80: Percentage of Narrowband and Broadband Revenues to Total Fixed Internet Revenues 2010**



Source: TATT

From total fixed broadband revenues, residential broadband subscriptions contributed TT\$260.0 million or 59.9 per cent, whilst revenues from business broadband subscriptions totalled TT\$174.4 million or 40.1 per cent. Figure 81 illustrates.

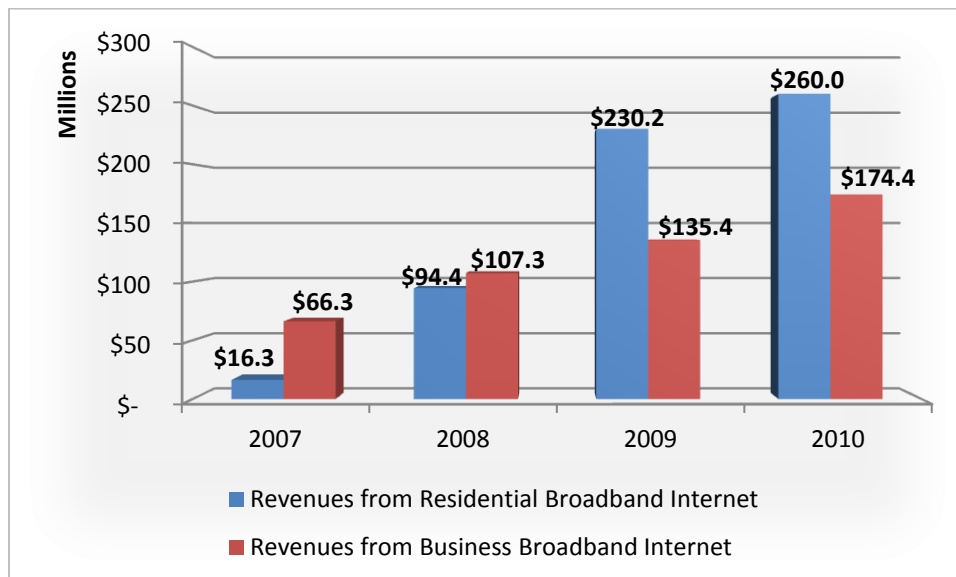
**Figure 81: Percentage of Residential and Business Revenues to Fixed Broadband Revenues**



Source: TATT

Consistent with the significant growth in residential broadband fixed Internet subscriptions, revenues from residential broadband increased by 12.9 per cent or by TT\$29.8 million whereas revenues from business broadband grew substantially higher by 28.8 per cent or by TT\$39 million. Figure 82 shows revenues from residential and business broadband subscriptions for the period 2007 to 2010.

**Figure 82: Revenues from Residential and Business Fixed Broadband Subscriptions 2007-2010**

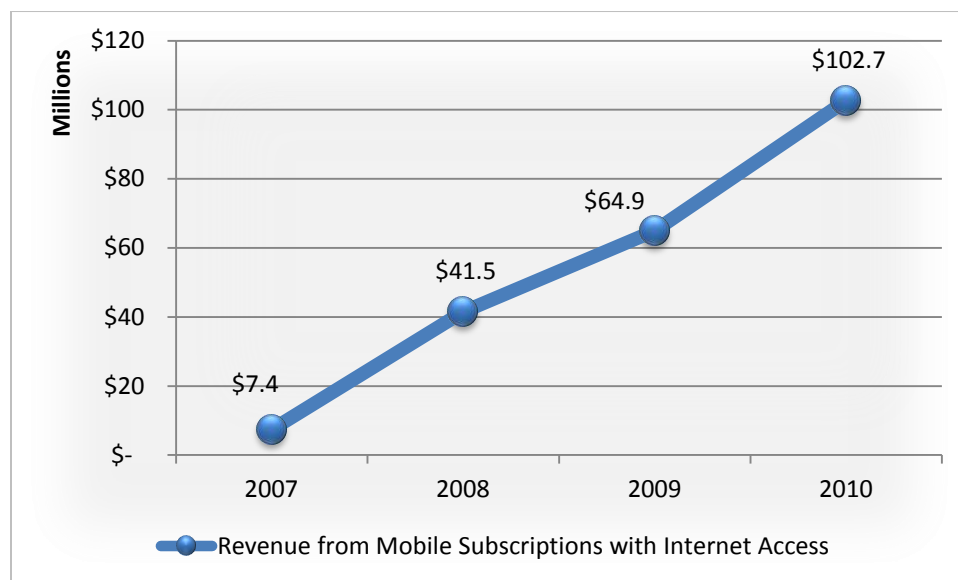


Source: TATT

### 4.3.2 Mobile Internet Revenues

Total gross revenues for the mobile prepaid and postpaid Internet market totalled TT\$102.7 million, an increase of TT\$37.7 million or 58.1 per cent over 2009. Figure 83 highlights annual trend for total revenues received from mobile subscriptions with Internet access. This overall growth in mobile Internet revenues is a direct result of the significant take-up of mobile Internet subscriptions as mentioned in Section 4.1.

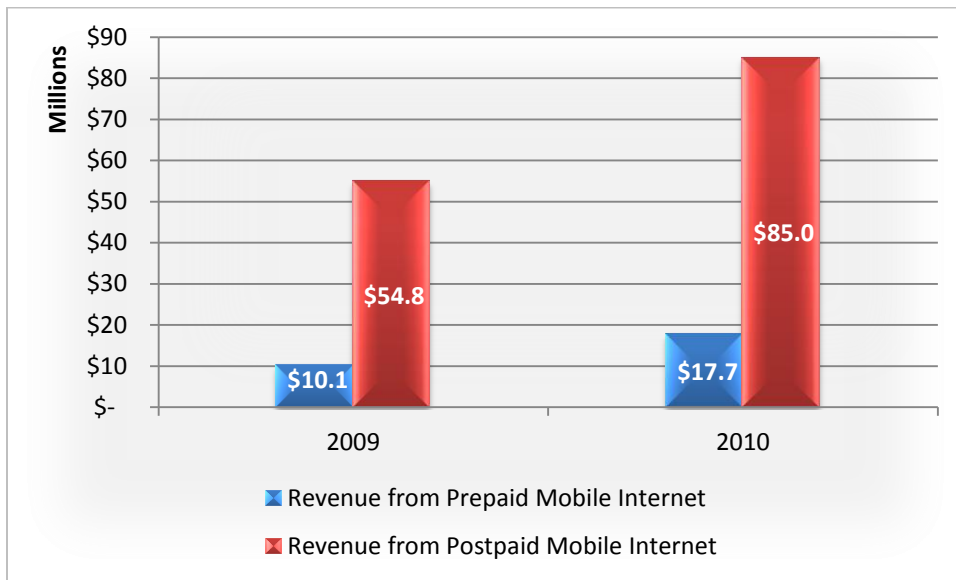
**Figure 83: Total Mobile Internet Revenues 2007-2010**



Source: TATT

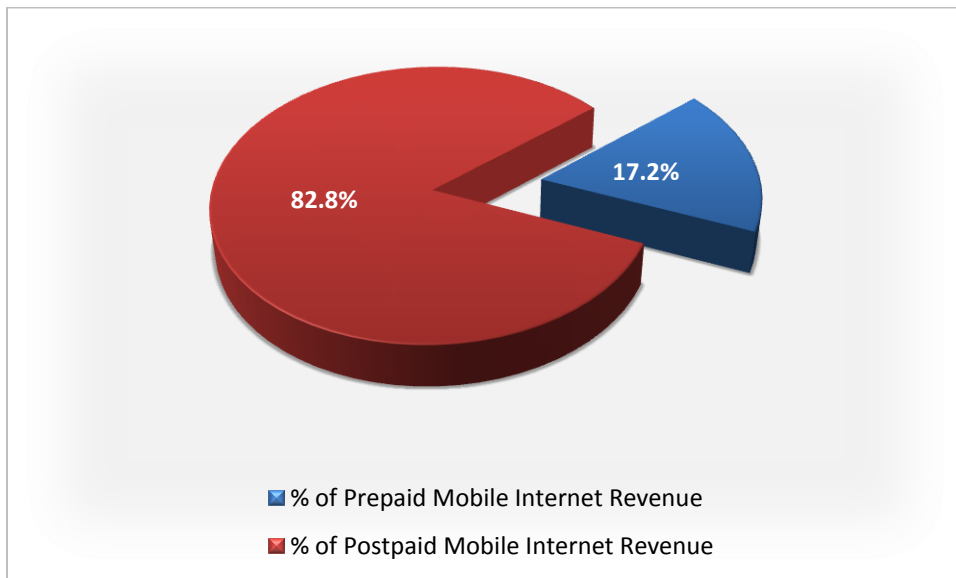
Prepaid subscriptions with Internet access contributed TT\$17.7 million, or 17.2 per cent to total mobile Internet revenues, while postpaid subscriptions accounted for TT\$85.0 million or 82.8 per cent. Undoubtedly, postpaid mobile Internet subscriptions are more profitable for service providers thereby supporting their initiatives to encourage customers to subscribe to their postpaid packages. Figure 84 shows the separation of mobile Internet revenues into prepaid and postpaid for 2009 and 2010, while Figure 85 depicts the percentage revenue contributions of the individual prepaid and postpaid categories for 2010.

**Figure 84: Revenues from Prepaid and Postpaid Mobile Internet Subscriptions 2009 and 2010**



Source: TATT

**Figure 85: Percentage of Prepaid and Postpaid Revenues to Mobile Internet Revenues 2010**



Source: TATT

#### 4.4 Fixed Internet Market Concentration

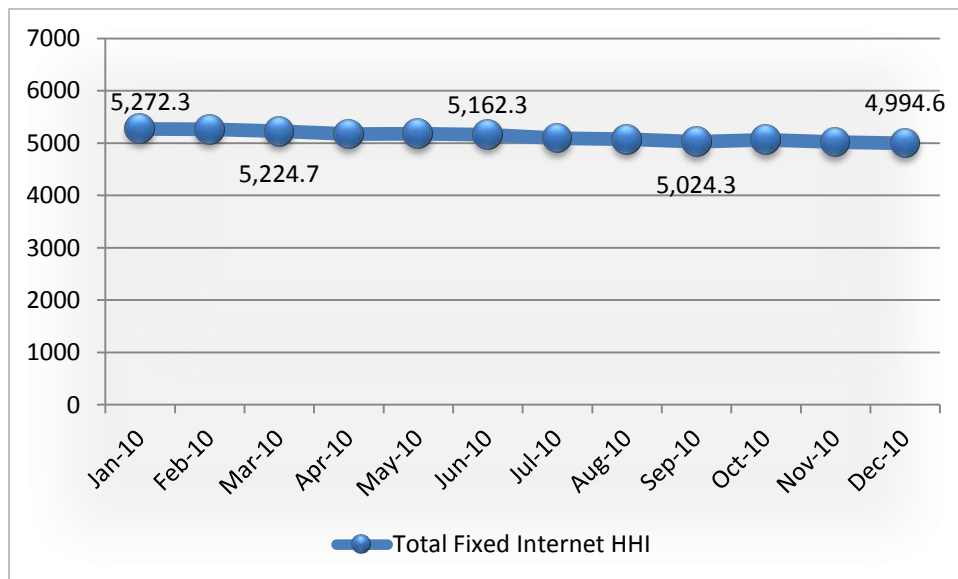
Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the fixed Internet market<sup>46</sup> of Trinidad and Tobago for the year ending December 2010. The

<sup>46</sup> Subscriber market share was used in the calculation of the HHI.

result revealed that the market was slightly more competitive in 2010 with a HHI of 4,994.6, a decrease of 2.5 percent from 2009. As mentioned in Section 4.1.1, this may be directly attributed to the competitive marketing promotions pursued by service providers to increase subscription uptake in the market. The strategies used by service providers included lowering the price of Internet services, especially broadband services and increasing the speeds available to customers.

Figure 86 reflects market concentration remaining relatively stable throughout the 2010 period. However, it must be noted that even though there were a number of Internet providers in the market, the HHI of 4,994.6 indicates that although contested, there may be few players who control significant shares of the market.

**Figure 86: Hirschman-Herfindahl Index of Fixed Internet Market January–December 2010**

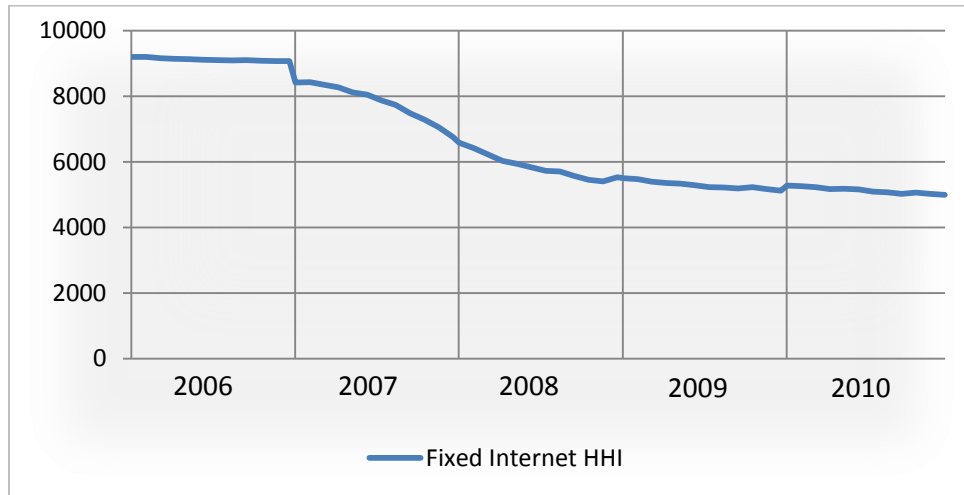


Source: TATT

On comparing the last five years, Figure 87 shows the effects of market competition reducing the HHI from 9,200.7 as at January 2006 to 4,994.6 as at December 2010.



**Figure 87: HHI of Fixed Internet Services 2006- 2010**

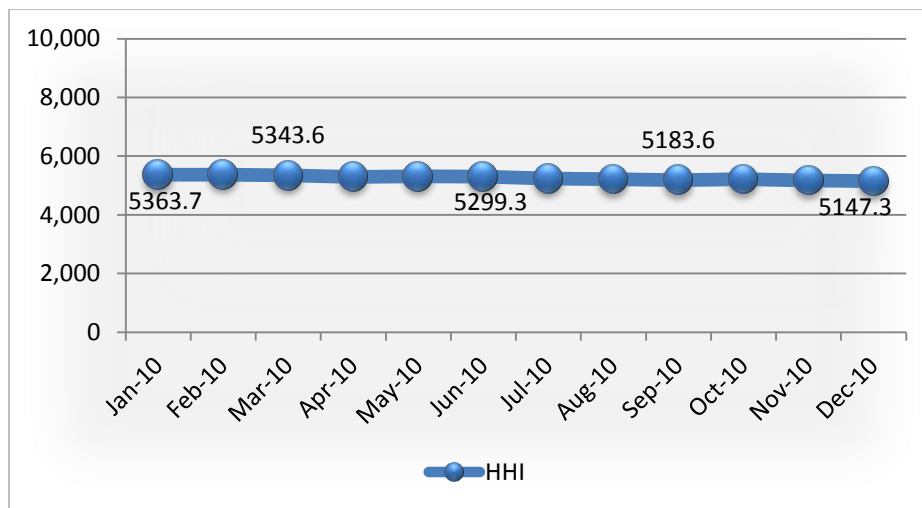


**4.4.1 HHI for Broadband and Narrowband Services**

In an attempt to pinpoint the reason for the concentration level mentioned above, the HHI was separately examined for the fixed broadband market and the narrowband market.

The calculation for fixed broadband services showed an HHI of 5,147.3 for the year ended 2010. Although, the HHI results for fixed broadband services decreased from January to December, as Figure 88 below depicts it has remained relatively stable during the year.

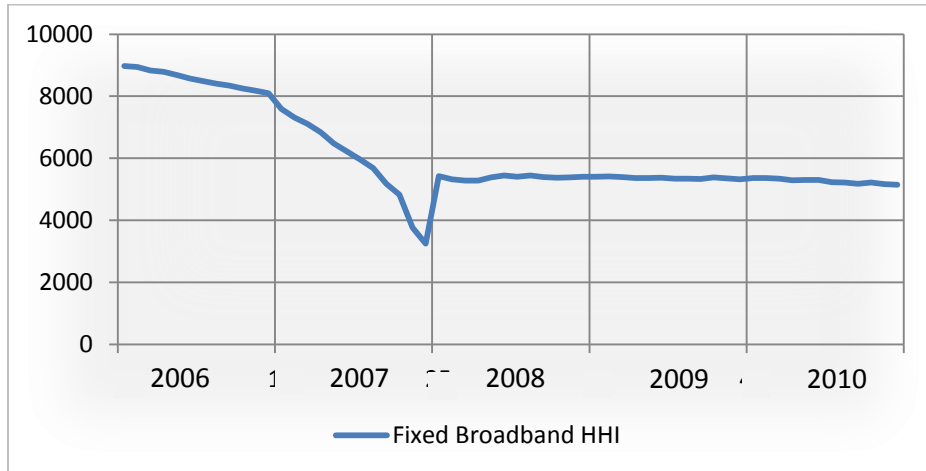
**Figure 88: 2010 HHI for Fixed Broadband Services**



Source: TATT

As seen in Figure 89, during the five year period 2006 to 2010 market competition has increased as evident by HHI being reduced from 8,097.8 at the end of 2006 to 5,147.3 at the end of December 2010. While broadband fixed Internet HHI has experienced significant declines during 2006 to 2007, it has been relatively stable over the last three years.

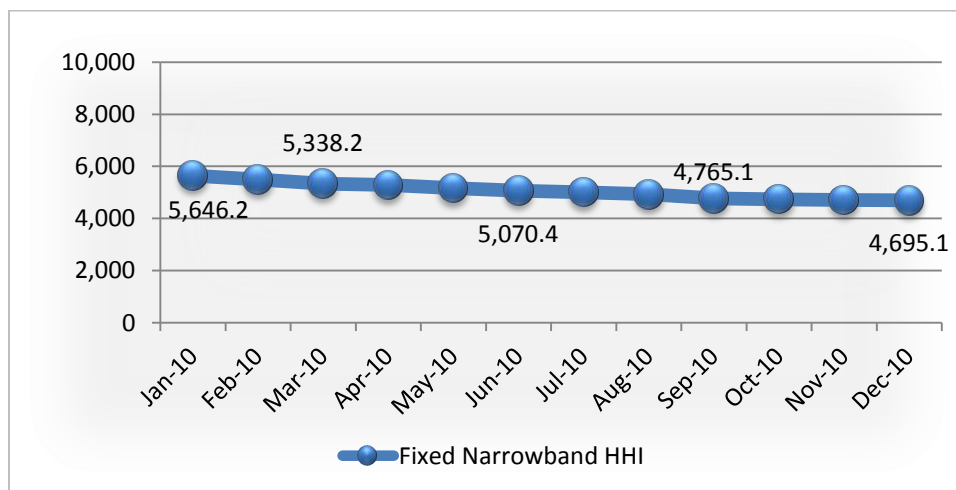
**Figure 89: HHI of Fixed Broadband Services 2006- 2010**



Source: TATT

On the other hand, narrowband services recorded an HHI of 4,695.1 for the 2010 period. While the HHI has been decreasing throughout the year, the market continues to be contested with only five players competing. Figure 90 illustrates the narrowband HHI trends throughout 2010.

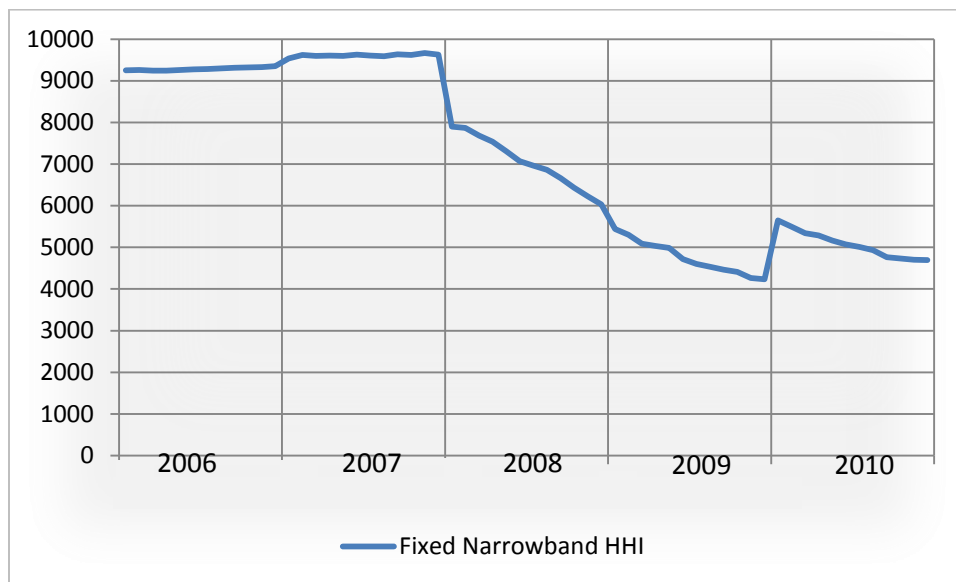
**Figure 90: 2010 HHI for Fixed Narrowband Services**



Source: TATT

On comparing the last five years, Figure 91 shows the effects of market competition reducing the HHI from 9,253 as at January 2006 to 4,695 as at December 2010.

**Figure 91: HHI of Fixed Narrowband Services 2006- 2010**



Source: TATT

On evaluating Figure 89 and 91, it is evident that the narrowband market is slightly more competitive than the broadband market. One reason explaining the broadband market being less contested than narrowband may be as a result of subscriptions being more evenly spread among the service providers in the narrowband market.

#### 4.5 Average Revenue per User

During the review period, persons with Internet subscriptions spent an average of TT\$888<sup>47</sup> for Internet services. For fixed Internet services, customers spent approximately TT\$2,636<sup>48</sup> during 2010. This represents a decrease of TT\$93 or 3.4 per cent in the average revenue per user (ARPU) over the amount recorded for 2009. This decrease resulted from the number of fixed Internet subscriptions increasing at a faster rate than revenues generated for the 2010 period.

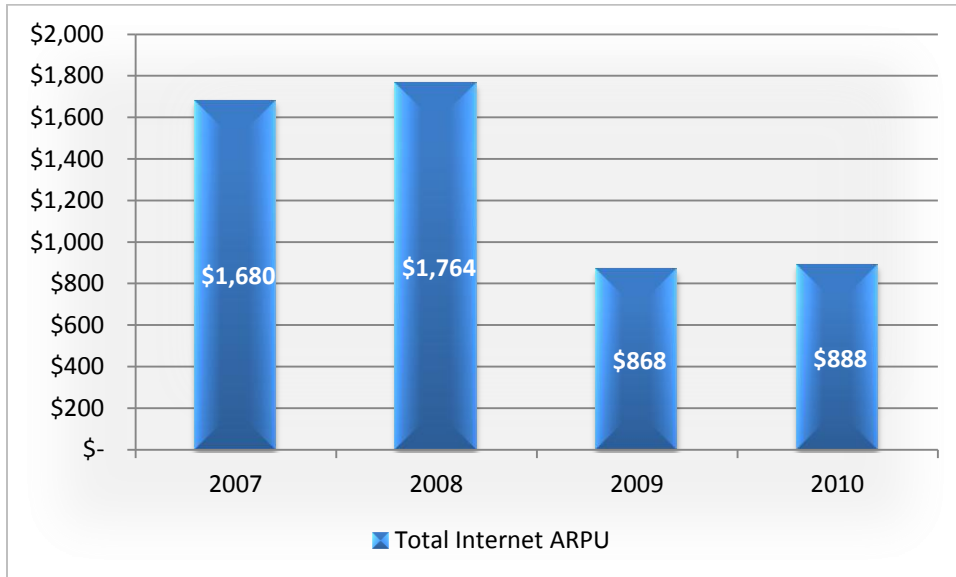
<sup>47</sup> ARPU for fixed and mobile Internet subscriptions combined.

<sup>48</sup> ARPU for fixed Internet services is measured by the revenue generated by one subscription. It is calculated = (Total revenues from fixed Internet subscriptions / Total number of fixed Internet subscriptions)

For mobile Internet services, customers spent an average of \$227<sup>49</sup>. This represents an increase of \$59 or 34.7 per cent over the ARPU for mobile Internet recorded for 2009.

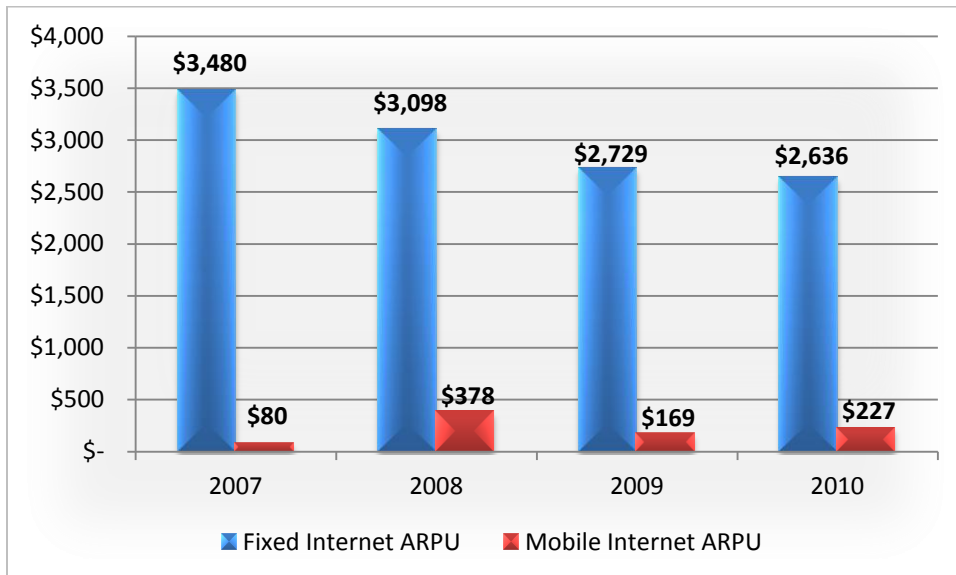
Figure 92 and 93 show the ARPU trends for the individual categories over the last three years.

**Figure 92: ARPU for Total Internet Services 2007-2010**



Source: TATT

**Figure 93: ARPU for Fixed and Mobile Internet Services 2007-2010**



<sup>49</sup> ARPU for mobile Internet services is calculated = (Total revenues from prepaid and postpaid mobile subscriptions with Internet access / Total number of mobile prepaid and postpaid subscriptions with Internet access)

## **5. International Voice Traffic Data**

In 2010, nine (9) concessionaires were authorized to provide public international telecommunications services, which included the provision of international voice services. These operators included:

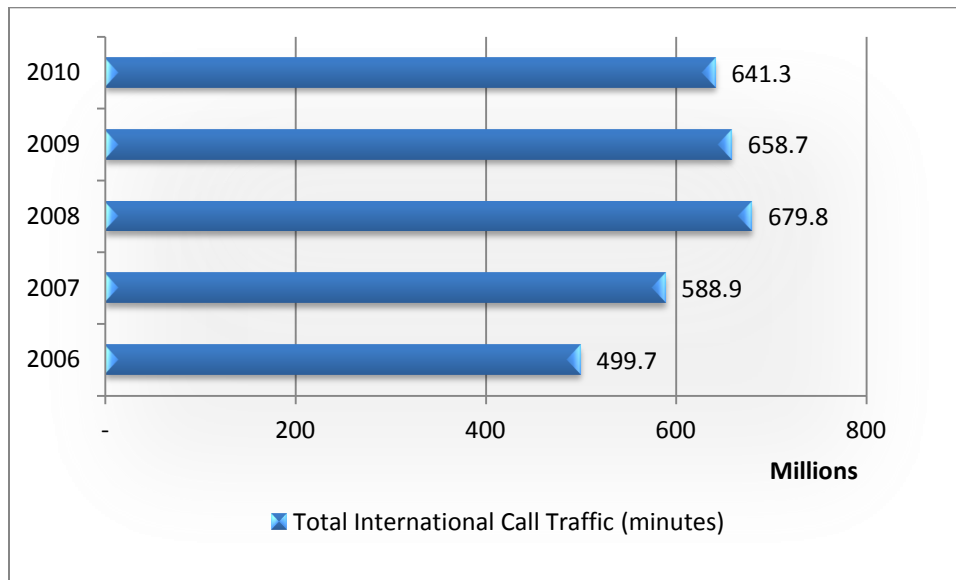
- Telecommunications Services of Trinidad and Tobago, TSTT,
- Digicel Trinidad Limited,
- Open Telecom,
- 360 Degrees Communications,
- Lisa Communications Limited,
- Columbus Communications Trinidad Limited
- Windward Telecom Limited, and
- Green Dot Limited

At the end of 2010, Green Dot Limited was the only concessionaire yet to launch its international services.

### **5.1 International Voice Traffic Minutes**

For the review period, traffic volumes for both incoming and outgoing international calls made via the fixed and mobile networks were estimated to be approximately 641.3 million minutes that is a decrease of 2.6 per cent or 17.3 million minutes, when compared to 2009 figures. The fall in minutes is attributed to the large decrease in the number of inbound minutes of approximately 10.3 per cent estimated for the period. As seen in the Figure 94, the market continues to experience a decline in the growth of international traffic since 2008.

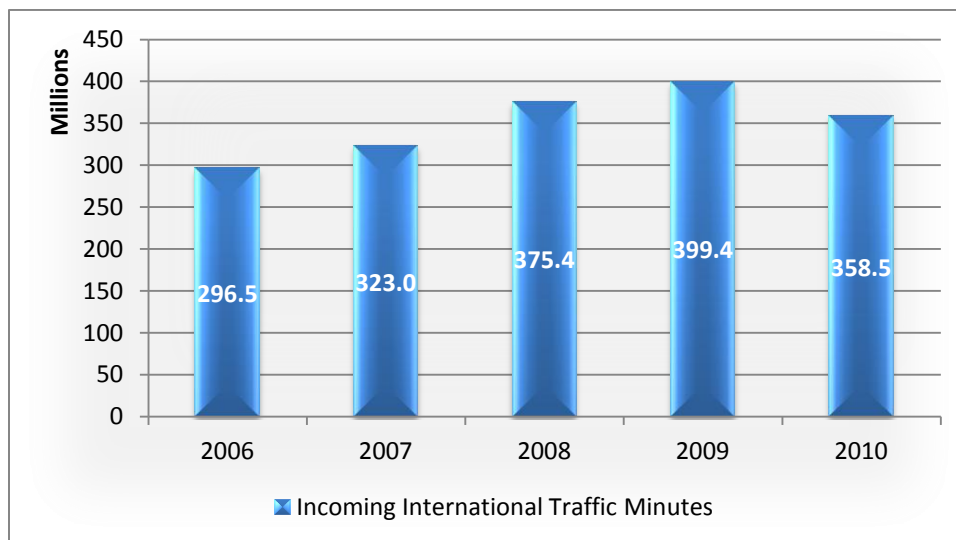
**Figure 94: International Traffic Minutes 2006 - 2010**



Source: TATT

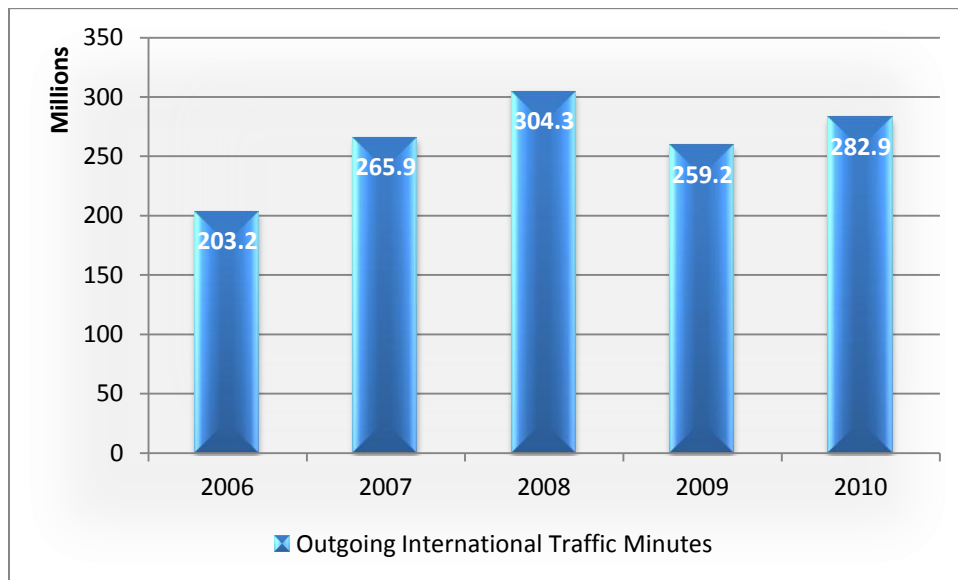
As presented in Figure 95, incoming traffic volumes experienced its first decline in 2010 following consistent increases over the period 2006 to 2009. For 2010, incoming international traffic was estimated at 358.5 million minutes, a decrease 40.9 million minutes or 10.3 per cent, over last year’s traffic.

**Figure 95: Incoming International Traffic Minutes 2006 - 2010**



Outgoing international traffic for the 2010 period was estimated to be 282.9 million minutes, an increase of 23.6 million minutes or 9.1 per cent, over the 2009 figure. Figure 96 shows that outgoing traffic recovered from its first ever decline experienced in 2009. One contributor to the fall in traffic may be attributed to introduction of voice packages offering unlimited international calls at a fixed monthly price.

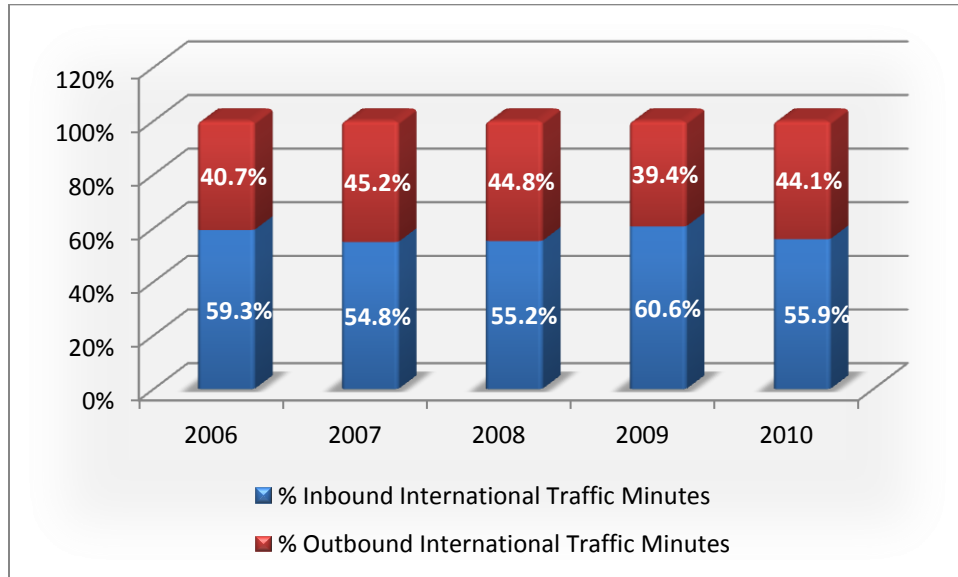
**Figure 96: Outgoing International Traffic Minutes 2006 - 2010**



Source: TATT

Consistent with the trend in previous years, incoming international traffic minutes continued to surpass outgoing traffic. For 2010, incoming traffic accounted for 55.9 per cent of total international minutes, while outgoing traffic comprises the other 44.1 per cent. Figure 97 illustrates the proportion of incoming traffic compared to outgoing traffic over the past five years.

**Figure 97: Percentage of Incoming and Outgoing Traffic to Total International Traffic 2006-2010**



Source: TATT

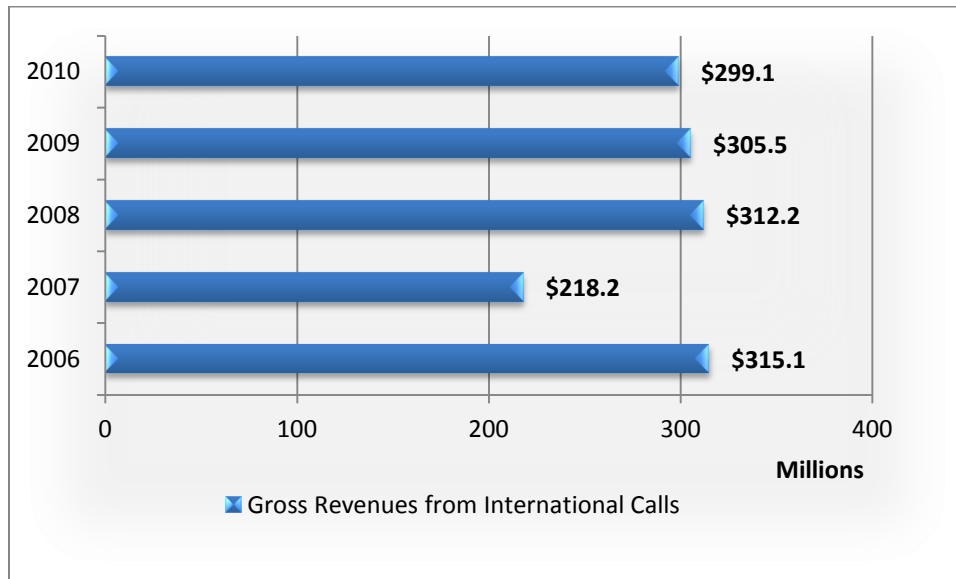
## 5.2 International Traffic Revenues

Gross revenues<sup>50</sup> received from international fixed and mobile traffic totalled \$299.1 million in 2010. This represents a decrease of approximately TT\$6.4 million or 2.1 per cent over the previous year. The fall in revenues is consistent with the 2.6 per cent reduction in international traffic minutes recorded during the same period. Figure 98 depicts the fluctuating trend in revenues received from international traffic for the years 2006 to 2010.

<sup>50</sup> Gross revenues refer to the total amount of money earned from international calls. Outgoing international call revenue is a collection of revenue earned from residents making calls from the domestic network to persons abroad. Incoming international revenue is settlement revenue earned from foreign exchange carriers who pay service providers to terminate calls locally.



**Figure 98: Gross Revenues from International Traffic 2006- 2010**



Source: TATT

As shown in Figure 99, revenues earned from incoming traffic were estimated at \$138.5 million, an increase of \$3.9 million or 3.0 per cent from 2009. As seen in Figure 100 below, revenues obtained from incoming international traffic experienced several dips and peaks over the last five years. On the other hand, revenues received from outgoing international traffic totalled \$160.6 million in 2010, decreasing by \$10.4 million or 6.1 per cent over the last period. Outgoing international traffic revenues over the past five years is depicted in Figure 100.

**Figure 99: Revenues from Incoming International Traffic 2006-2010**



Source: TATT

**Figure 100: Revenues from Outgoing International Traffic 2006-2010**

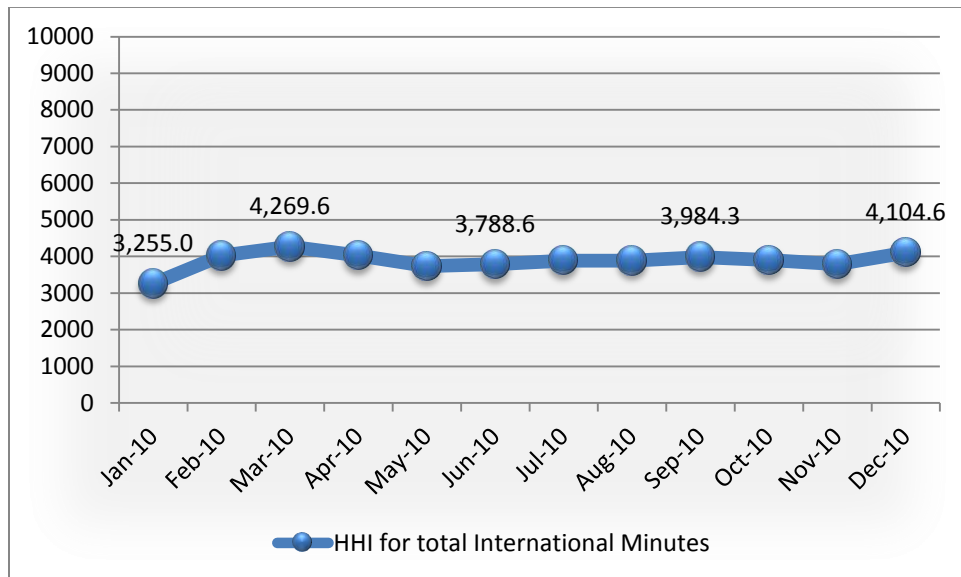


Source: TATT

### 5.3 International Voice Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the international voice market of Trinidad and Tobago for the year ending December 2010. The market share used in the calculation of the HHI was defined in terms of number of international minutes generated by the service providers. Figure 101 shows that as at December 2010, the HHI for the international market stood at 4104.6, indicating that the market is concentrated as well as contested.

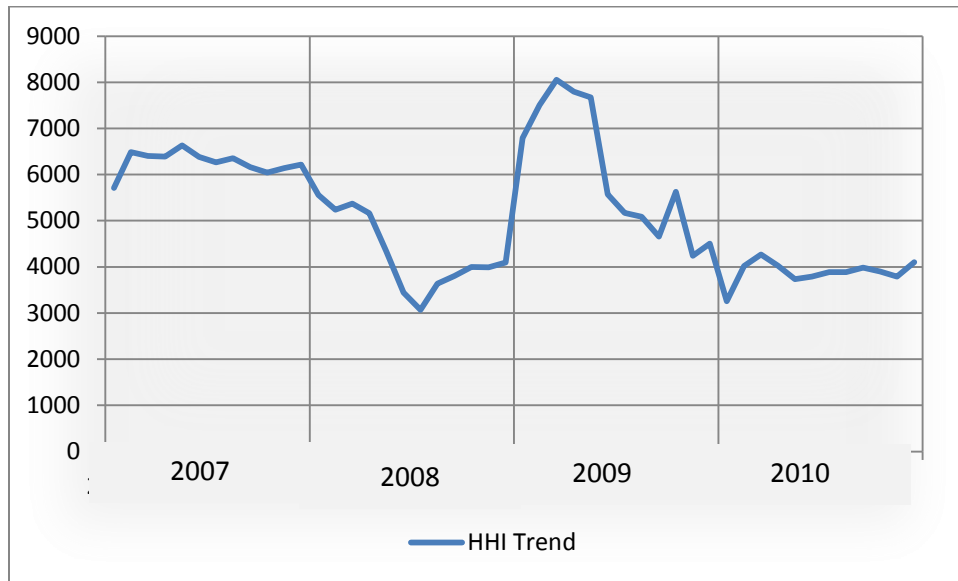
**Figure 101: Hirschman-Herfindahl Index of International Voice Market January–December 2010**



Source: TATT

On comparing data over the last three periods, Figure 102 maps the effects of market competition reducing the HHI from 5711.1 in 2007 to 4,504.6 in 2009. This is equivalent to a 28.1 per cent increase in the level of competition in the international traffic market.

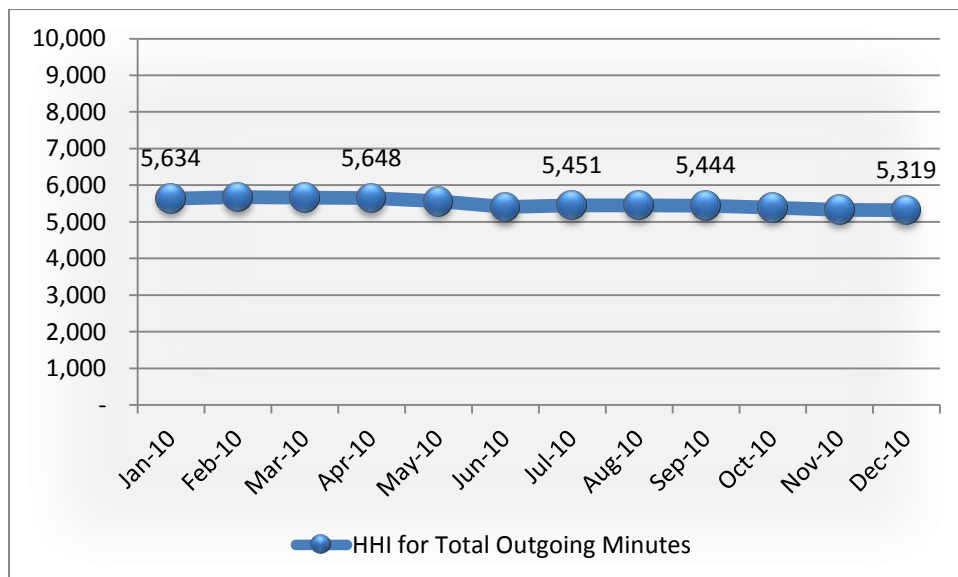
**Figure 102: Hirschman-Herfindahl Index of International Traffic Market 2007- 2010**



Source: TATT

As outlined in Figures 103 and 104 below, during 2010 the level of competitiveness in both the international outgoing and incoming markets have been fluctuating. Notable, the international incoming market continues to be seems to be the more competitive of the two individual markets as at December 2010.

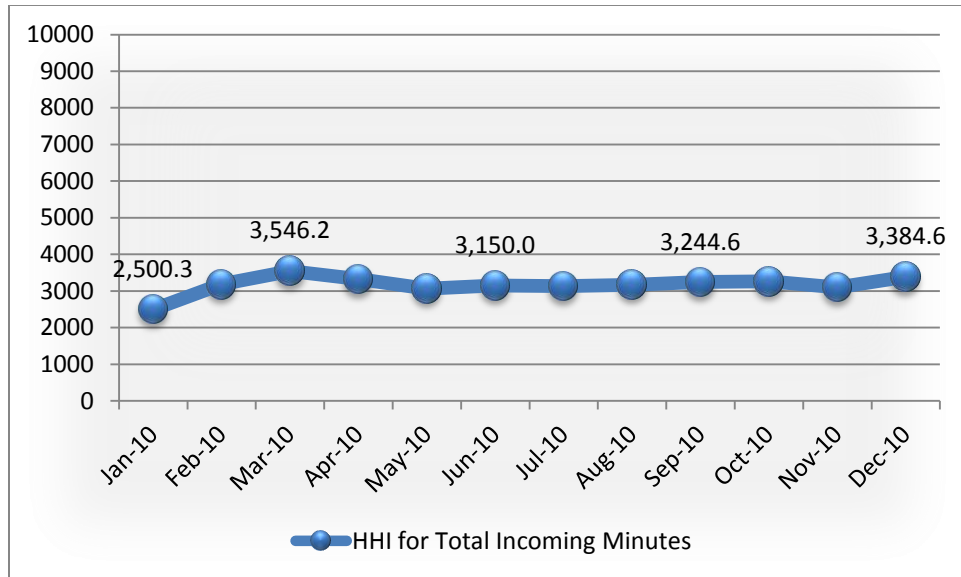
**Figure 103: Hirschman-Herfindahl Index of International Outgoing Minutes January–December 2010**



Source: TATT

**Figure 104: Hirschman-Herfindahl Index of International Incoming Minutes January–December 2009**

Source: TATT



## 6. Broadcasting Market Data

For the 2010 period, concessions were held by nine operators of free-to-air TV broadcasting services, nine operators of subscription-broadcasting services, one operator of TV Broadcasting service via cable, and thirty-seven operators of free-to-air FM radio broadcasting services. Table 6 below gives a breakdown of the number of concessions in the broadcasting market from 2007 to 2010.

**Table 4: Number of Concessions in the Broadcasting Market 2007-2010**

Types of Broadcasting Concessions	Number of Concessionaires			
	2007	2008	2009	2010
<b>Free to Air Television</b>	<b>6</b>	<b>9</b>	<b>9</b>	<b>9</b>
National	4	6	6	6
Major Territorial	2	3	3	3
<b>Subscription Television</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>9</b>
National	3	4	4	4
Major Territorial	1	1	1	1
Niche	2	2	2	3
Minor Territorial	1	1	1	1
<b>TV Broadcasting via Cable</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
National	1	1	1	1
<b>Free to Air Radio</b>	<b>37</b>	<b>37</b>	<b>37</b>	<b>37</b>
National	30	30	30	30
Major Territorial	6	6	6	6
Minor Territorial	1	1	1	1
<b>Total</b>	<b>52</b>	<b>55</b>	<b>55</b>	<b>56</b>

Source: TATT

## **6.1 Free-to-Air Television Broadcasting Market**

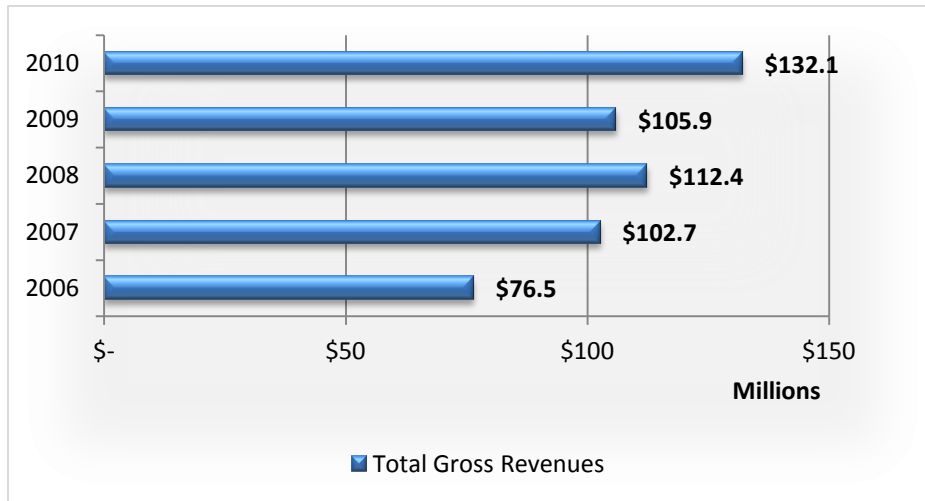
In 2010, the market for free-to-air TV broadcasting service comprised nine (9) operational concessionaires. They were:

- Advance Community Television Network Limited (ACTN),
- Caribbean Communications Network Limited (TV6),
- Gayelle Limited,
- Caribbean New Media Group (CNMG),
- Trinidad Publishing Company Limited,
- Parliament of the Republic of Trinidad and Tobago,
- Synergy Entertainment Network Limited,
- World Indian Network Television Limited (WINTV), and
- Government of the Republic of Trinidad and Tobago (GoRTT).

### **6.1.1 Free to Air Television Revenues**

In 2010, gross revenues for the free-to-air (FTA) television broadcasting market recovered from its first decline in 2009. In 2010, total estimated gross revenues for this market stood at TT\$132.1 million, increasing by 24.7 per cent over the previous year. This sharp increase in revenues may have resulted from the 2010 general election where broadcasters in the free to air market benefitted significantly from increased advertising revenue during the election campaign. Figure 105 shows the trend in revenues for the free-to-air television broadcasting market since 2006.

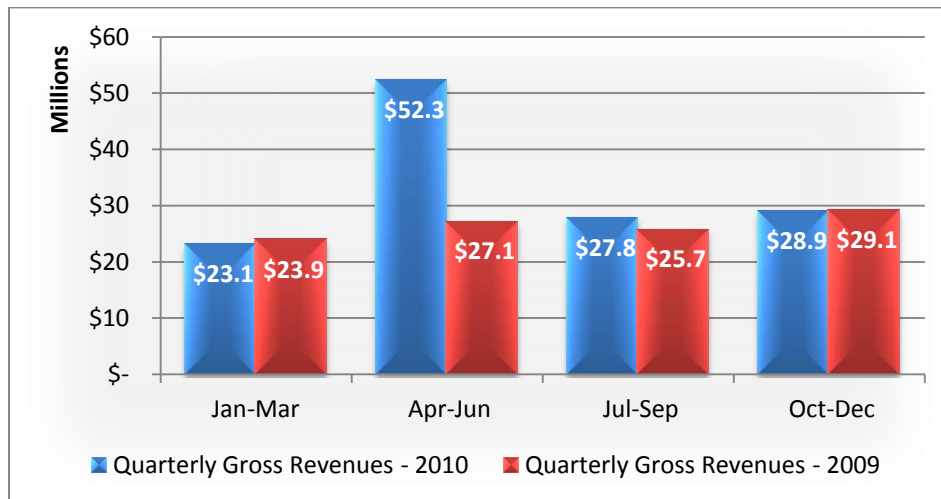
**Figure 105: Gross Revenues for FTA Television Broadcasting Service Providers 2006-2010**



Source: TATT

On a quarterly basis, revenues remained relatively the same as 2009 with the exception of the second quarter of 2010. Revenues in the second quarter 2010 experienced a steep increase from TT\$27.1 in 2009 to TT\$52.8 in 2010. As indicated before, General Elections which were held in May 2010 contributed significantly to increased revenue for this period. A comparison of quarterly revenue trends for 2009 and 2010 are shown in Figure 106.

**Figure 106: Quarterly Gross Revenues FTA Television Service Providers 2008 and 2009**



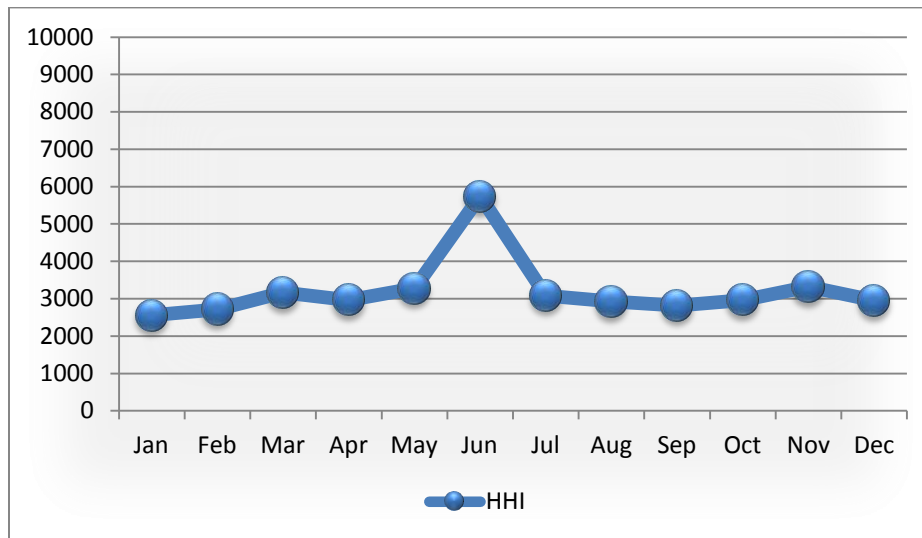
Source: TATT



### 6.1.2 Market Concentration Free to Air Television

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the free to air television broadcasting market<sup>51</sup> for the year ending December 2010. The result, illustrated in Figure 107, revealed that there was an HHI of 2,950 at the end of December 2010.

**Figure 107: HHI for FTA Television Broadcasting Market 2010**

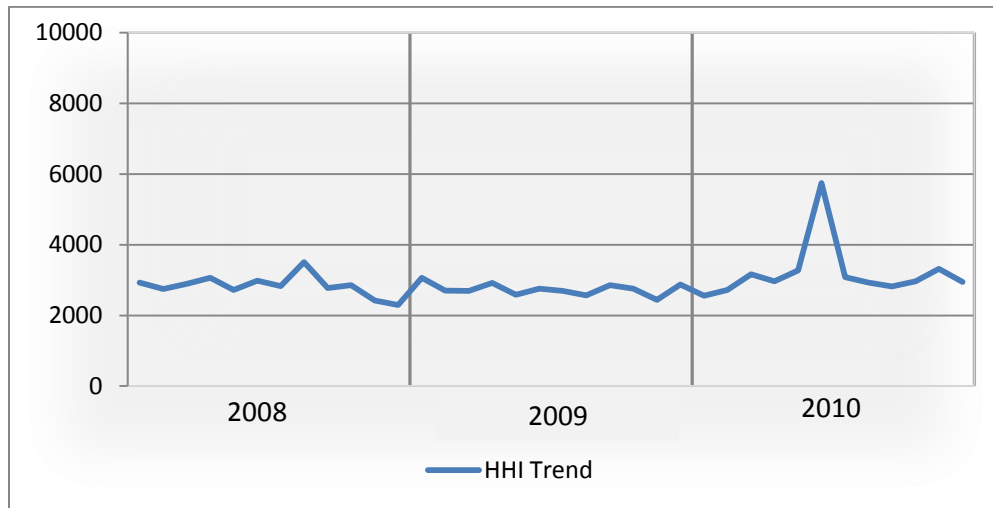


Source: TATT

As shown in Figure 108, the market can be labelled as highly competitive. Over the past three years the level of competitiveness in the FTA television has remained relatively stable increasing slightly from 2008 to 2010. Figure 108 looks at the HHI readings from 2008 and 2010.

<sup>51</sup> The revenue market share was used in the calculation of the HHI

**Figure 108: HHI for FTA Television Market 2008 to 2010**



Source: TATT

## 6.2 Free-to-Air Radio Broadcasting Market<sup>52</sup>

In 2010, the free-to-air (FTA) radio broadcasting market consisted of one (1) AM and thirty six (36) FM concessions which were operational. Although this number is relatively large, it must be noted that some concessionaires within this market operate more than one radio station.

During 2010, free-to-air radio broadcasting market earned an estimated \$166.9 million in gross revenues. This represents an 8.6 per cent, or \$13.2 million increase over the previous year. Figure 109 compares gross revenues from 2009 to 2010.

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<sup>52</sup> For the review period, two concessionaires did not submit market data to the Authority; as a result, revenue figures were estimated.

**Figure 109: Gross Revenues for FTA Radio Service Providers 2009-2010**

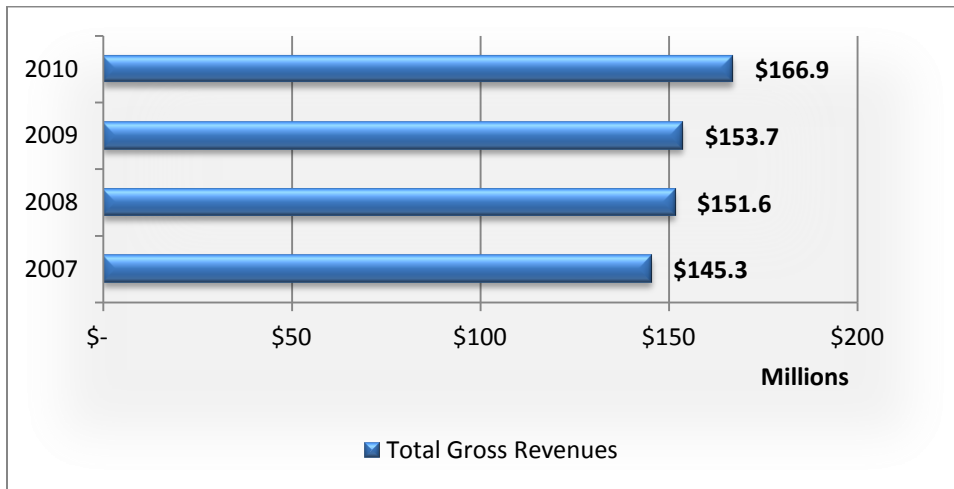
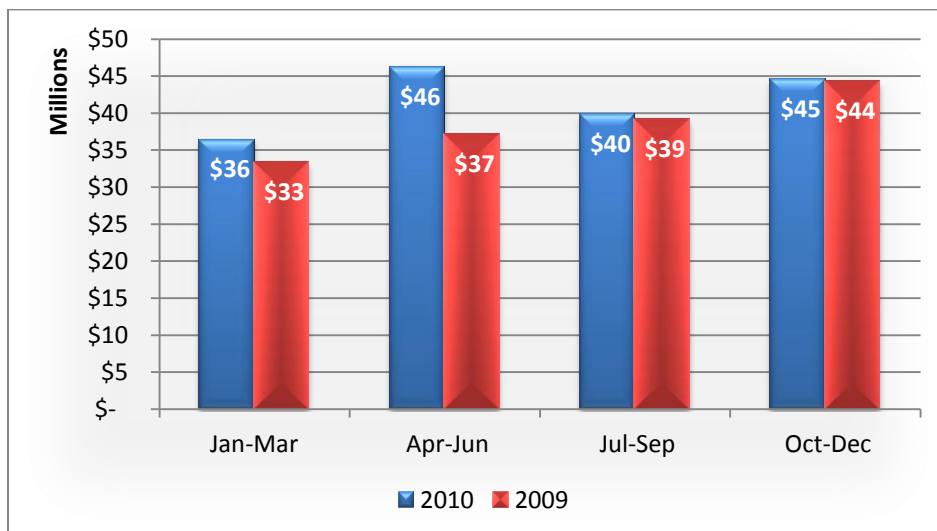


Figure 110 highlights the fluctuating increases in gross revenues per quarter during 2010. Gross revenues increased by 27.8 per cent from Q1 to Q2, and then decreased by 1.3 per cent from Q2 to Q3. Subsequently, gross revenues increased by 12.8 per cent from Q3 to Q4. Similarly, to the gross revenues trend reported in the free-to-air television section (Figure 105), gross revenues for radio broadcasters also peaked in Q2, which coincides with the 2010 General Election campaign.

**Figure 110: Quarterly Gross Revenues for FTA Radio Service Providers 2009-2010**

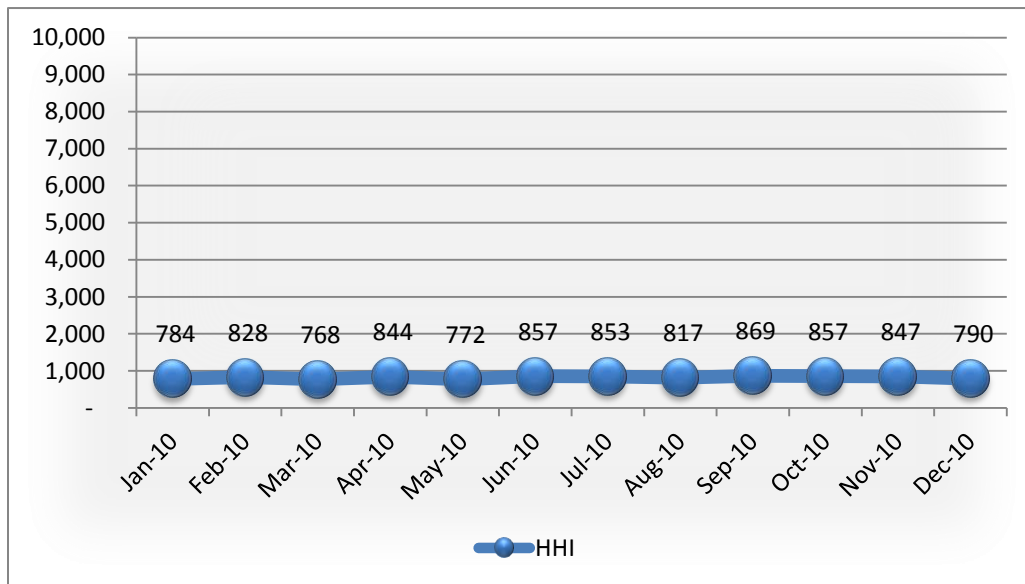


Source: TATT

### 6.2.1 Market Concentration Free to Air Radio

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the free to air radio broadcasting market<sup>53</sup> for the year ending December 2010. The result, as illustrated in figure 111, revealed that there was a HHI of 790 at the end of December 2010.

**Figure 111: HHI Free to Air Radio Broadcasting Market 2010**

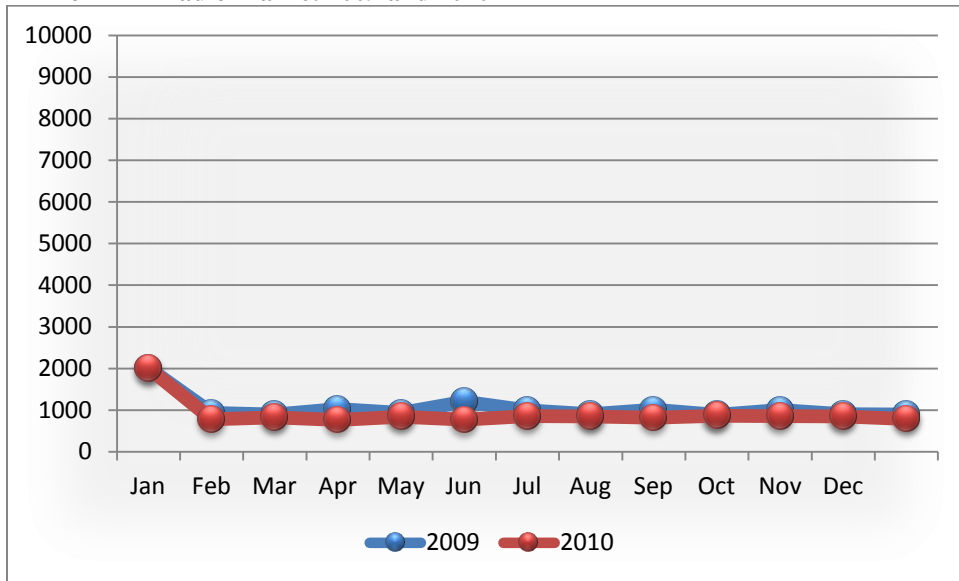


Source: TATT

As seen in Figure 112, the market can be labelled as not concentrated such that there is a high level of competition due to the number of broadcasters in the market. When compared to December 2009, there was a marginal decrease in the HHI by 11.5 per cent. Figure 113 compares the HHI between 2009 and 2010.

<sup>53</sup> The revenue market share was used in the calculation of the HHI

**Figure 112: HHI for FTA Radio Market 2009 and 2010**



Source: TATT

### 6.3 Subscription Television ('Pay TV') Broadcasting Market

For the 2010 period, the Subscription TV market comprised nine authorised and operational service providers. They were as follows:

**Table 5: List of Subscription TV Providers 2010**

<b>Name of Provider</b>	<b>Technology Used</b>	<b>Authorised Coverage Area</b>
1. Columbus Communications Trinidad Limited (CCTL)	Analogue and Digital cable	Trinidad and Tobago
2. DirecTV Trinidad Limited	Digital Satellite	
3. Telecommunication Services of Trinidad and Tobago (TSTT)	Digital cable	
4. Green Dot Limited	Digital cable	
5. Independent Cable Network of Trinidad and Tobago (ICNTT)	Analogue cable	Trinidad
6. TRICO Industries Limited	Analogue cable	Tobago
7. RVR International Limited	Analogue cable	Princes Town and Rio Claro
8. Computer Technologies and Services Limited	Analogue cable	Mayaro and Guayaguayare
9. Airlink Communications	Analogue cable	Mayaro and Rio Claro

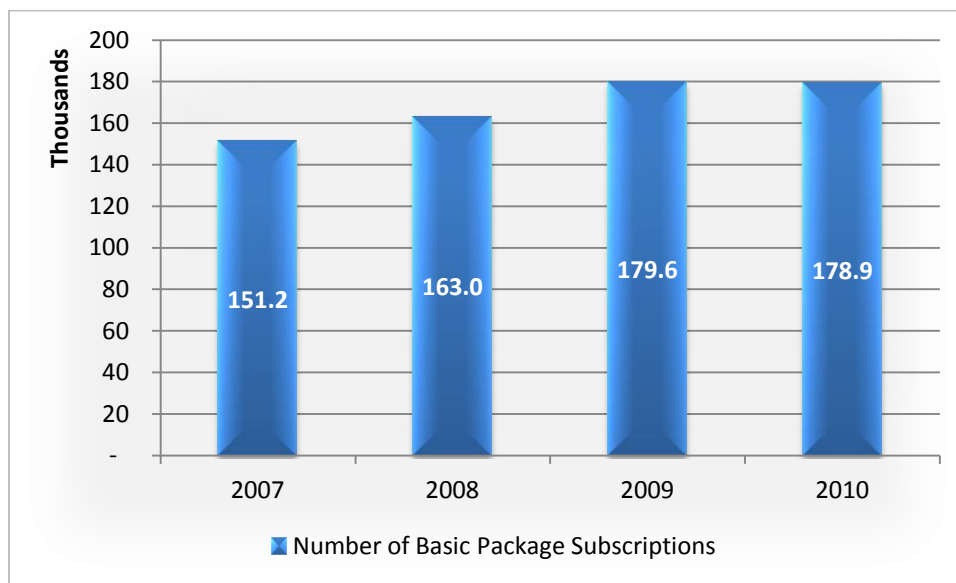
It should be noted that Airlink Communications was the only new service provider offering Subscription television services for 2010.

### 6.3.1 Total Subscription TV (Pay TV) Subscriptions

As a means of differentiating their products, each operator in the Subscription TV market offered a different bundle of channels as part of their basic package. Customers were required to subscribe to a basic package before subscribing to any other package, including premium packages, offered by the operator.

As at December 2010, the total number of subscriptions to Subscription TV services stood at approximately 178.9 thousand, a decrease of increase of 697 subscriptions or a 0.4 per cent decrease when compared to December 2009. This would evidently also represent the number of subscriptions to basic packages. Figure 113 shows the trend in subscriptions to Subscription TV for the period 2007 to 2010.

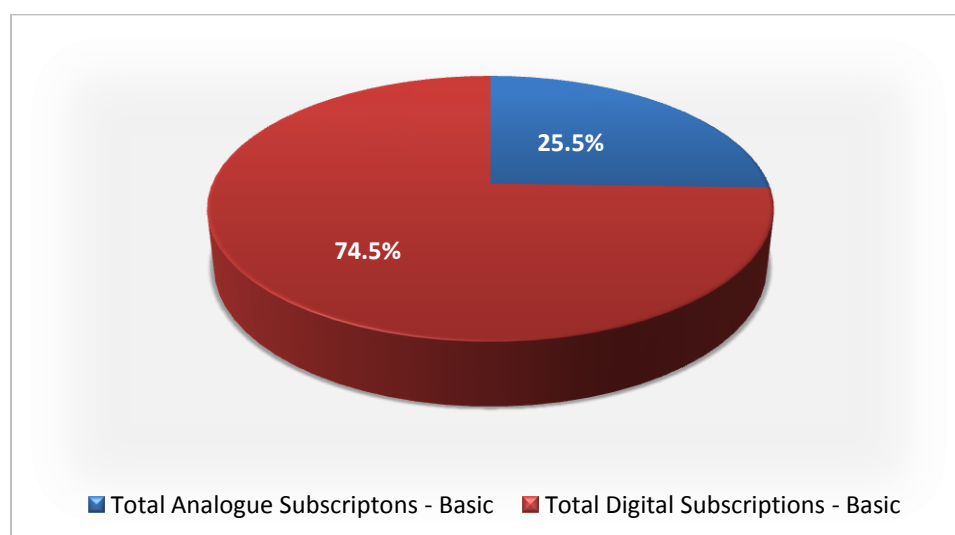
**Figure 113: Number of Subscription TV Subscriptions (Basic Package Subscriptions) 2007 – 2010**



Source: TATT

Of the total number of Subscription TV subscriptions, analogue subscriptions represented 45.6 thousand or 25.5 per cent, whilst digital subscriptions contributed 133.3 thousand or 75.5 per cent. Figure 114 below presents a percentage breakdown of the number of Subscription TV subscriptions per platform for 2010.

**Figure 114: Subscription TV Subscriptions (Basic Package Subscriptions) by Platform for 2010**



Source: TATT

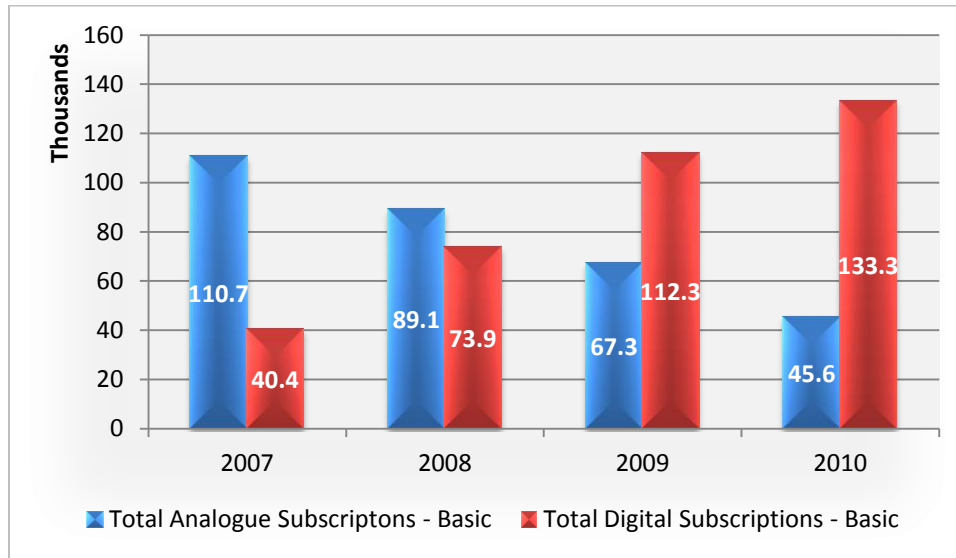
Digital subscriptions increased by 21 thousand or 18.7 per cent from 2009 to 2010 as it continued to comprise the larger share of Subscription TV subscriptions. Analogue subscriptions, however, decreased by 21.7 thousand or 32.3 per cent for the same period under review. This noticeable trade-off between digital and analogue subscriptions is evident as the main cable provider in Trinidad, CCTL, continues in its drive to upgrade its analogue network to a digital platform and as new entrants to the Subscription TV market, TSTT and Green Dot, continue to expand their services. This annual change in subscribership via platform is shown in Table 6 and illustrated in Figure 115.

**Table 6: Growth Rate of Subscription TV Subscriptions by Platform**

Type of Platform	Number of Basic Subscription TV Subscriptions (2010)	Percentage change between 2009 and 2010
Analogue	45,576	(32.3%)
Digital	133,342	18.7%



**Figure 115: Subscription TV Subscriptions by Platform 2007-2010**



Source: TATT

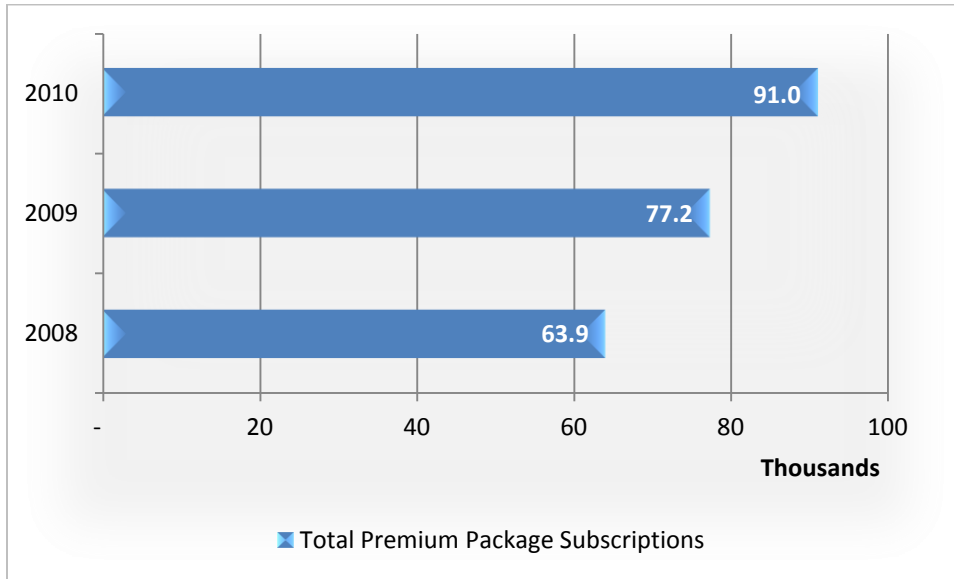
### **6.3.2 Premium Packages Subscriptions**

As mentioned in the previous section, all subscription televisions customers must subscribe to a basic package before subscribing to a premium package. As a result, premium package subscriptions represent a subset of total Subscription TV (or total basic package) subscriptions.

As at December 2010, the total number of subscriptions to premium packages was approximately 91.0 thousand, an increase of 13.7 thousand subscriptions or a 17.8 per cent increase from 2009.

Figure 116 shows the increasing demand for premium packages for the period 2008 to 2010.

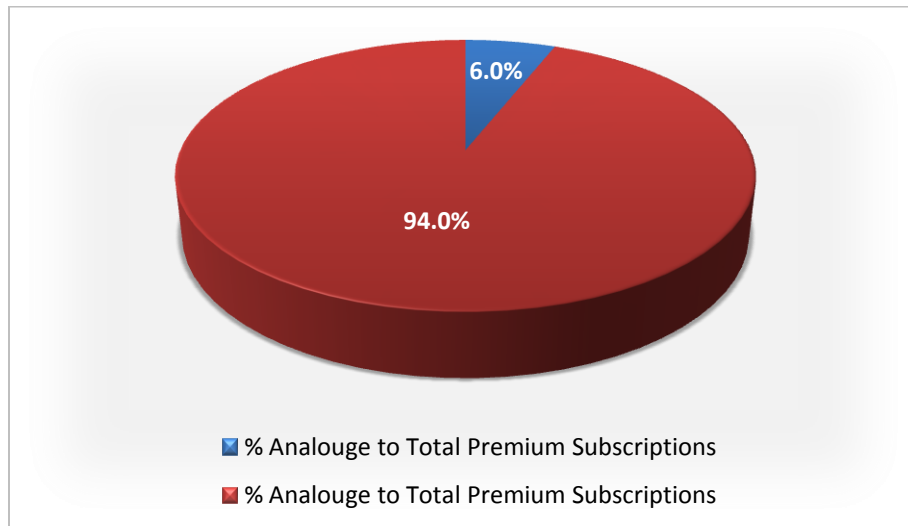
**Figure 116: Number of Premium Package Subscriptions 2008 – 2010**



Source: TATT

Of the total premium packages subscriptions, 5.5 thousand or 6.0 per cent included analogue premium packages. Digital premium packages contributed the other 85.5 thousand or 94.0 per cent. Figure 117 below presents a percentage breakdown of the number of premium package subscriptions by platform for 2010.

**Figure 117: Number of Premium Package Subscriptions by Platform 2010**



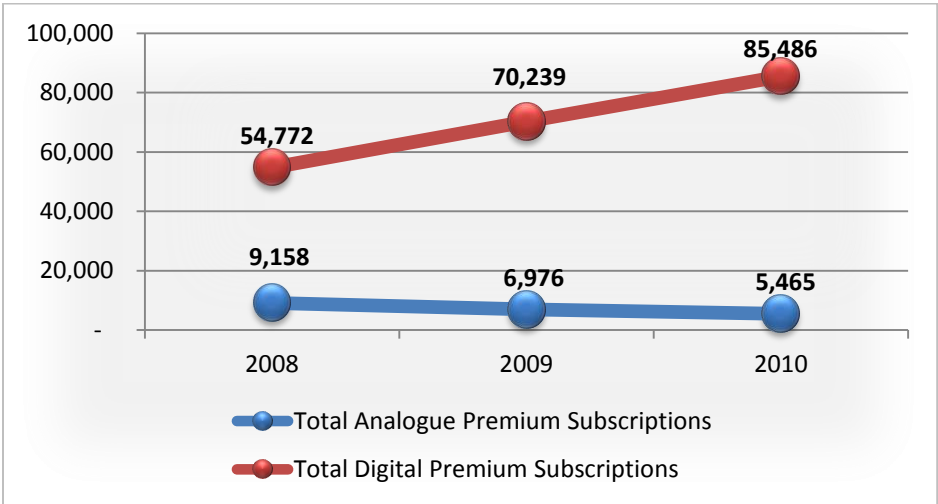
Source: TATT

As seen in Figure 120, the number of subscriptions to digital premium packages represented the largest share of theme packages in 2010, with an increase of 15.2 thousand subscriptions or 21.7 per cent when compared to 2009. Subscriptions to analogue premium packages decreased by 1.5 thousand, or 21.7 per cent, for the same period under review. This was expected as mentioned in Section 6.3.1, the main cable provider in Trinidad, CCTL, continues its rollout of its digital network. This annual change in subscriptions to premium packages via platform is shown in Table 7 while the trend in subscription to premium packages over the last three years is illustrated in Figure 118.

**Table 7: Growth Rate of Theme Package Subscriptions by Platform**

Platform	Number of Premium Package Subscriptions	% Change between 2009 and 2010
Analogue	5,465	(21.7%)
Digital	84,486	21.7%

**Figure 118: Subscriptions to Premium Packages by Platform 2008-2010**



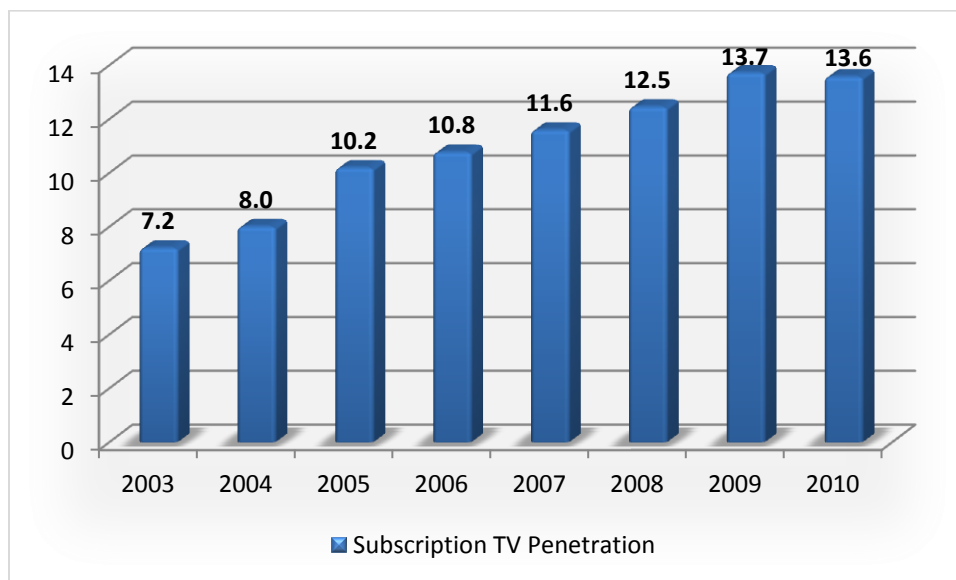
Source: TATT

### 6.3.3 Subscription TV Penetration

Although experiencing a minor decrease in 2010, penetration in the Subscription TV broadcasting market has been growing relatively steady over the past eight years. As at December 2010, the penetration of Subscription TV services (the number of Subscription TV subscriptions per 100 inhabitants<sup>54</sup>) was 13.6 while Subscription TV household penetration (the number of subscriptions per 100 households<sup>55</sup>) measured 52.1. This means approximately 14 out of every 100 persons and 52 out of every 100 households subscribe to these services.

Figures 119 and 120 highlight the trend in Subscription TV since 2003.

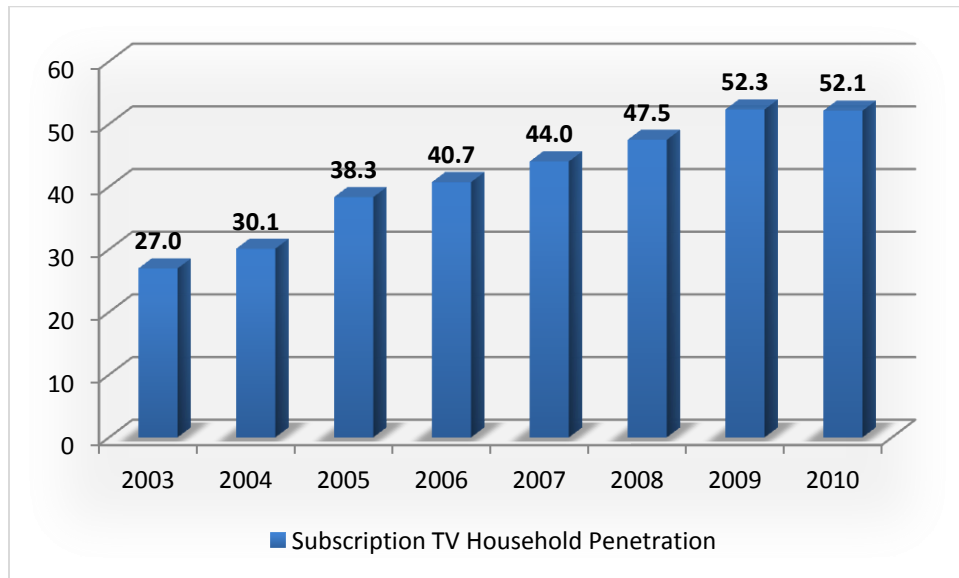
**Figure 119: Subscription TV Penetration 2003 - 2010**



<sup>54</sup> Number of Subscription TV subscriptions per 100 inhabitants = (number of Subscription TV subscriptions / population) \* 100

<sup>55</sup> Subscription TV penetration per 100 households = (number of Subscription TV subscriptions / number of households) \* 100

**Figure 120: Subscription TV Household Penetration 2003 – 2010**



Source: TATT

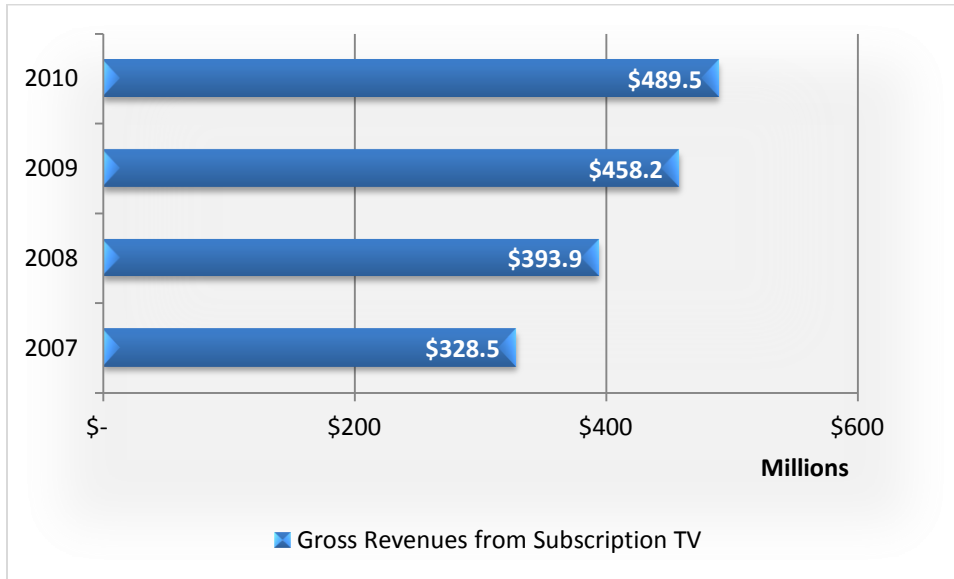
Based on statistics<sup>56</sup> received from the Central Statistical Office, there are 262,923 households in Trinidad and Tobago with a television. Therefore, households paying for Subscription TV services represent 68.3 per cent of all homes with a television.

#### **6.3.4 Subscription TV Broadcasting Revenues**

For 2010, the total estimated gross revenue from the Subscription TV broadcasting market was \$489.5 million, an increase of \$31.2 million or 6.8 per cent from 2009. Figure 121 displays the trend in gross revenues from this market from 2007 to 2010. Of this \$489.5 million, analogue Subscription TV revenues accounted for TT\$122.4 million or 25.0 per cent, whilst digital Subscription TV revenues recorded TT\$367.1 million or 75.0 per cent. The percentage breakdown of Subscription TV revenues by platform is shown in Figure 122.

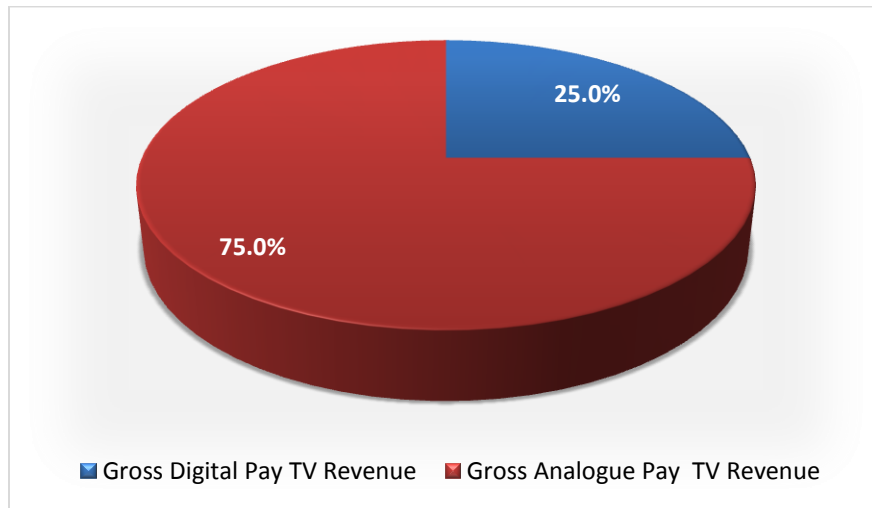
<sup>56</sup> These statistics were generated from the 2000 National Census conducted in Trinidad and Tobago.

**Figure 121: Subscription TV Gross Revenues 2007-2010**



Source: TATT

**Figure 122: Breakdown of Subscription TV Revenues for 2010**



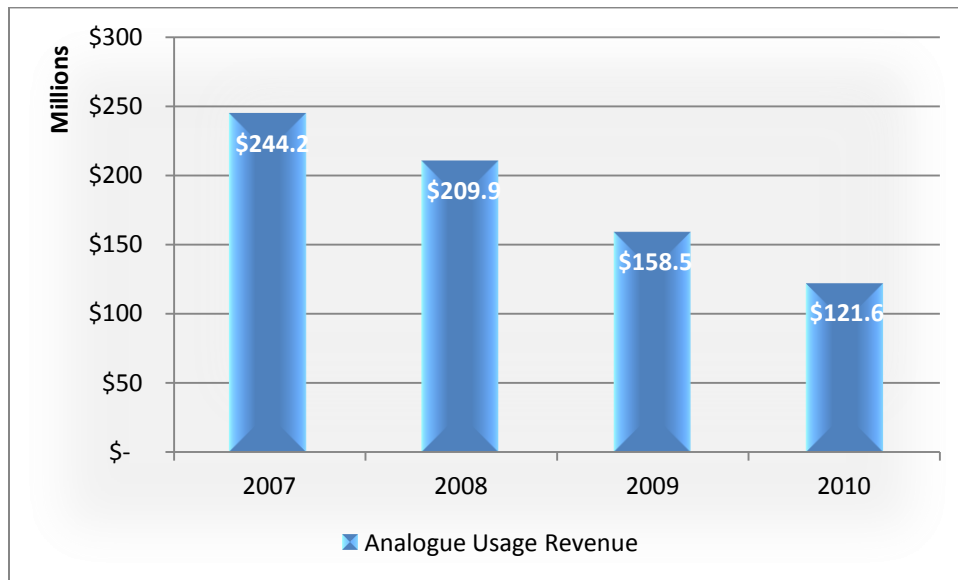
Source: TATT

It has been observed that the growth in Subscription TV revenues outweigh the slight decline in subscriptions. This trend may be attributable to increased revenues received for Subscription TV premium packages which experienced 17.8 per cent increase in subscriptions from 2009 to 2010. The trend in Subscription TV usage revenue by platform is explored in the next two sections.

### 6.3.5 Revenues from Analogue Subscription TV Subscriptions

Of the TT\$122.4 million analogue revenues generated in 2010, TT\$121.6 million comprised analogue usage revenues whereas other<sup>57</sup> analogue revenues accounted for TT\$817.7 thousand. Consistent with decreasing subscriptions to analogue packages, figure 123 presents the declining trend in total analogue usage revenue from 2008 to 2010.

**Figure 123: Gross Usage Revenues from Analogue Subscriptions 2007-2010**

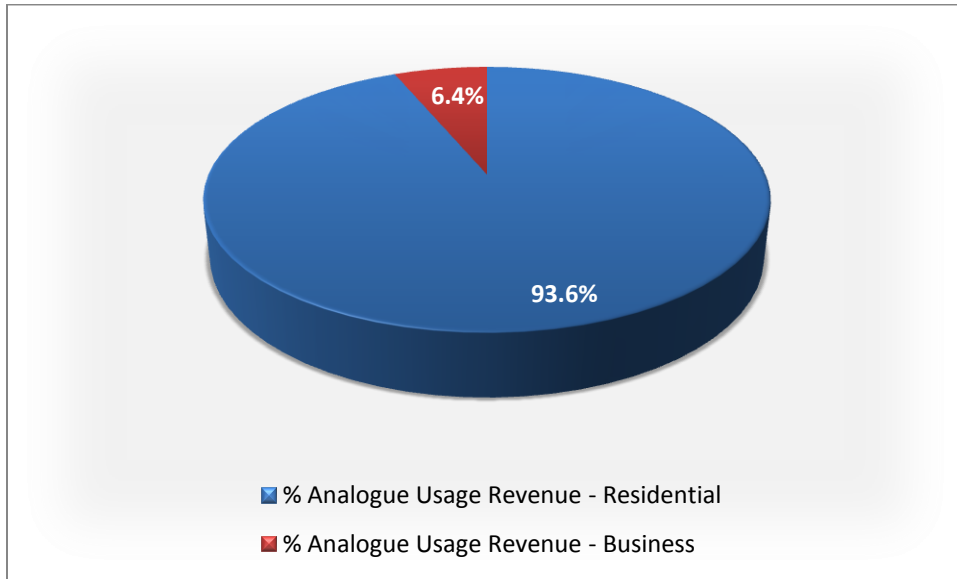


Source: TATT

Gross analogue usage revenues gained the largest proportion of its revenues from residential subscriptions, contributing TT\$113.8 million or 93.6 per cent comprising compared to TT\$7.7 million or 6.4 per cent for business analogue usage revenues. Figure 124 illustrates the percentage breakdown of gross usage revenues from analogue subscriptions.

<sup>57</sup> Other revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.

**Figure 124: Breakdown of Gross Usage Revenues from Analogue Subscriptions 2010**



Source: TATT

### **6.3.6 Revenues from Digital Subscription TV Subscriptions**

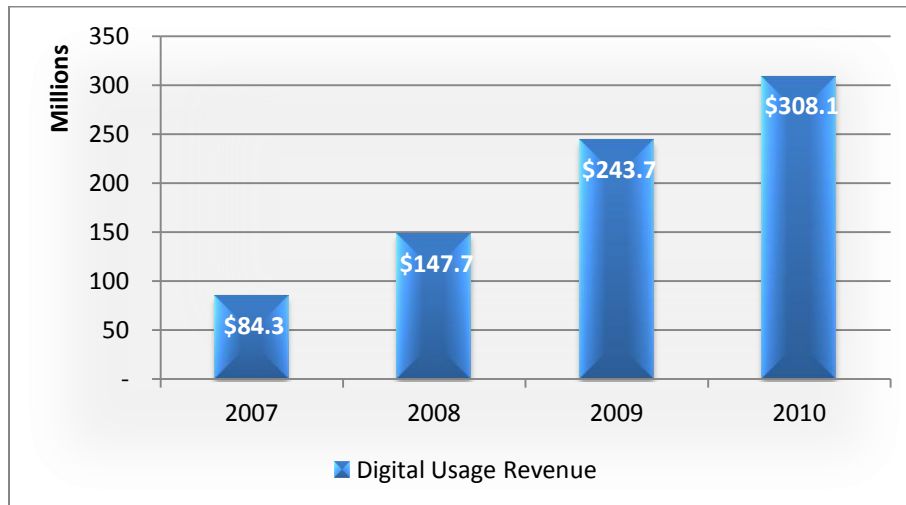
Total revenues received from digital subscriptions totalled \$367.1 million of which TT\$308.1 million comprised digital usage revenues whereas other<sup>58</sup> digital revenues accounted for TT\$59.0 thousand. Consistent with increasing subscriptions to digital packages, figure 125 presents the increasing trend in total digital usage revenue from 2007 to 2010.

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<sup>58</sup> Other revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.



**Figure 125: Gross Usage Revenues from Digital Subscriptions 2007-2010**



Source: TATT

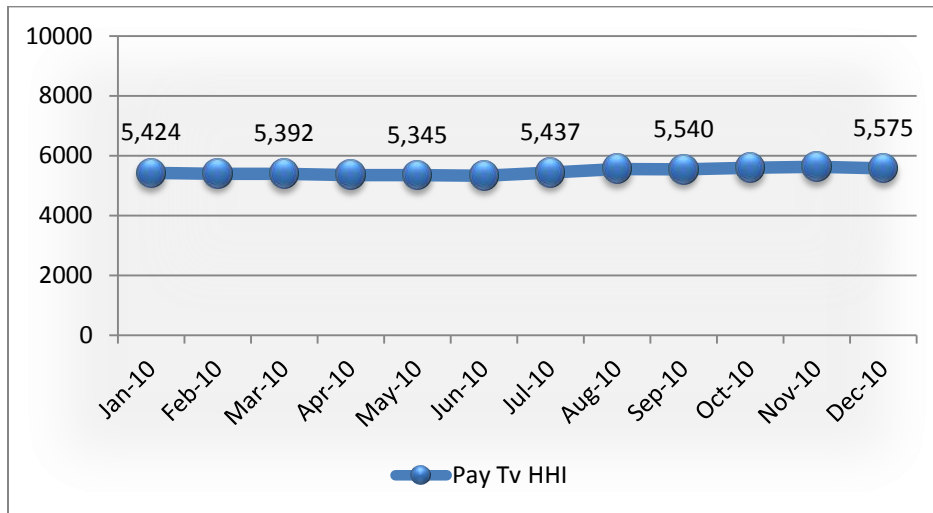
Gross digital usage revenues also gained the largest proportion of its revenues from residential subscriptions, contributing TT\$308.0 million or 99.96 per cent comprising compared to TT\$135.1 thousand or 0.04 percent for business digital usage revenues.

### **6.3.7 Subscription Television Market Concentration**

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the Subscription TV market<sup>59</sup> for the year ending December 2010. The HHI for this market stood at 5,575 at the end of December 2010 increasing by 1.7% from 2009. While this number reveals that the market is concentrated, there have been slight increase in the HHI throughout the year rising from 5, 424 as at the end of January 2010 to 5, 575 at the end of December 2010. This is shown in Figure 126.

<sup>59</sup> Subscriber market share was used in the calculation of the HHI.

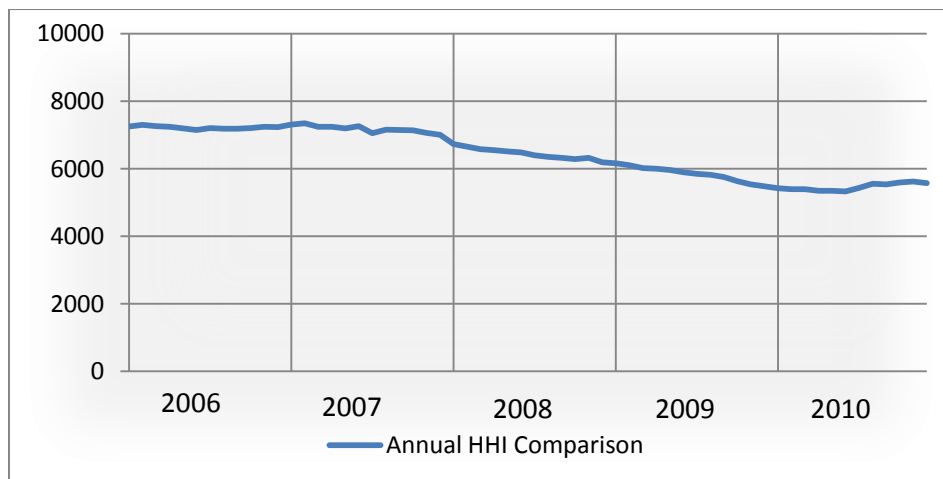
**Figure 126: Hirschman-Herfindahl Index of Subscription TV Market January – December 2010**



Source: TATT

Overall, the HHI in the Subscription TV market have been generally decreasing over the period 2006 to 2009 with a slight increase in 2010. Figure 127 below illustrates.

**Figure 127: HHI for Subscription TV Market 2006-2010**



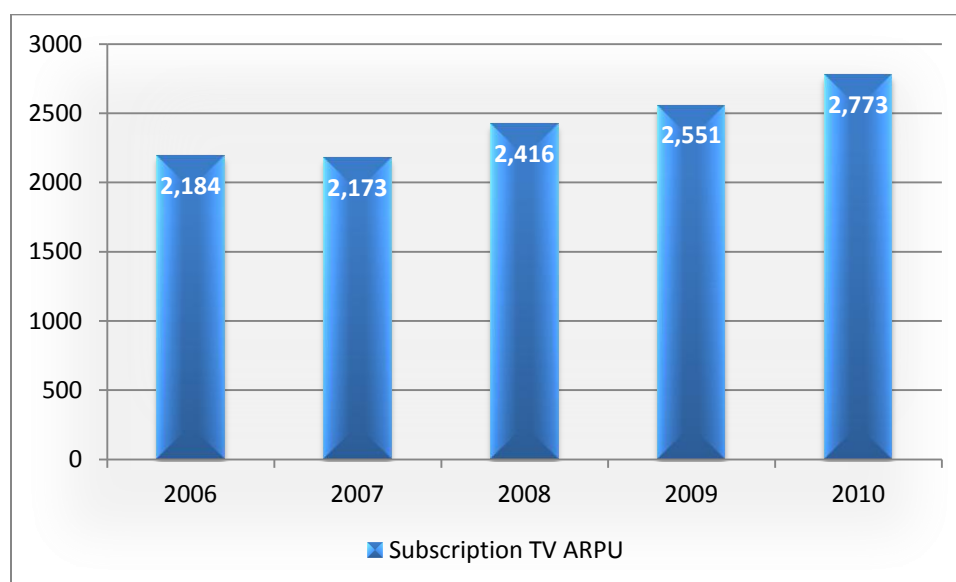
Source: TATT

### 6.3.8 Average Revenue per User (ARPU)

During 2010, consumers spent an average of TT\$2,773 for Subscription TV services. This represents an increase of TT\$222 or 8.7 per cent in the average revenue per user (ARPU) over the amount recorded for 2009. This increase was supported by the 6.8 per cent growth in revenues outweighing the 0.4 per cent decrease in subscriptions.

Figure 128 highlights the changes in ARPU over the last four years.

**Figure 128: Subscription TV Average Revenue per User (ARPU) 2006 – 2010**



Source: TATT

## 7. Appendix I: Domestic Telecommunications Statistics

**Table 8: Domestic Telecommunications Statistics**

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>General</b>	Population (millions)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	GDP per capita (US\$) <sup>60</sup>	5,950.7	6,891.6	7,166.3	8,246.2	8,470.3	11,560.2	14,576.4	16,008.1	24,151.6	21,206	20,369.4
	Telecom revenue (US\$ million)	243.5	298.9	326.0	346.3	357.0	379.3	497.9	521.3	775.3	685.2	713.1
	Total telephone subscriptions ('000s)	413.2	453.3	592.2	683.3	849.3	1,246.4	1,844.3	1,817.1	2,120.9	2,150.0	2815.1
	Total telephone penetration	31.9	34.9	45.5	52.4	65.0	95.2	140.8	138.7	163.1	165.3	167.2
	Average revenue per user <sup>61</sup> (ARPU) US\$		659.4	550.4	506.8	420.3	304.3	239.5	286.9	365.6	318.7	322.5
<b>Fixed Voice</b>	Fixed Voice subscriptions('000s)	271.6	293.2	308.3	317.3	318.9	322.3	325.5	307.3	314.8	303.2	293.3
	Fixed Voice penetration	21.0	22.6	23.7	24.4	24.4	24.6	24.9	23.5	24.1	23.2	22.3
	Fixed Voice household penetration	-	-	-	-	-	-	77.4	71.5	73.3	70.1	67.5
	Average revenue per user (ARPU) US\$		349.1	362.1	267.9	254.8	272.1	277.9	422.4	486.5	403.5	411.5

<sup>60</sup> GDP per capita is recorded at current market prices

<sup>61</sup> ARPU is calculated as the total revenues generated from the service divided by the total number of subscriptions to the service

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	Fixed Voice Subscription growth (%)	-2.6	8.0	5.2	2.9	0.5	1.1	1.0	-5.6	2.4	-3.7	-3.3
<b>Mobile</b>	Mobile subscriptions ('000s)	141.6	160.1	283.9	366.0	530.4	924.1	1,518.8	1,509.8	1,806.1	1,846.3	1,894.2
	Mobile penetration	10.9	12.3	21.8	28.1	40.6	70.5	115.9	115.3	138.2	141.1	143.8
	Average revenue per user (ARPU) US\$		225.8	212.4	213.5	203.8	153.1	159.1	206.6	196.6	169.7	163.9
	Mobile subscription growth (%)	266.4	13.0	77.3	28.9	44.9	74.2	64.4	-0.6	19.6	2.2	2.6
<b>Internet</b>	Total Internet subscriptions <sup>62</sup> ('000s)	26.5	34.8	39.9	44.2	55.2	62.3	73.3	93.3	129.7	238.3	309.9
	Fixed Internet subscriptions <sup>63</sup> ('000s)	26.5	34.8	39.9	44.2	55.2	62.3	73.3	82.6	114.1	145.0	171.1
	Mobile Internet subscriptions <sup>64</sup> ('000s)	-	-	-	-	-	-	-	10.7	15.6	93.3	138.8
	Fixed Broadband subscriptions <sup>65</sup> ('000s)	-	-	-	-	-	14.0	21.1	35.5	85.4	130.1	162.9
	Fixed Internet users <sup>66</sup> ('000s)	100.0	120.0	138.0	153.0	160.0	184.5	198.4	429.0	456.4	579.8	684.4

<sup>62</sup> Total Internet subscriptions is the sum of fixed Internet subscriptions and mobile postpaid Internet subscriptions

<sup>63</sup> Fixed Internet subscriptions – total number of subscriptions with fixed wired or fixed wireless Internet access

<sup>64</sup> Mobile Internet subscriptions – postpaid mobile customers who subscribe to monthly Internet airtime and who are billed accordingly

<sup>65</sup> Fixed Broadband subscriptions – the number of Internet subscribers with access to download speeds of 256kbps or above

<sup>66</sup> Fixed Internet users – the number of persons who regularly use fixed Internet services

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	Total Internet penetration	2.0	2.7	3.1	3.4	4.2	5.5	5.7	7.1	9.9	18.2	23.5
	Fixed Internet penetration	2.0	2.7	3.1	3.4	4.2	5.5	5.7	6.3	8.7	11.1	13.0
	Mobile Internet penetration	-	-	-	-	-	-	-	0.8	1.2	7.1	10.5
	Fixed Internet users penetration	7.6	9.2	10.5	11.7	12.2	14.1	15.2	32.8	34.9	44.3	51.9
	Fixed Internet household penetration	-	-	-	-	-	-	-	4.9	21.4	40.1	49.9
	Fixed Internet users household penetration	29.1	35.0	40.2	44.6	46.6	53.8	57.8	125.0	133.0	169.0	199.4
	Average revenue per user (ARPU) US\$ for fixed Internet	-	-	-	-	-	-	392.3	552.3	491.8	433.2	409.9
	Internet subscription growth (%)	51.0	31.4	14.7	10.8	24.8	12.9	17.7	27.4	38.9	83.8	18.0
<b>Traffic</b>	International - Outgoing (min. million)	78.5	81.7	84.1	91.9	117.2	160.2	203.2	265.9	304.3	259.2	282.9
	International - Incoming (min. million)	175.6	198.6	279.0	328.4	379.2	337.8	296.5	323.0	375.4	399.4	358.5
	Inbound/Outbound int'l traffic ratio	2.2	2.4	3.3	3.6	3.2	2.1	1.5	1.2	1.2	1.5	1.3
<b>Subscription TV</b>	Subscription TV subscriptions ('000s)		78.9	82.4	92.5	103.4	131.6	139.8	151.2	163.0	179.6	178.9

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	Subscription TV penetration		6.0	6.3	7.1	7.9	10.1	10.7	11.6	14.2	13.7	13.6
	Subscription TV household penetration	-	-	-	27.0	30.1	38.3	40.7	44.0	47.5	52.3	52.1
	Average revenue per user (ARPU) US\$		376.7	395.3	380.9	376.5	337.3	318.9	344.9	337.0	404.9	431.2
	Subscription TV subscription growth (%)			4.5	12.3	11.7	27.3	6.2	8.1	12.5	10.2	-0.4

## 8. Appendix II: List of Concessionaires

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
<b>INTERNATIONAL TELECOMMUNICATIONS</b>							
Columbus Communications Trinidad Limited	Public International Telecommunications Services	N/A	Type 4	3 Years	21 August 2006	20 August 2009	N/A
Columbus Networks International (Trinidad) Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Columbus Networks International (Trinidad) Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Green Dot Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Laqtel Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Laqtel Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Lisa Communications Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Lisa Communications Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Open Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Open Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Southern Caribbean Fibre Limited	Public International Telecommunications Network	N/A	Type 1	10 Years	17 August 2006	16 August 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A



Tobago Limited							
Three Sixty Communications Limited [Transferred from Illuminat (Trinidad and Tobago) Limited]	Public International Telecommunications Network	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A
Three Sixty Communications Limited [Transferred from Illuminat (Trinidad and Tobago) Limited]	Public International Telecommunications Services	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A
Windward Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Windward Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
<b>FREE-TO-AIR RADIO BROADCASTING</b>							
21st Century Arts and Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.5 FM
British Broadcasting Corporation	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	15 June 2007	14 June 2017	98.7FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	100.1 FM
Central Broadcasting Services Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	21 September 2006	20 September 2016	102.7 FM
Central Radio FM90 Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.5 FM
Citadel Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.5 FM
Family Focus Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	98.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air AM)	National	Type 5	10 Years	23 February 2006	22 February 2016	730 AM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.1 FM

Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	105.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	106.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	106.5 FM
Heritage Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.7 FM
Inner City Broadcasting Company Ltd.	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.1 FM
Kaisoca Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	92.7 FM
Kenny Phillips	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.1 FM
Marcel Mahabir	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.7 FM
Mohan Jaikaran	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.1 FM
Neil "Iwer" George	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.9 FM
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	1 March 2007	28 February 2017	105.5 FM
PBCT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.7 FM
Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	93.5 FM
Radio News Network	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.1 FM
Radio Vision Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	102.1 FM
Sidewalk Radio Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	92.3 FM
Superior Infinite Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.1 FM
Telemedia Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	97.1 FM
The Q Corporation Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.7 FM
Trinidad and Tobago Citizen's Agenda Network	Broadcasting Services (Free to Air FM)	Minor Territorial/Niche - Toco and environs	Type 5	10 Years	1 March 2006	28 February 2016	106.7 FM

Trinidad and Tobago Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.1 FM
United Cinemas Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	103.5 FM
Upward Trend Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	97.5 FM
VL Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.7 FM
Winfred Aleong Broadcasting Company Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	103.1 FM
Wonderland Entertainment Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	100.5 FM
<b>MOBILE TELECOMMUNICATIONS</b>							
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
<b>FREE-TO-AIR TELEVISION BROADCASTING</b>							
Advance Community Television Network Limited	Broadcasting Services (Free to Air Television)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	UHF 25
C.C.N. Television Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	1 March 2006	28 February 2016	VHF 6, UHF 18, 19
Caribbean New Media Group Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	23 February 2006	22 February 2016	VHF 9, UHF 13, 20
Gayelle Limited	Broadcasting Services (Free to Air Television)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	UHF 23
Guardian Media Limited [Trinidad Publishing Company Limited] (CNC3)	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	14 April 2008	13 April 2018	VHF 12, UHF 14, 22
Mohan Jaikaran	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	1 March 2006	28 February 2016	VHF 7, UHF 37, 39
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	23 October 2008	22 October 2018	VHF 11, UHF 26, 29
Synergy Entertainment	Broadcasting Services (Free to Air Television)	Major	Type 5	10 Years	14 April 2008	13 April 2018	UHF 31, 33

Network Limited	Air Television)	Territorial					
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SUBSCRIPTION TELEVISION BROADCASTING							
Air Link Communications	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Environs	Type 5	10 Years	1 May 2010	30 April 2020	N/A
Columbus Communications Trinidad Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	5 January 2006	4 January 2016	N/A
DirecTV Trinidad Limited	Subscription Broadcasting Service (direct from Satellite only)	National	Type 5	10 Years	28 February 2006	27 February 2016	N/A
Green Dot Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	11 July 2008	10 July 2018	N/A
Independent Cable Network of Trinidad & Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Major Territorial	Type 5	10 Years	1 November 2006	31 October 2016	N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Mayaro and Guayaguayare	Type 5	10 Years	5 January 2006	4 January 2016	N/A
RVR International Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Rio Claro	Type 5	10 Years	5 January 2006	4 January 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	30 December 2005	29 December 2015	N/A
TRICO Industries Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Minor Territorial	Type 5	10 Years	1 September 2006	31 August 2016	N/A
TELEVISION BROADCASTING SERVICE VIA CABLE							
IETV Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5				N/A
FIXED TELECOMMUNICATIONS							

Air Link Communications	Public Domestic Fixed Telecommunications Network	Niche - Princes Town and Environs	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Air Link Communications	Public Domestic Fixed Telecommunications Services	Niche - Princes Town and Environs	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Columbus Communications Trinidad Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Columbus Communications Trinidad Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Green Dot Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Green Dot Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Illuminat (Trinidad & Tobago) Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Illuminat (Trinidad & Tobago) Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Independent Cable Network of Trinidad & Tobago Limited	Public Domestic Fixed Telecommunications Network	Major Territorial	Type 2	10 Years	1 November 2006	31 October 2016	N/A
Independent Cable Network of Trinidad & Tobago Limited	Public Domestic Fixed Telecommunications Services	Major Territorial	Type 2	10 Years	1 November 2006	31 October 2016	N/A
Lisa Communications Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Lisa Communications Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Public Domestic Fixed Telecommunications Network	Niche - Mayaro and Guayaguayare	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Public Domestic Fixed Telecommunications Services	Niche - Mayaro and Guayaguayare	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Open Telecom Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Open Telecom Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A

RVR International Limited	Public Domestic Fixed Telecommunications Network	Niche - Princes Town and Rio Claro	Type 2	10 Years	5 January 2006	4 January 2016	N/A
RVR International Limited	Public Domestic Fixed Telecommunications Services	Niche - Princes Town and Rio Claro	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Three Sixty Communications Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
Three Sixty Communications Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
TRICO Industries Limited	Public Domestic Fixed Telecommunications Network	Minor Territorial	Type 2	10 Years	1 September 2006	31 August 2016	N/A
TRICO Industries Limited	Public Domestic Fixed Telecommunications Services	Minor Territorial	Type 2	10 Years	1 September 2006	31 August 2016	N/A

## 9. Appendix III: Tariffs

Lists of tariffs offered by service providers can be found at the following websites:

- TSTT: <http://www.tstt.co.tt/>
- bmobile: <http://www.bmobile.co.tt/>
- Digicel: <http://www.digiceltt.com/>
- Network Technologies Limited: <http://www.mayarocabletv.com/>
- Columbus Communications Trinidad Limited: <http://www.flowtrinidad.com/>
- Open Telecom: <http://www.opentelecomtt.com/>

## 10. Appendix IV: Glossary of Terms

The following definitions are included to assist the readers of the report.

Terms	Definition
Average Revenue per User	measures the average revenue generated by one subscriber.
Broadband	Internet speeds > 256 kbits/s.
Concession	a legal instrument granted by the Minister to authorise the operation of a public telecommunications network and/or the provision of any public telecommunications service or broadcasting service.
Gross Domestic Product	a measure of the total value of all goods and services produced in a given country in a given time period, usually a year, excluding net property income from abroad.
Hirschman-Herfindahl Index	a tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market shares of all firms in the market.
Interconnection	the linking of public telecommunications networks and public telecommunications services, to allow the users of one provider of a public telecommunications service to communicate with the users of another provider of a public telecommunications service, and to access the services provided by such other provider.
International settlement rate	the share of the accounting rate paid by the public telecommunications operator in another country to cover the costs of carrying the originating public



Terms	Definition
	telecommunications operator's traffic on its network.
Licence	a legal instrument granted by the Authority to authorise the operation or use of any radiocommunication service or any radiotransmitting equipment, including that on board any ship, aircraft or other vessel in the territorial waters or airspace of Trinidad and Tobago.
Mobile voice subscription	refers to an activated (pre-paid or post-paid) SIM card than enables the user to make and/or receive a call.
Narrowband	Internet speeds $\leq$ 256 kbits/s.
Off-net traffic	refers to traffic originating on a service provider's network and terminating on another network.
On-net traffic	refers to traffic originating on a service provider's network and terminating on the same network.
Penetration rate	is defined as the number of persons per 100 inhabitants that subscribe to telecommunications and/or broadcasting services.