



Annual Market Report:
Telecommunications and Broadcasting
Sectors

January – December 2012

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1. Executive Summary

This report marks the seventh publication of the Telecommunications Authority of Trinidad and Tobago's annual market report. It provides annual information on the performance of key segments within the telecommunications and broadcasting sectors and reports on prevailing market trends observed during the year 2012.

Steady growth reported in the Telecommunications and Broadcasting Industry

The Telecommunications and Broadcasting industry of Trinidad and Tobago continues to thrive, as the data shows an increased trend in revenues in all sectors for the period 2012. Total revenues, which increased by 12.6 per cent from the previous year, is estimated at TT \$5.3 billion.

The telecommunications sector estimated at TT \$4.1 billion continues to be the primary contributor of total revenues with the mobile market accounting for over 50 per cent of these revenues. For the period 2012, total annual revenues from mobile voice services increased by 6.6 per cent, whilst fixed voice services also recorded a marginal increase in gross revenues of 1.0 per cent. Due to growth in both fixed and mobile Internet subscriptions, there was also a reported increase of 19.0 per cent in revenues generated from Internet services. In addition, international traffic revenues also recorded an increase in gross revenues of 9.4 per cent despite of the observed decrease in international minutes for the year 2012.

Revenues for the broadcasting sector was reported at TT \$903.7 million. Gross revenues in the free-to-air television market increased in 2012 by 9.5 per cent from the previous year. Likewise, free-to-air radio broadcasting market and subscription TV also recorded increases in revenues of 4.1 per cent and 12.9 per cent respectively.

Increasing uptake of communication services, though falling fixed voice market penetration rate

In 2012, there were approximately 142 mobile subscriptions per 100 inhabitants in Trinidad and Tobago. This marked an increase in mobile penetration of 2.6 per cent when compared to the

previous year. On the other hand, continuing the trend observed over the past four years, the fixed voice services continued to decline, recording a market penetration rate of at 21.6, a 2.4 per cent decrease from the previous year.

For the same period, approximately 49 out of every 100 persons in Trinidad and Tobago had either a fixed Internet subscription and/or a mobile Internet subscription. As of December 2012, fixed Internet penetration rate stood at 16.9 increasing by 16.1 per cent when compared to 2011. In addition, 52 out of every 100 households had a fixed Internet subscription with 95 per cent of residential broadband customers subscribing to speeds between 256 kbit/s and less than 10 Mbit/s.

The market penetration rate of Subscription TV services also recorded incremental increases when compared to the previous year, moving from 14.1 in 2011 to 14.8 in 2012.

Marginal changes in market concentration observed

As at December 2012, a slight decrease in the level of concentration in the fixed voice market was observed. Compared to 2011, there was a 2.1 per cent reduction in the Hirschman-Herfindahl Index (HHI)¹. Additionally, the average HHI for the Internet market also decreased by 0.2 per cent reflecting marginal downward movements in the level of concentration in the market. The subscription TV and the international traffic markets also recorded decreases in HHI during the period 2012.

On the other hand, there was a 0.48 per cent increase in HHI observed in the mobile sector during the period under review. This indicates that the mobile market became slightly more concentrated in 2012. Likewise the free-to-air television and free-to-air radio broadcasting markets recorded an increase in HHI, also suggesting slight increases in the markets' concentration in 2012 compared to the previous year.

Mix of Technologies offered by Internet Service Providers

¹ Hirschman-Herfindahl Index is 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.

Operators in Trinidad and Tobago use a mix of technologies to provide fixed wired and wireless broadband Internet services to the public.

Fixed wired broadband Internet services employ:

- ADSL2+ over copper cables
- Hybrid Fibre-coax networks
- Fibre to the Curb (FTTC), Fibre to the Business (FTTB) or Home (FTTH)

In addition, fixed wireless Broadband Internet operators employ WiMAX technologies to support the need for services demanding ever higher speeds on the access network.

Increasing Average Revenues per User across all sectors

For the year 2012, fixed-line consumers on average spent TT \$2,742 on fixed voice services. This represents an increase of 5.5 per cent in the average revenue per user (ARPU) recorded in 2011. Likewise, mobile services customers also registered an increase in spending during the period, with an ARPU of TT \$1,196, a 7.7 per cent increase from the previous year.

Additionally, Internet customers also spent more for Internet services in 2012 when compared to 2011. During the review period, customers with Internet (fixed and mobile) subscriptions spent on average 7.4 per cent more than they did in the previous year. Likewise, ARPU of Subscription TV services consumers also rose in 2012 when compared to 2011, averaging approximately TT \$3,220 in 2012.

2. 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 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 2012, as well as 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 which can be accessed from the Authority's website.

2.1 Total Authorisation

Under the Telecommunications Act 2001, the Authority is responsible for making recommendations to the Minister of Science and Technology for the granting of concessions to telecommunications and broadcasting operators (Section 21(5)). To date one hundred and nine (109) concessions were granted to eighty five (85) service providers (concessionaires) by the Minister based on the Authority's recommendations.

While this Figure represents the number of authorisations 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 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 2012.

Table 1: Number of Concessions, Concessionaires and Operators as at December 2012

Network Category	Service Provided	Authorised Concessionaires ²	Operational Concessionaires
International Telecommunications	Network only	1	1
	Network and Services	9	8
Mobile Telecommunications	Mobile voice and Internet services	2	2
Fixed Telecommunications³	Fixed Telephony	14	2
	Fixed Internet		7
Subscription TV (Pay TV)		10	9
Free-to-air Radio Broadcasting		38	38
Free to Air Television Broadcasting		9	9
TV Broadcasting via Cable		2	1
Total		85	77

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 authorised and responsible for the granting of licences. In accordance with these legislative powers, for the period January to December 2012, the Authority granted a total of 167 licences. Table 2 lists the categories and the number of licences granted during 2012.

² Concessions are granted to persons or companies to provide telecommunications and/ or broadcasting services.

³ One concession is granted for the provision of both fixed telephony and fixed Internet services and/or networks

Table 2: Number of Licences Granted for the period January to December 2012

Type of Licence		2012
Spectrum	Cellular Mobile	0
	Land Mobile	13
	Point-to-Point	10
	Point-to-Multipoint	1
	SCADA	0
General Radiocommunications	Satellite Earth Stations	5
	Amateur Stations	90
	Maritime Stations	29
	Aeronautical Stations	13
Broadcasting (Special Events)		6
Total		167

Source: TATT

2.2 Overview of the Telecommunications and Broadcasting Sectors

2.2.1 Market Revenue Contributions to the Sectors

The Telecommunications and Broadcasting sectors generated an estimated TT \$5.3 billion⁴ or US \$834.1 million⁵ in 2012, which as a percentage of GDP⁶ equates to 3.3 per cent. This represented an increase in total revenues of 12.6 per cent over the last year. Of this amount, “Mobile Services” contributed the highest towards total revenues with TT \$2.2 billion, or 42.2 per cent. This was followed by “Internet services” which contributed approximately TT \$805.6 million or 15.2 per cent. The next highest revenue earner for the industry was “Fixed⁷ Voice services” contributing TT \$794.0 million or 14.9 per cent. Following closely behind were “Subscription Television services” and “International⁸ services” whose contributions totalled TT \$616.0 million and TT \$283.6 million respectively, that is 11.6 and 5.3 per cent. Next in line was “Free-to-air radio services” recording TT \$168.1 million or 3.2 per cent. “Free-to-air television” revenues for the industry were estimated to be TT \$119.6 million or 2.3 per cent of gross revenues. Finally, other contributors included “other revenues”⁹ and “leased line services” with earnings of TT \$214.4 million and TT \$70.4 million respectively, with 4.0 and 1.3 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.

⁴ This Figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services.

⁵ Estimated exchange rate US\$1=TT\$6.37

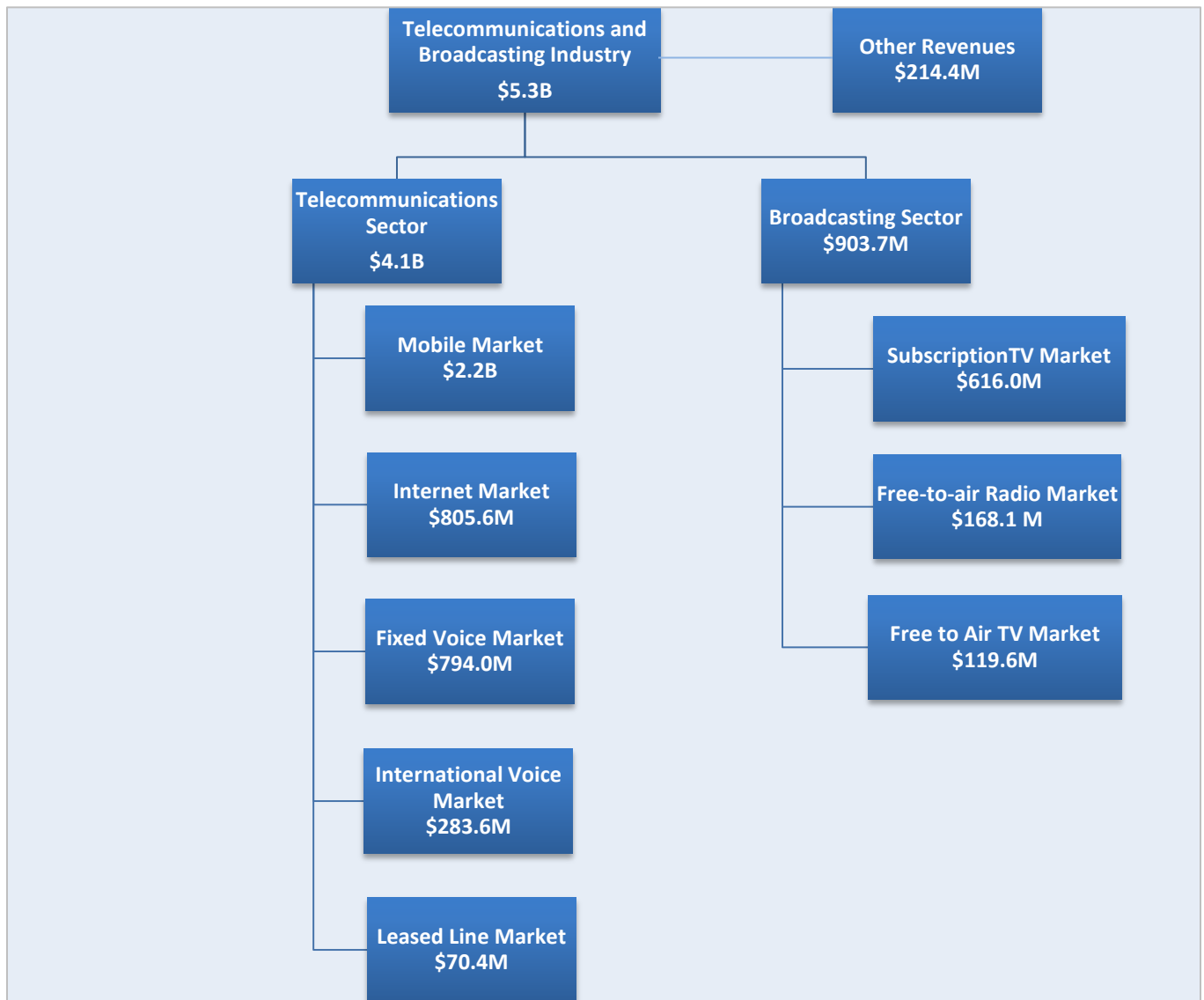
⁶ The Central Bank of Trinidad and Tobago has recorded Gross Domestic Product (GDP) at current market prices for 2010 to be TT\$129.8 billion.

⁷ Fixed market revenues include revenues earned from fixed voice and access (excluding international) services.

⁸ International market revenues are equal to the sum of gross revenues obtained from outgoing and incoming international traffic.

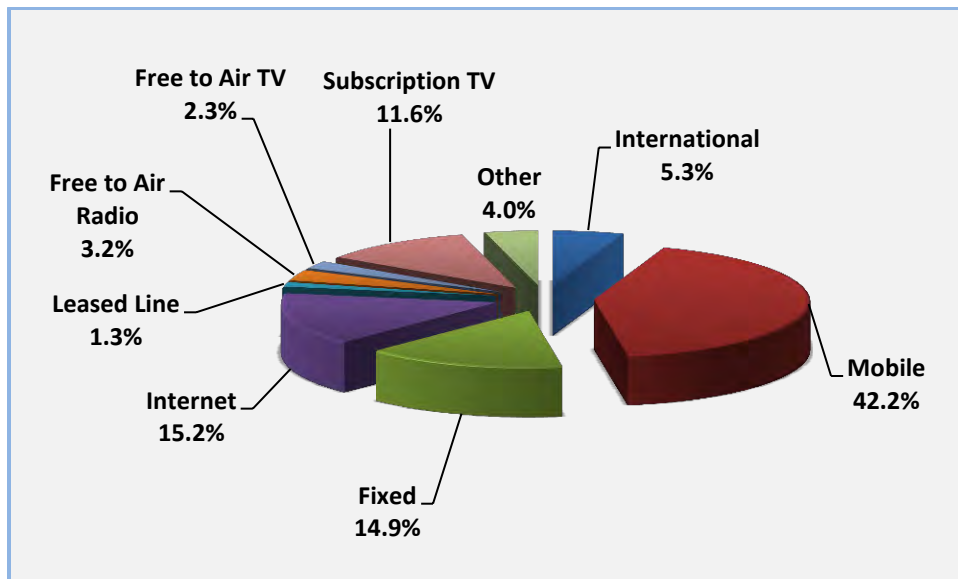
⁹ Other revenues comprise revenues earned from both the telecommunications sector and the broadcasting sector such as revenues received from wholesale services and Production and Air time for local programming on Pay TV See sections 1.2.2 and 1.2.3 for further definitions.

Figure 1: Industry, Sectors and Markets Revenues 2012



Source: TATT

Figure 2: Percentage of Gross Revenues contributed by Markets - 2012



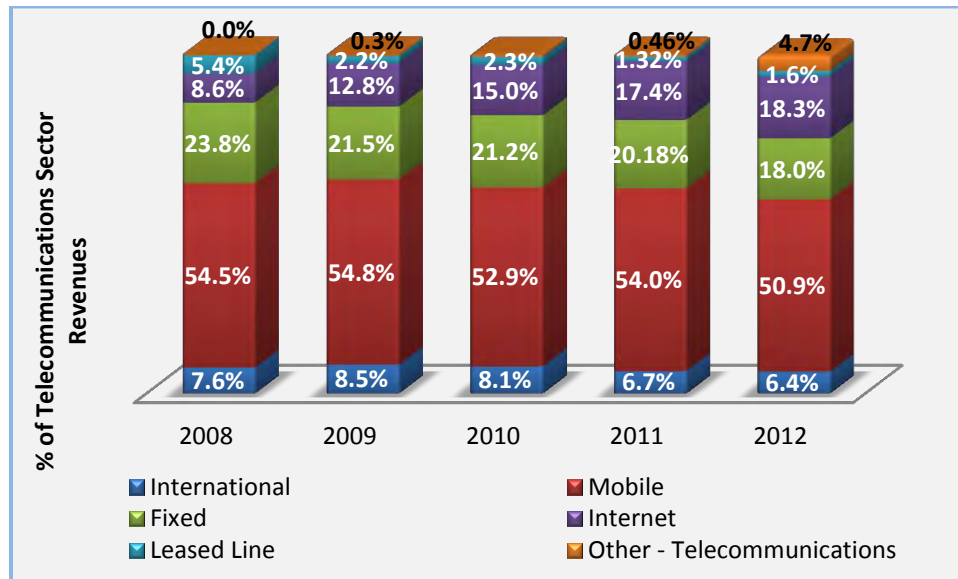
Source: TATT

2.2.2 Market Revenue Trends in the Telecommunications Sector

For the 2012 period, the Telecommunications sector contributed TT \$4.4 billion or 82.9 per cent of overall industry revenue. Of the five main markets within this sector, the mobile market continued to collect the majority of revenues, accounting for 50.9 per cent of total telecommunications revenues. The Internet market generated the second highest revenues with 18.3 per cent, while revenues from the fixed telephony and international markets followed thereafter with 18.0 per cent and 6.4 per cent respectively. The leased line market earned 1.6 per cent of telecommunications revenues and continued to be the smallest revenue contributor to the sector. ‘Other’ telecommunications revenues¹⁰ contributed 4.7 per cent to total telecommunications revenues. Figure 3 depicts the revenue contributions of the individual markets towards the telecommunications sector total revenue.

¹⁰ Other telecommunications revenues earned from service providers in the telecommunications sector include other wholesale services (excluding leased line), high capacity wireless links and two-way radios.

Figure 3: Percentage Contributions of Telecommunications Markets– 2008 to 2012



Source: TATT

The Internet market showed the most significant growth in telecommunications revenue contributions. The Internet market increased its contribution to total telecommunications revenues from 17.4 per cent in 2011 to 18.3 per cent in 2012. In fact, the Internet market increased its rank by one place in 2012, now being the second highest contributor to revenues in the telecommunications sector.

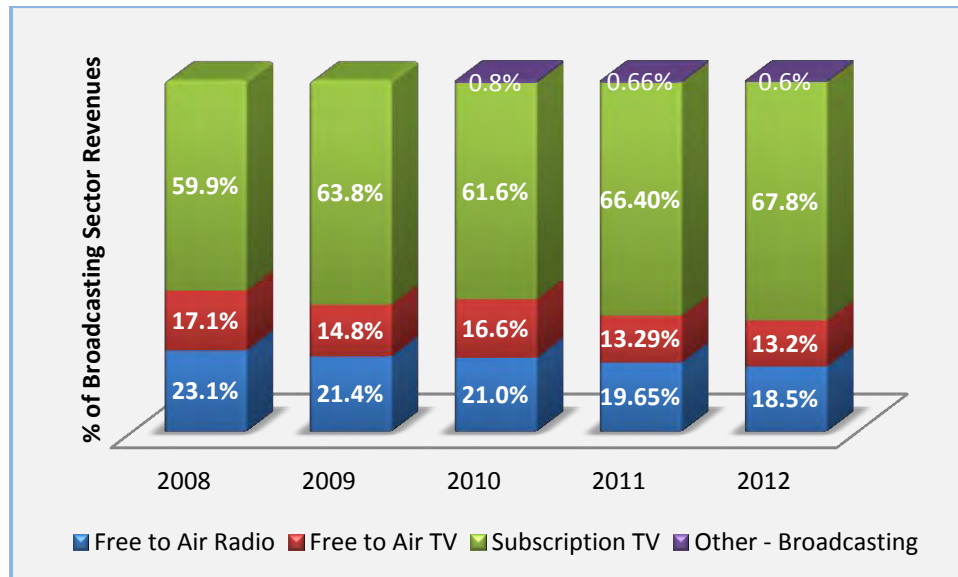
2.2.3 Market Revenue Trends in the Broadcasting Sector

For the review period, the broadcasting sector contributed TT \$908.8 million, or 17.1 per cent towards overall industry revenue. The broadcasting sector is divided into three main markets: subscription television¹¹, 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 67.8 per cent of broadcasting revenues for 2012. Trailing significantly behind were the free-to-air radio and free-to-air television markets earning 18.5 per cent and 13.2 per cent of broadcasting revenues respectively.

¹¹ Also known as Pay TV

‘Other’ broadcasting revenues¹² contributed 0.6 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 total revenues.

Figure 4: Percentage Contributions of the Broadcasting Markets – 2008 to 2012



Source: TATT

When compared to 2011, the subscription television market was the only broadcasting market showing any percentage growth for the 2012 period, increasing from 66.4 per cent to 67.8 per cent. The free-to-air radio and free-to-air television markets experienced marginal declines in their percentage contributions towards revenues in the broadcasting sector.

2.2.4 Telecommunications and Broadcasting Subscriptions

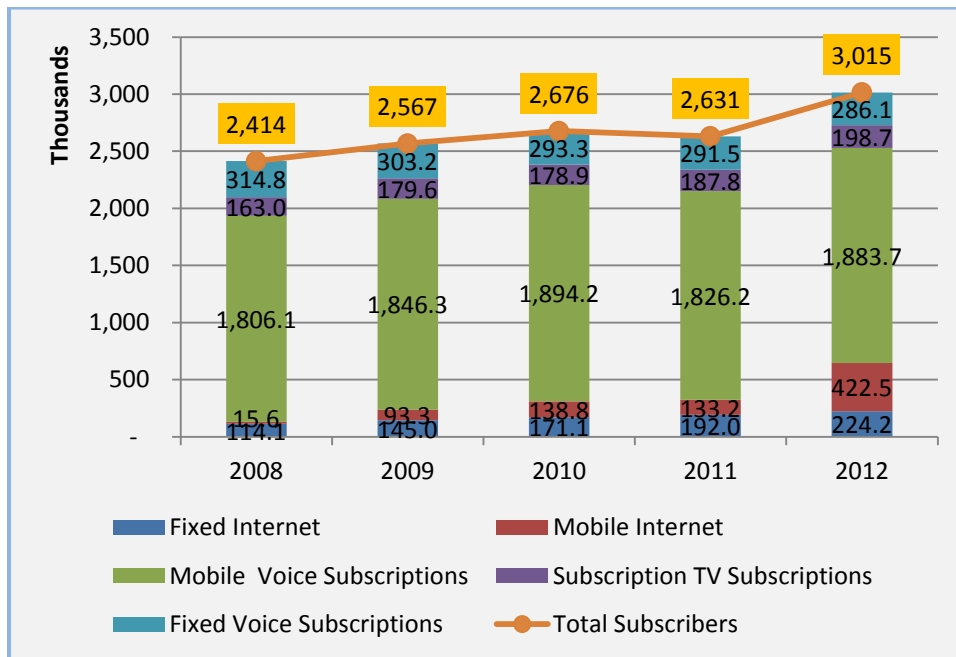
For the year ending December 2012, the number of subscriptions within the fixed voice, mobile voice, fixed Internet, mobile Internet and subscription television market segments totalled approximately 3.0 million¹³. This represents an increase of 14.6 per cent or 384.5 thousand more subscriptions than 2011. The fixed voice market contributed 286.1 thousand subscriptions

¹² Other revenues earned from service providers in the broadcasting sector include Production and Air time for local programming on Pay TV

¹³ The significant increase in the number of subscriptions mainly is due to the Authority’s revision of the calculation of the Mobile Internet Penetration to include actual prepaid Internet subscriptions.

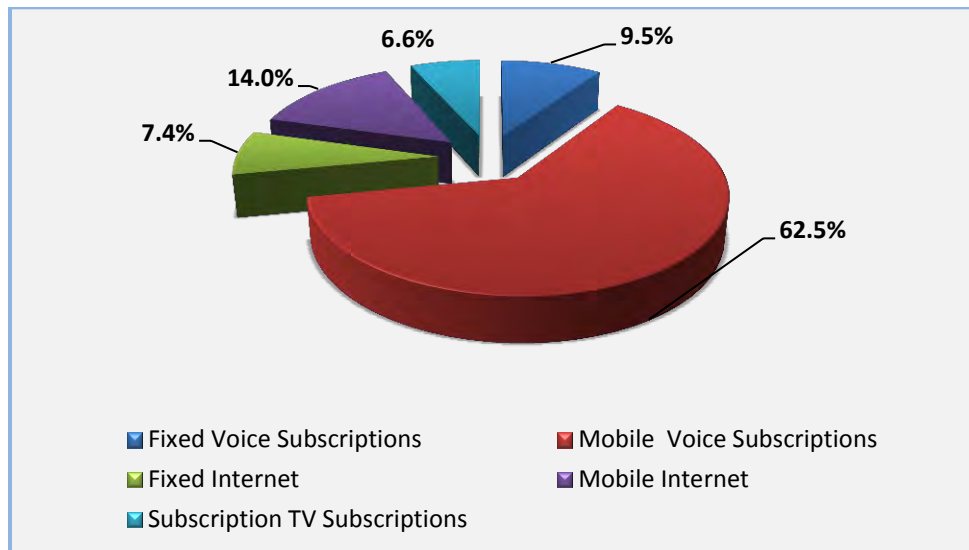
representing 9.5 per cent towards total subscriptions, whereas the mobile voice market contributed 1.9 million subscriptions representing 62.5 per cent. Fixed Internet subscriptions stood at 224.2 thousand as at December 2012 contributing 7.4 per cent to total subscriptions whereas the number of Mobile Internet subscriptions stood at 422.5 thousand or 14.0 per cent of total subscriptions. Subscription television services contributed 6.6 per cent with 198.7 thousand subscriptions. Figure 5 compares total industry subscriptions for the period 2008-2012 while contributions by the various market segments towards total industry subscriptions as at December 2012 are shown in Figure 6.

Figure 5: Market Share of Total Subscriptions by Service from 2008 to 2012



Source: TATT

Figure 6: Market Shares of Total Industry Subscriptions by Service as at December 2012



Source: TATT

2.2.5 Subscription Penetration Rate

The penetration rate is defined as the number of subscriptions per 100 inhabitants.

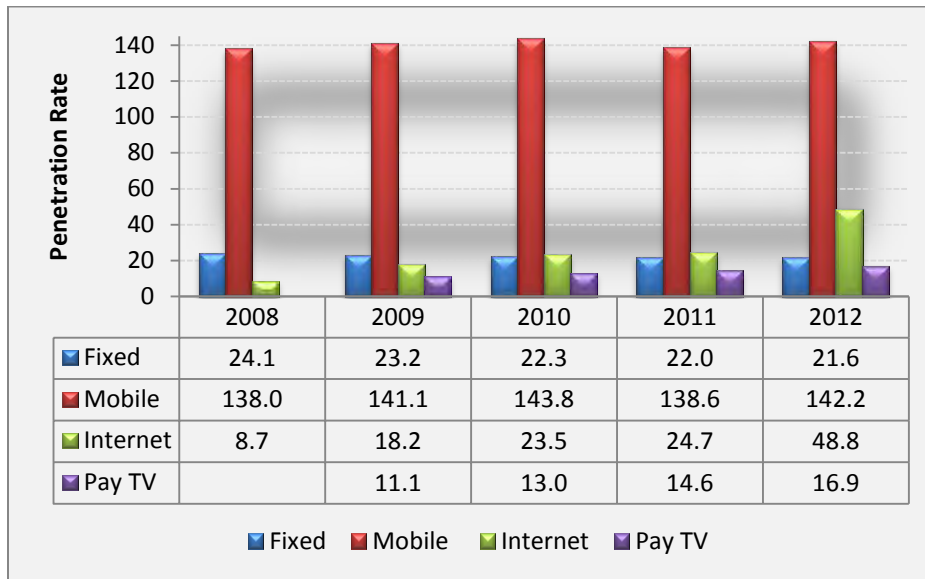
As seen in Figure 7, the penetration rates¹⁴ for the Internet, Mobile and subscription TV markets increased, while the penetration rate for fixed voice for the 2012 period continued to decline. Mobile services, with a rate of 142.2, continued to record the highest penetration rate. Internet¹⁵ was the second highest with a penetration rate of 48.8 whilst fixed telephony and Subscription television¹⁶ service followed with penetration rates of 21.6 and 16.9 respectively.

¹⁴ Internet penetration includes both fixed and postpaid mobile Internet penetration

¹⁵ The significant increase in the Internet penetration rate is due to the Authority's revision of the calculation of the Mobile Internet Penetration to include actual prepaid Internet subscriptions.

¹⁶ Penetration rate is calculated as follows: (number of subscriptions to the service / population number) * 100

Figure 7: Penetration Rate of Subscriptions 2008 to 2012



Source: TATT

Summary of the Domestic Macro-economy

Trinidad and Tobago continues to hold the privileges of a high income state¹⁷ due to the country's GDP per capita which averaged US\$17,681 over the last five years and US\$19,018 in 2012 and, is second only to The Bahamas in the Caribbean and Latin America region. In 2012 the country's economy grew by approximately 1 per cent¹⁸ due primarily to continued moderate 1.9 per cent expansion of the country's Manufacturing and Services sector which overwhelmed a mild -1.0 per cent contraction in the country's Energy

sector. Trinidad and Tobago's unemployment rate continues to be one of the lowest globally, measuring 5.4 per cent in 2012 slightly up from 5.0 per cent recorded in 2012. This increase however, may be a welcomed one as it is inclusive of a return to the workforce by several groups who left during the economy's slowdown, as evidenced by an increase for the first time in four (4) years in the country's worker participation rate, which climbed to 61.7 per cent in 2012. Also indicative of an increase in economic activity during 2012, Trinidad and Tobago's inflation rate increased to 9.2 per cent over the period, up from 5.0 per cent in 2011. Pertinently, Trinidad and Tobago has displayed a moderate measure of fiscal maturity as the country recorded gross national savings of 25.6 per cent of the country's GDP. Though this figure is significantly less than the 41.5 per cent recorded during energy prices peak in 2008 this percentage was the third highest in the Latin America and Caribbean region for the year 2012 and

Fig.1.0 Latin America and the Caribbean: 2012 GDP per capita (US\$)



¹⁷ The World Bank defines a High Income State as a country whose GDP per capita measured US\$15,465 as at 2005

¹⁸ Source ECLAC

is significantly above the regional and global average of 18.4 per cent and 23.9 per cent respectively. Despite these economic successes, Trinidad and Tobago's economy also faced several challenges in the year 2012. These include sizeable fall in the country's exports, incurring a balance of payment deficit and declining current account balance. The table below capsules several key macro-economic statistics over the five year period **2008-2012**.

Economic Indicator	Annual Percentage Change				
	2008	2009	2010	2011	2012
Real GDP Growth (2000=100)	2.7	-3.3	0.0	-1.4	1 ¹⁹
Energy Sector	-0.3	2.5	2.0	0.0	-1.0 ²⁰
Non-energy Sector	4.9	-6.7	-3.8	-1.0	1.9 ⁴
²¹ Inflation Rate (%)	12.0	7.2	10.5	5.3	9.3
²² Unemployment Rate	4.6	5.3	5.9	5.0	5.4
⁵Exports (% of GDP)	66.6	47.9	54.3	62.9	44.3
⁵Imports (% of GDP)	34.2	36.3	31.14	42.3	25.0
⁵Current Account Balance (% of GDP)	30.5	8.5	20.3	11.1	12.1
⁵Overall BOP TT\$MM	16,936	4,489	2,652	4,794	-3,102
²³Standard and Poor's Credit Rating	A	A	A	A	A
⁶Exchange Rate (USD)	6.26	6.30	6.34	6.37	6.37
⁵Gross National Savings % GDP	41.6	24.0	34.2	25.0	25.6
⁵Population ('000's)	1,309	1,310	1,318	1,323	1,329
⁵GDP (Current Prices -\$Mn-TT)	175,287	121,281	131,289	150,373	161,151
⁵GDP per capita (Current Prices -TT)	133,325	92,209	99,079	113,530	121,146

Further, despite economic diversification efforts, Trinidad and Tobago's economy remains heavily dependent on the contribution of fossil fuel exports. In 2012 the Petroleum and Petrochemical Sector was

¹⁹ Source: ECLAC

²⁰ Source: Trinidad and Tobago MOF

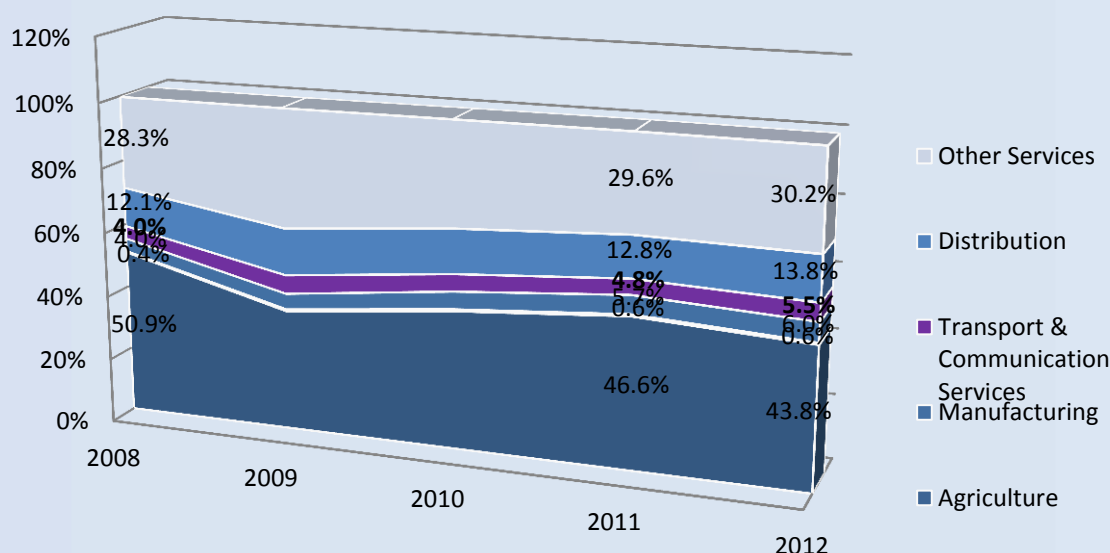
²¹ Source: International Monetary Fund

²² Source: Central Bank of Trinidad and Tobago

²³ Source: Standard & Poor's Sovereign Rating

projected to account for 43.7per cent²⁴ of the country’s Gross Domestic Product, slightly down from 46.8per cent in 2011. The economic composition of the country’s GDP by sector is depicted in the panel below. Notably, the Transport and Communications sector grew its contribution to the economy, measuring 5.4per cent of GDP up from 4.8per cent in 2011 and 4.0per cent in 2008⁹.

Figure 2.0 Trinidad and Tobago Key Economic Contributors²⁵.



Outlook: 2013

By most reports²⁶ Trinidad and Tobago’s economy is expected to remain stable in the short to mid-term. The country’s high income, highly skilled and professional workforce and diverse culture provide numerous avenues to improve diversification of the economy. However essential to this goal is rapid information access and communication and hence so too is its bearer - the Telecommunications and Broadcasting industry. This industry therefore must be continuously expanded to not only meet the needs of the present economy but more so those of the diversified economy that is desired. Furthermore, the Telecommunications and Broadcasting Industry itself present effective opportunities to contribute to the diversification process of the Trinidad and Tobago economy. Commodity trading, Music and the Arts are all proven sectors that can be advanced significantly by investment in the local Telecommunications and Broadcasting Sector by the private and public sectors. Therefore, attracting interest through education and increasing capacity through infrastructure upgrade in the Telecommunications and Broadcasting industry, must remain a national priority.

²⁴ Source: Trinidad and Tobago Ministry of Finance (MOF)

²⁵ Data Source: MOF

²⁶ IMF, Central Bank of Trinidad and Tobago and Standard and Poor’s

Key Market trends and Observations in the Fixed Telephony Market

- Fixed Line Subscriptions continues to decline with 286, 000 at the end of 2012
- Business subscriptions increase by just over 400
- Fixed voice market generates TT \$778 Million in gross revenues
- About 55 out of every 100 households in Trinidad and Tobago have access to a Fixed line
- Fixed voice consumers spent an average of 1.3 billion minutes on telephone calls

3. Fixed Telephony Market Data

As at December 2012, there were seven (7) operators authorised to provide fixed domestic telecommunications services to the public over wired or wireless facilities as listed below.

Table 3: Operators Authorised to Provide Public Fixed Domestic Telecommunications Services as at December 31st 2012

Name of Provider
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 seven operators were authorised by the Authority to provide fixed telecommunications services, only three operators offered domestic fixed voice services in 2012.

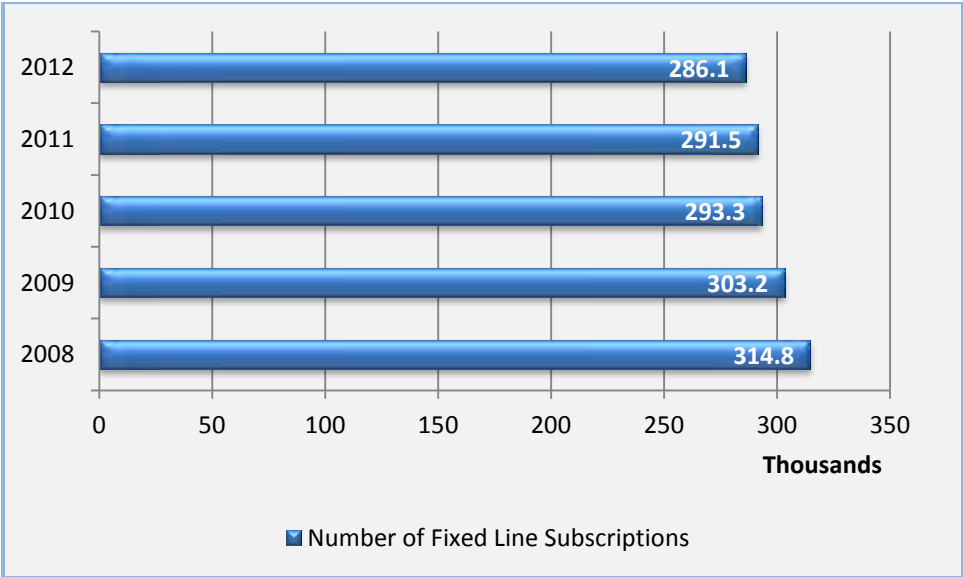
TSTT offered fixed voice services through their Public Switched Telephone Network, FLOW via their Hybrid Fibre Coax network and 360 Communications provided fixed voice services through its Gigabit Passive Optic Network (GPON). The other four concessionaires authorised to provide fixed voice services, currently provides Internet services only at this time.

3.1 Fixed Voice Subscriptions

3.1.1 Annual Fixed Voice Subscriptions

Similar to the last five years, the number of subscriptions in the fixed voice market continued its downward trend in 2012 as illustrated in Figure 8. In 2012, total subscriptions recorded approximately 286.1 thousand compared to 291.5 thousand in 2011. This represented an overall 1.9 per cent or 5.4 thousand fall in subscriptions from the last period. It has been observed that the decline in fixed voice subscription decreased at a faster rate in 2012 as opposed to 2011 which recorded a reduction of only 0.6 per cent.

Figure 8: Fixed Voice Subscriptions 2008-2012

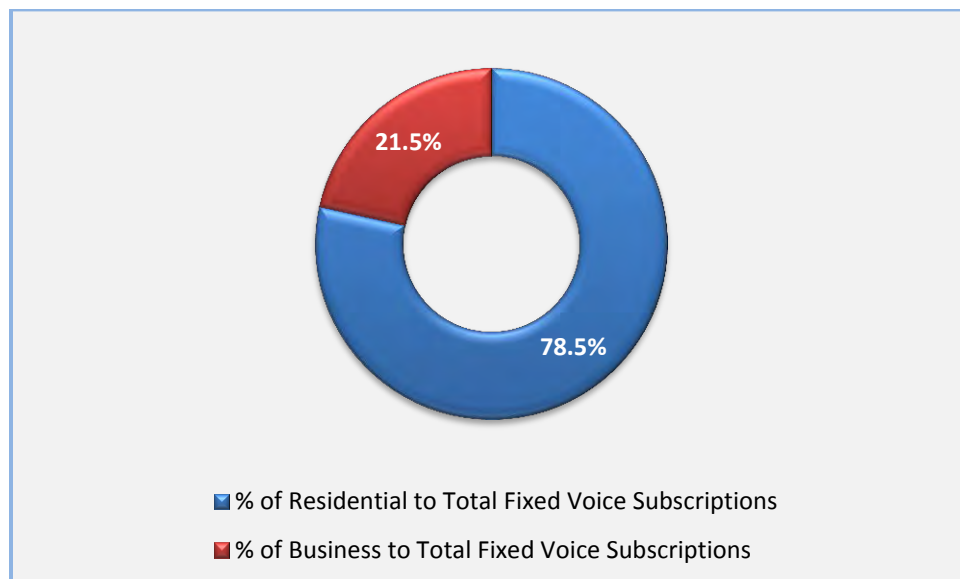


Source: TATT

3.1.2 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 2012, out of the recorded 286.1 thousand fixed voice subscriptions, 224.5 thousand or 78.5 per cent were residential, and 61.6 thousand or 21.5 per cent comprised business. Figure 9 illustrates the percentage breakdown of fixed voice subscriptions towards these two categories.

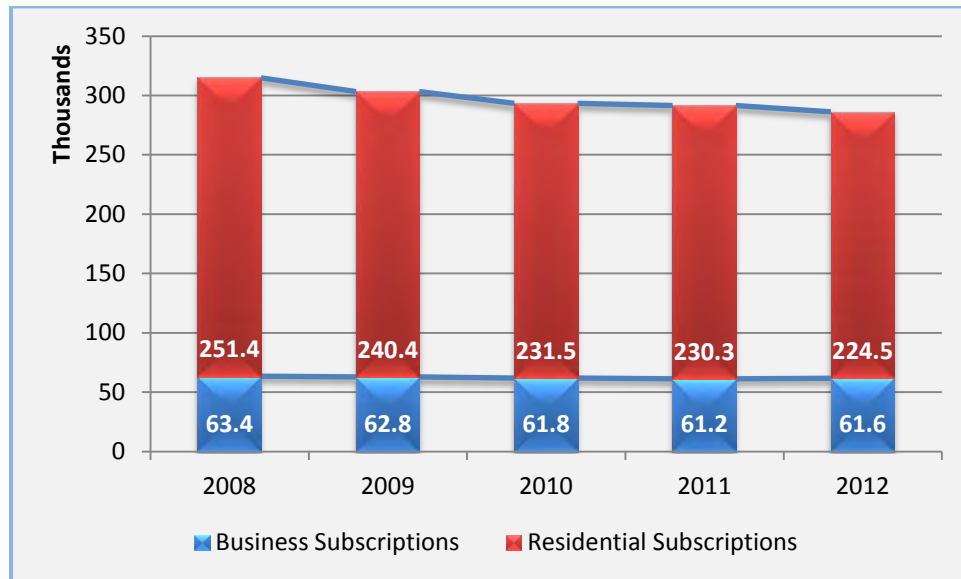
Figure 9: Percentage breakdown of Residential and Business Fixed Voice Subscriptions 2012



Source: TATT

Over the past five years residential fixed subscriptions declined steadily. At the end of 2012, residential fixed subscriptions recorded approximately 5.8 thousand less subscriptions than that of 2011, a 2.5 per cent decrease. On the other hand, the number of subscriptions in the business market for fixed voice experienced a small increase in subscriptions in 2012 after four years of constant decreases. Business subscriptions increased by just over 400 subscriptions, representing a 0.7 percentage increase. Figure 10 illustrates.

Figure 10: Residential and Business Fixed Voice Subscriptions 2008-2012

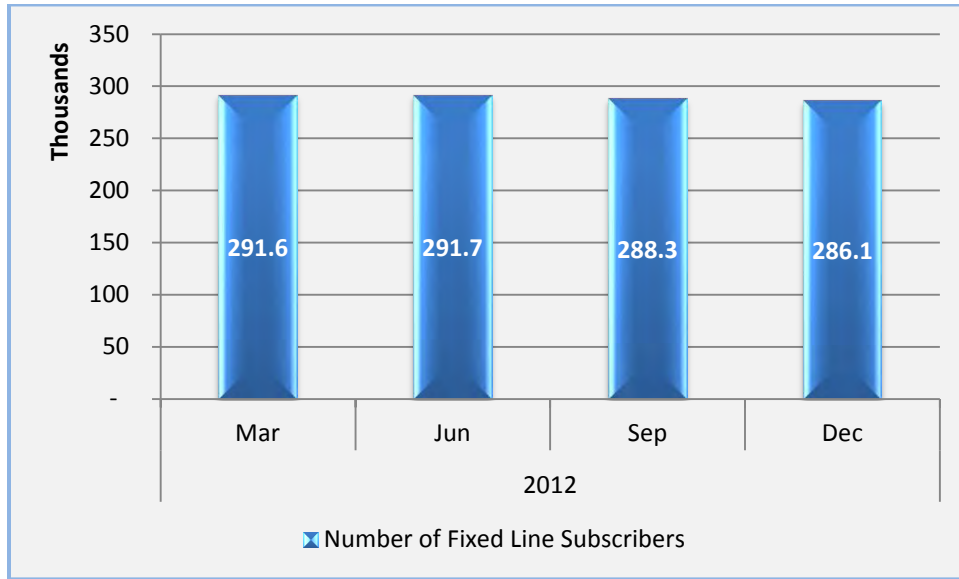


Source: TATT

3.1.3 Quarterly Fixed Voice Subscriptions

Figure 11 shows the quarterly trend in fixed voice subscriptions during 2012. Despite the small increase observed from the first quarter to the second quarter, subscriptions in the fixed voice market experienced minimal decreases in the third and fourth quarters of 2012. Compared to the first quarter, there were approximately 100 more subscriptions at the end of the second quarter which recorded the highest number of fixed line subscriptions of 291.7 for 2012.

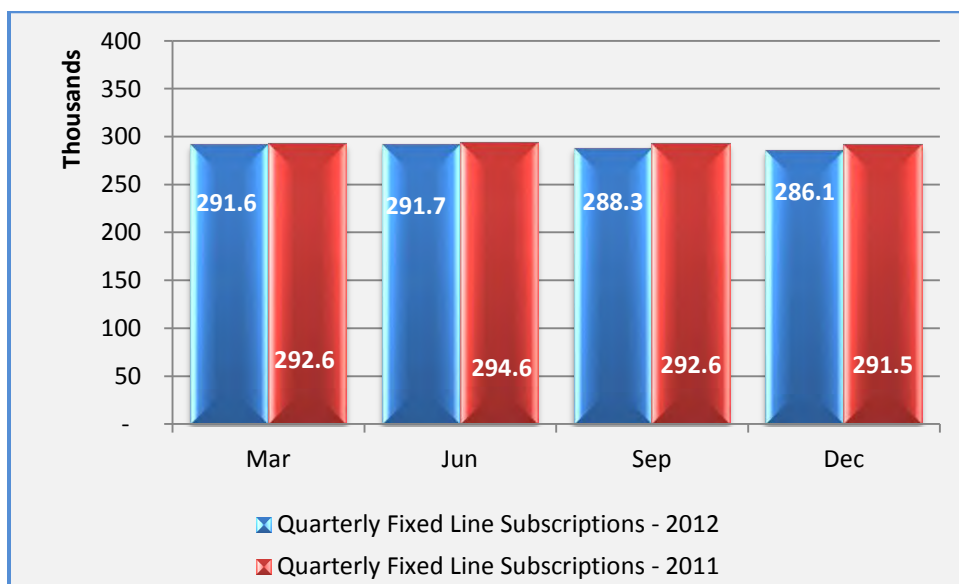
Figure 11: Quarterly Fixed Voice Subscriptions 2012



Source: TATT

The fixed voice market generally maintained a similar pattern in subscriptions on a quarterly basis in 2012 as compared to 2011. It was noted that increases were observed in the second quarter of 2012 as well as 2011, increasing from 291.6 to 291.7 subscriptions in 2012 and from 292.6 to 294.6 subscriptions in 2011. Overall, the number of subscriptions was less for each quarter of 2012 when compared to the quarters of 2011, as shown in Figure 12.

Figure 12: Comparison of Quarters 2011 and 2012

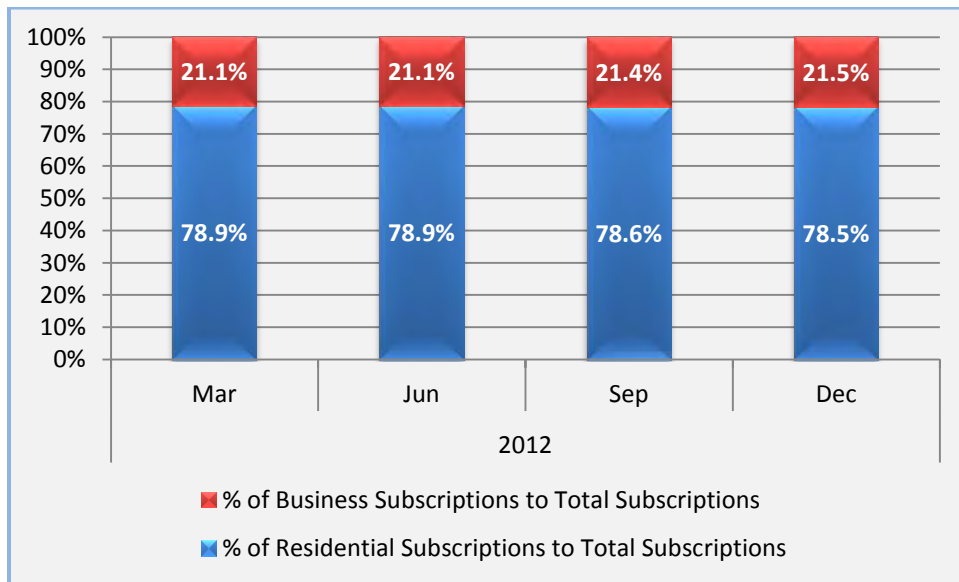


Source: TATT

3.1.4 Quarterly Residential and Business Fixed Voice Subscriptions

Figure 13 below shows a percentage breakdown of residential and business fixed voice subscriptions as at the end of each quarter for 2012. With just over 230 thousand subscriptions, residential fixed voice subscriptions captured 78.9 per cent of the market, as at the end of the first quarter of 2012. Business fixed voice subscriptions captured 21.1 per cent of the market with just over 61 thousand subscriptions. This result remained relatively stable throughout the quarters of 2012 as residential subscriptions consistently constituted the majority of the fixed voice market.

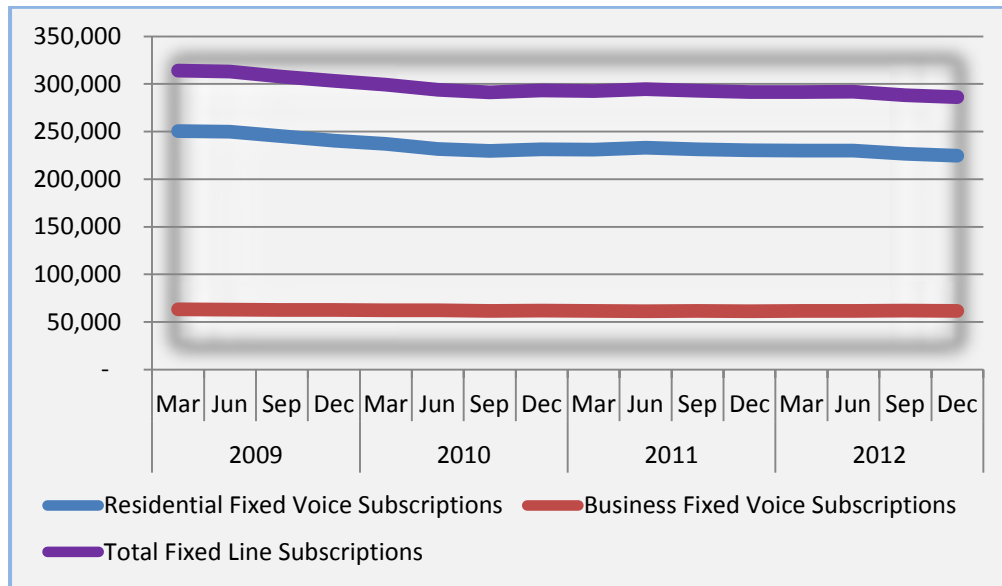
Figure 13: Percentage Breakdown of Quarterly Residential and Business Fixed Voice Subscriptions 2012



Source: TATT

Over the past four years, the number of subscriptions to Fixed Voice services declined steadily with a greater effect being observed in the residential category. As seen in Figure 14, residential subscriptions declined slowly over the years while business subscriptions remained relatively stable.

Figure 14: Comparison of quarterly fixed voice Subscriptions from 2009 to 2012



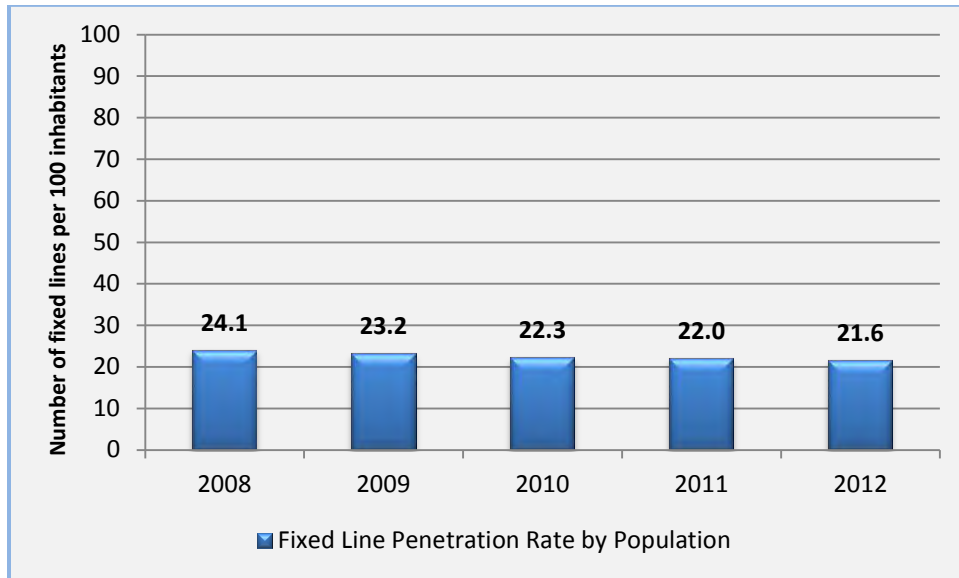
Source: TATT

3.2 Fixed Line Penetration

As the standard metric recognised internationally to measure the adoption of fixed voice services, fixed voice penetration²⁷ is calculated based on the number of fixed voice subscriptions per 100 of the population. As at December 2012 fixed voice penetration was calculated at 21.6, representing a 1.8 per cent decrease from the previous year. This means that in 2012 there were approximately 22 fixed voice subscriptions available to every 100 persons in Trinidad and Tobago. An illustration of the fixed voice penetration trend from 2008 to 2012 is given in Figure 15.

²⁷ Fixed line penetration = (number of residential fixed voice subscriptions / total population) *100
 Total population used from the Central Statistical Office's 2011 Population and Housing Census Preliminary Count

Figure 15: Fixed Voice Penetration 2008-2012

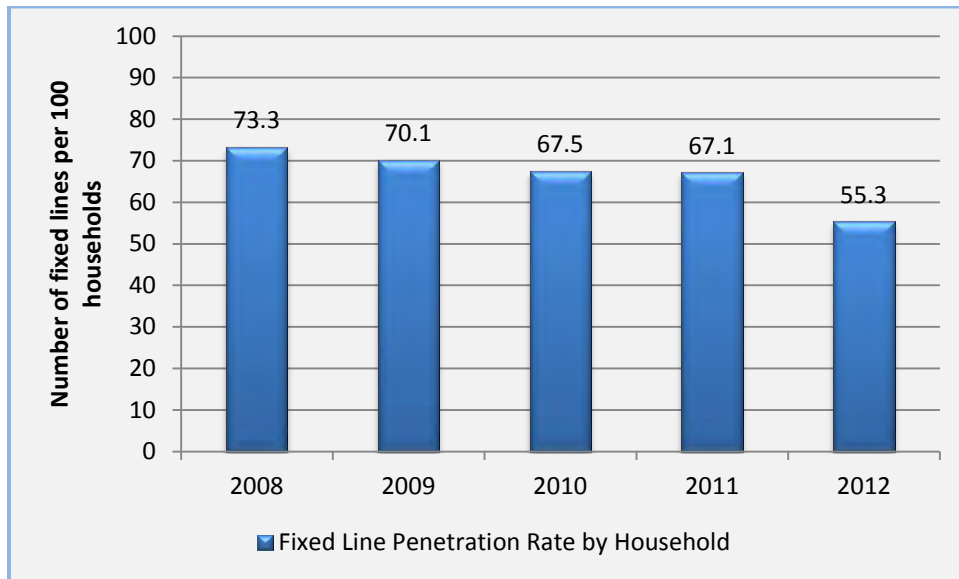


Source: TATT

Fixed line household penetration²⁸ decreased sharply from 67.1 in 2011 to 55.3 in 2012, signifying that approximately 55 out of every 100 households had access to fixed voice services in Trinidad and Tobago as at the end of 2012. This sharp decrease is attributable not only to falling subscriptions but also to an increase in the number of households used in the calculation of this indicator. While the 2011 penetration rates were calculated using the Central Statistical Office’s (CSO) 2000 housing figures, 2012 penetration rates were calculated using the CSO’s 2011 Population and Housing Census figures . Figure 16 shows the trend in fixed line household penetration for the past five years.

²⁸ Fixed line household penetration = (number of residential fixed voice subscriptions / total number of households) *100. Number of households based on the 2011 Census. The number of households increased from 343,180 in 2000 to 406,198 in 2012

Figure 16: Fixed Line Household Penetration 2008-2012

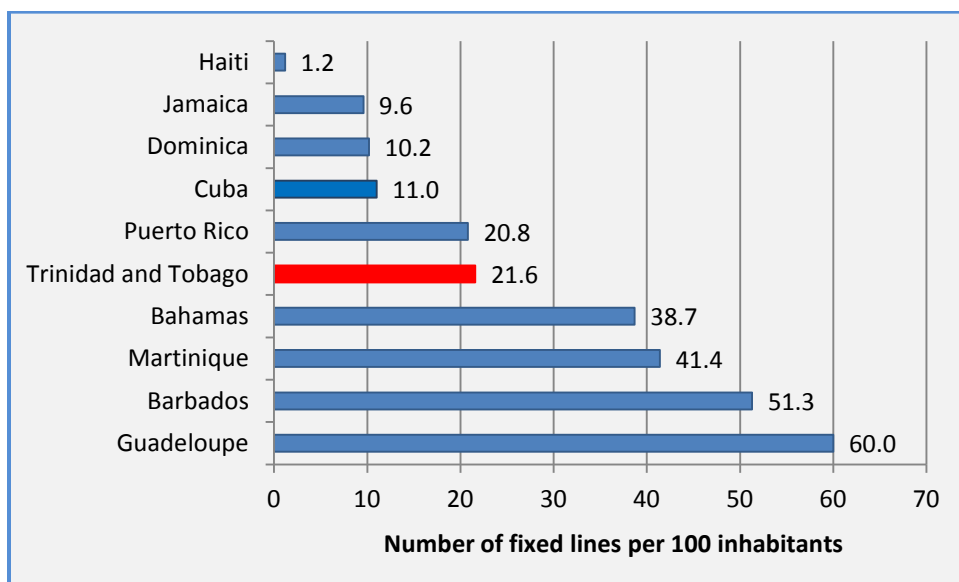


Source: TATT

3.2.1 Fixed Penetration Rates among Selected Caribbean Countries

Comparison among ten selected Caribbean countries as listed in Figure 17 places Trinidad and Tobago fifth in terms of fixed line penetration.

Figure 17: Fixed Line Penetration among selected Countries for 2012

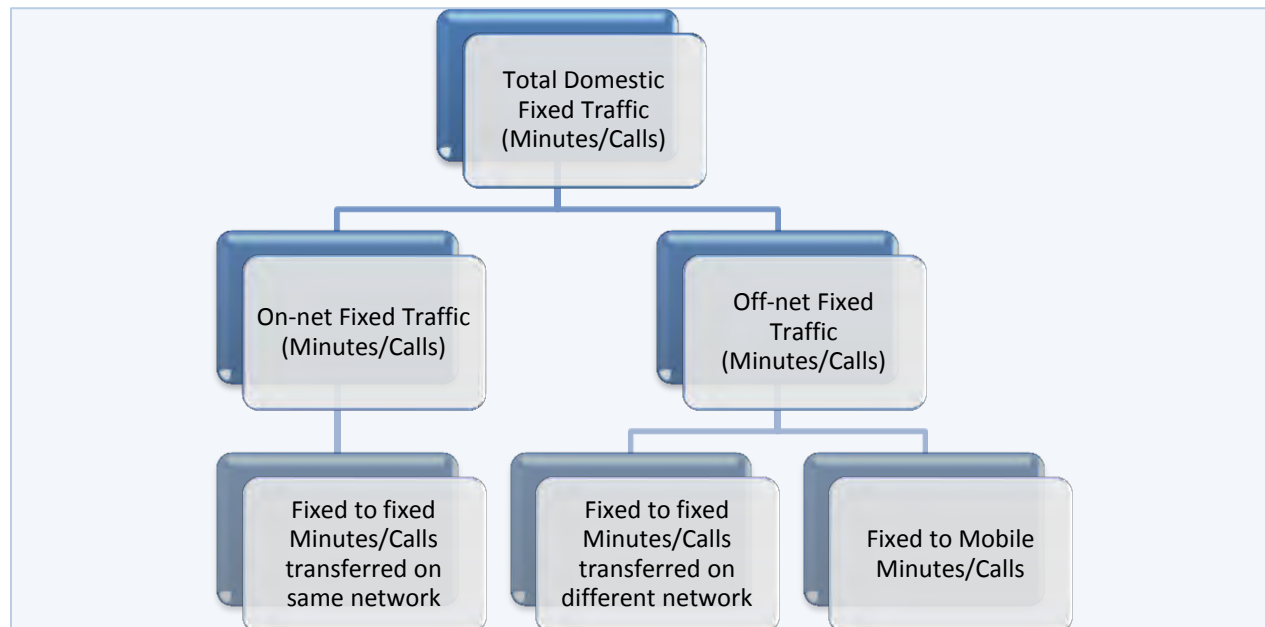


Source: BMI Caribbean Telecommunications Report Q1 2013 and TATT

3.3 Domestic Fixed Voice Traffic

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

Figure 18: Classification of Domestic Fixed Traffic



Source: TATT

3.3.1 Annual Domestic Fixed Voice Traffic in Minutes

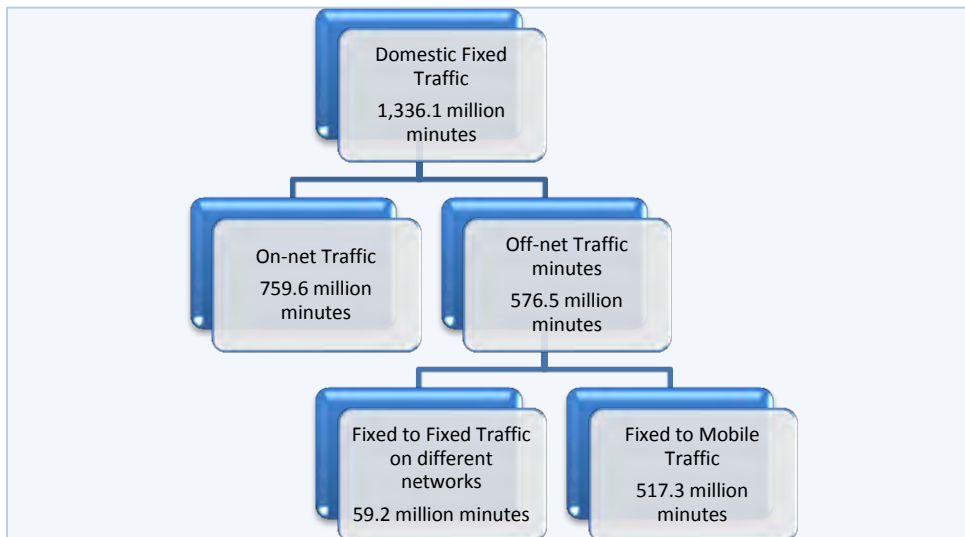
Consumers in the fixed voice market spent more time on fixed voice phone calls in 2012 as compared to 2011. There were 1,336.1 million fixed voice traffic minutes in 2012, a 1.1 percentage increase over the previous period. On-net²⁹ fixed to fixed minutes remained flat in 2012 - recording 759.6 million minutes, while positive growth was observed in the number of off-net³⁰ fixed to fixed minutes. Total off-net minutes increased as both off-net fixed to fixed minutes and fixed to mobile minutes increased. Total off-net minutes totalled 576.5 million

²⁹ On-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on the same fixed network.

³⁰ 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.

minutes, increasing by 2.6 per cent in 2012. Fixed to fixed minutes transferred on different networks (off-net) continued to climb significantly increasing by 65.1 per cent to 59.2 million minutes. Fixed to mobile minutes continued its downward trend, recording 517.3 million minutes as it decreased by 1.7 per cent in 2012. The number of fixed voice minutes by traffic types is given in Figure 19 below.

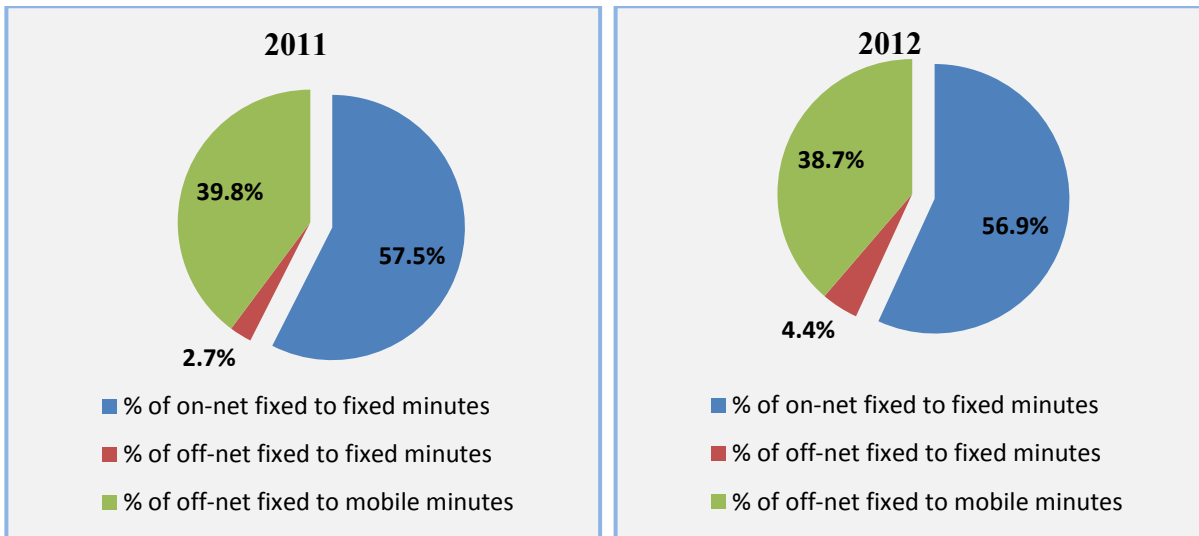
Figure 19: Breakdown of fixed domestic traffic minutes 2012



Source: TATT

The proportion of on-net traffic minutes to total off-net traffic minutes remained relatively stable in 2012. On-net traffic minutes contributed 56.9 per cent of total minutes in the fixed voice market while off-net traffic contributed 43.1 per cent. Furthermore, off-net fixed to mobile minutes comprised the majority of total off-net minutes (compared to off-net fixed to fixed) with 38.7 per cent of total fixed voice traffic minutes. Alternatively, off-net fixed to fixed minutes comprised the minority with 2.7 per cent of total fixed voice traffic minutes. This percentage breakdown of minutes by traffic-types is shown in Figure 20 below over the last 2 years.

Figure 20: Total domestic fixed traffic minutes by traffic-types 2011 to 2012



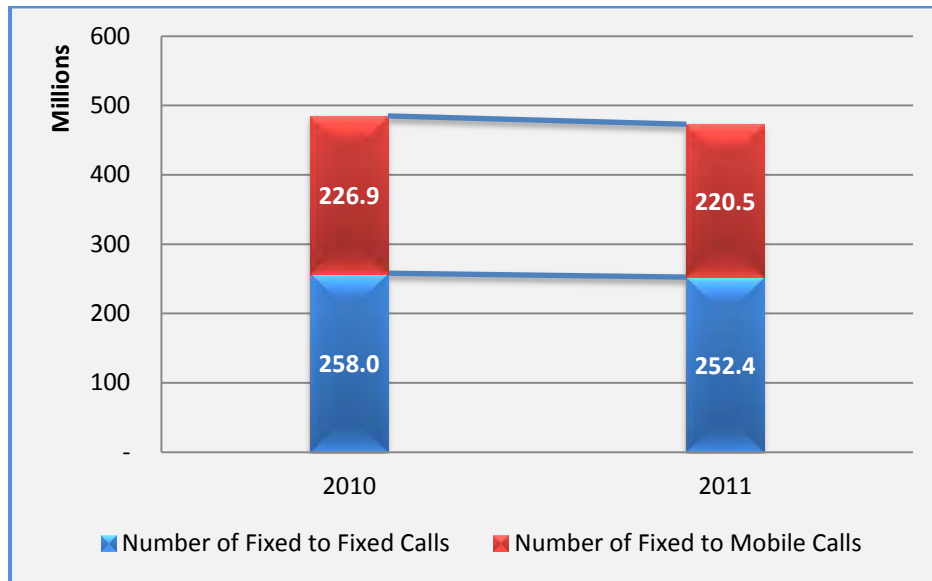
Source: TATT

3.3.2 Annual Domestic Fixed Voice Call Volumes

Although consumers spent more time on domestic fixed calls, call volumes in this market declined during the period. The number of domestic fixed voice calls totalled 473.0 million during the 2012 period, dipping by 2.5 per cent when compared to the 2011 period. Similar to fixed voice minutes, call volumes can be broken down into traffic-types, as outlined in Figure 18 above. Fixed to fixed calls accounted for 252.4 million³¹ or 53.4 per cent of total fixed voice calls. Fixed to mobile calls accounted for 220.5 million calls or 46.6 per cent of total fixed voice calls. When compared to 2011, total fixed to mobile calls decreased by 2.2 per cent while fixed to fixed calls experienced a marginally larger decrease of 2.8 per cent. Figure 21 below provides a breakdown of domestic fixed line calls 2012.

³¹ This Figure includes both fixed to fixed on-net and off-net minutes.

Figure 21: Comparison of Domestic Call Volume Traffic Type 2011-2012



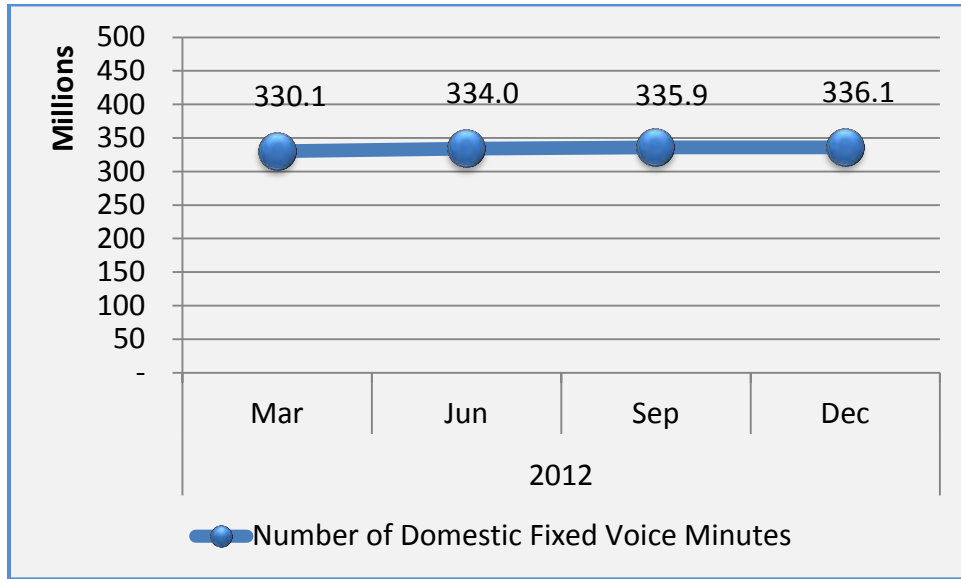
Source: TATT

3.3.3 Quarterly Domestic Fixed Voice Traffic

Fixed voice minutes increased steadily during 2012, peaking in the fourth quarter. Total domestic fixed voice traffic started the year with 330.1 million minutes in the first quarter, and then subsequently increased by 1.2 per cent to 334.0 million minutes in the fourth quarter. Fixed minutes increased steadily by an average of 0.6 per cent during the year with the fourth quarter recording the highest number of minutes for the year with 336.1 million minutes.

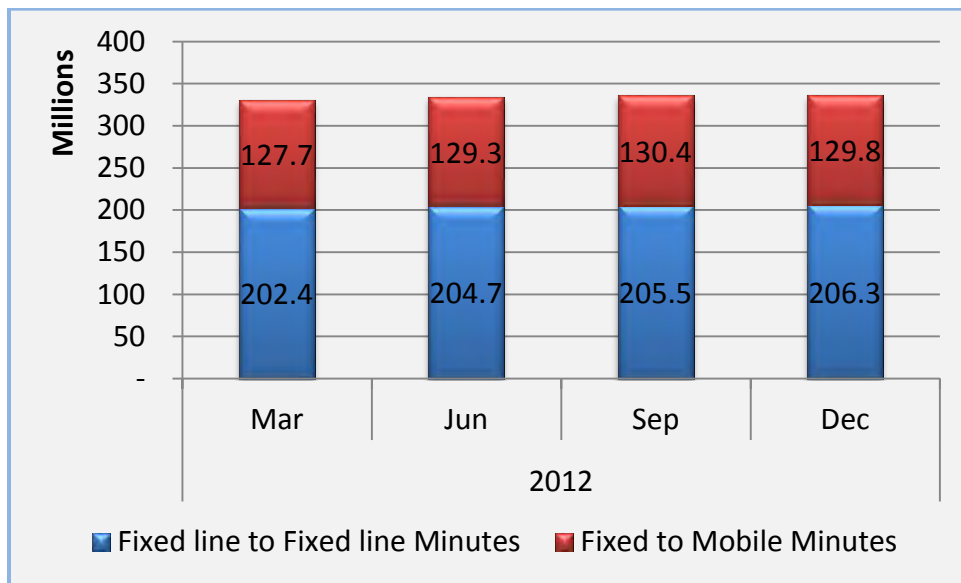
In terms of fixed voice minutes by traffic type, fixed to fixed minutes increased steadily during 2012 while fixed to mobile minutes experienced a slight decline in the fourth quarter. Fixed to fixed minutes peaked in the fourth quarter with 206.3 million minutes while fixed to mobile minutes peaked in the third quarter with 130.4 minutes. The trend in the quarterly fixed voice traffic minutes for 2012 is shown in Figure 22 while the quarterly trend by traffic-type is depicted in Figure 22.

Figure 22: Quarterly Fixed Voice Traffic 2012



Source: TATT

Figure 23: Quarterly Fixed Voice Traffic Minutes by Type 2012



Source: TATT

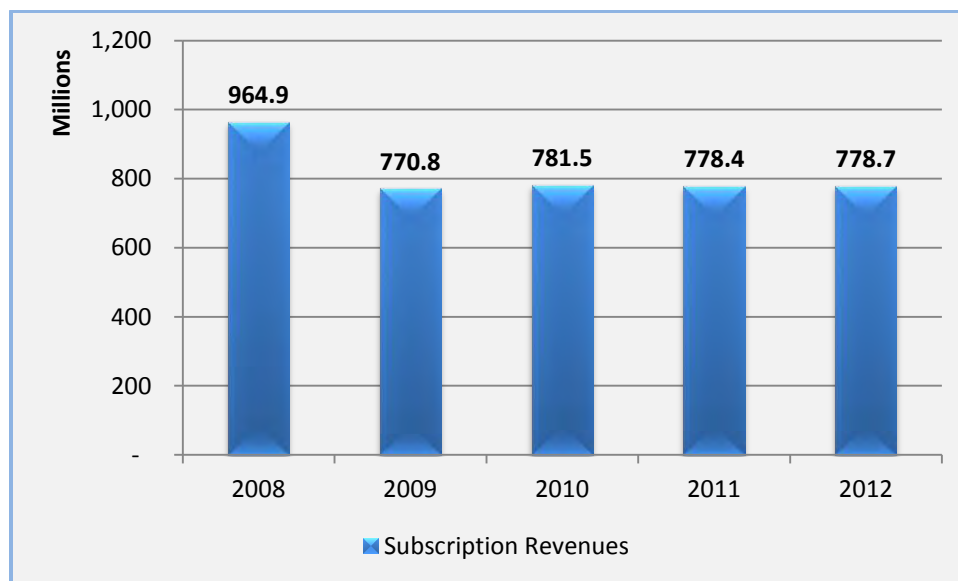
3.4 Fixed Telephony Revenues

3.4.1 Annual Fixed Voice Revenues

Gross revenues received from all fixed voice services³² totalled TT \$794.0 million in 2012 as compared to TT \$786.0 million in 2011, a 1.0 per cent increase. However, gross revenues received from fixed voice subscriptions for 2012 amounted to TT \$778.7 million as compared to TT \$778.4 million for 2011 resulting in a minor increase of TT \$0.94 million or 0.04 per cent. The TT \$15.3 million difference between total fixed voice revenues and fixed voice subscription revenues represented monies generated from auxiliary fixed voice services such as calling cards, 800 service charges and late fees charged by service providers.

The annual trend in fixed telephony subscription revenues for the period 2008 to 2012 is illustrated in Figure 24.

Figure 24: Fixed Voice Subscription Revenues 2008-2012



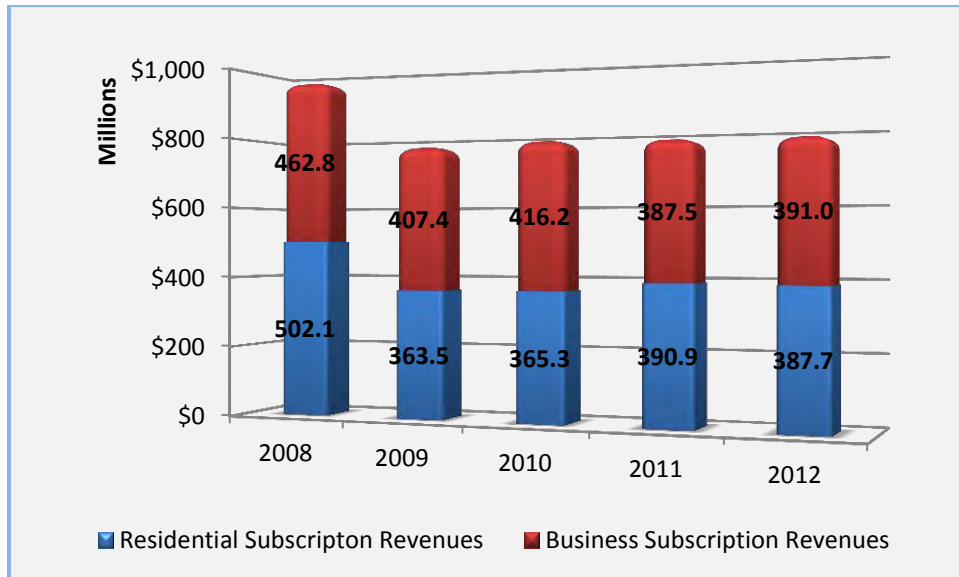
Source: TATT

During 2012, residential revenues decreased while business revenues increased. Residential subscriptions contributed TT \$387.7 million or 49.8 per cent to total fixed voice subscription

³² Fixed voice services include revenues from voice subscriptions, payphones, calling cards, and miscellaneous services.

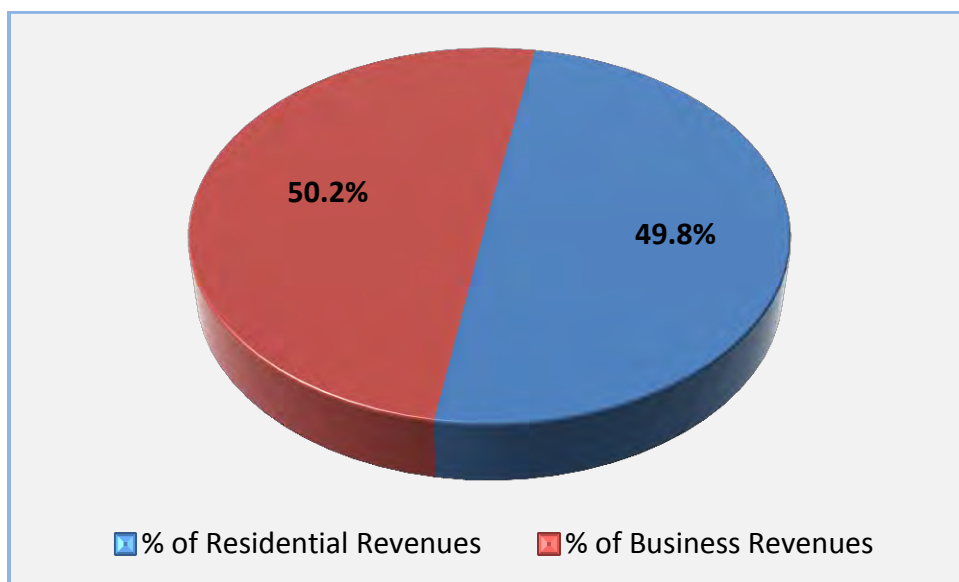
revenues, a 0.8 per cent decrease from 2011. Business subscriptions accounted for TT \$391.0 million or 50.2 per cent of total fixed voice subscription revenues, an increase of 0.9 per cent from 2011. Figure 25 shows the separation of annual revenues according to residential and business categories over the past 5 years while Figure 26 illustrates the percentage of revenue contribution for the 2012 period.

Figure 25: Residential and Business Fixed Voice Subscription Revenues 2008-2012



Source: TATT

Figure 26: Percentage breakdown of Residential and Business Revenues 2012

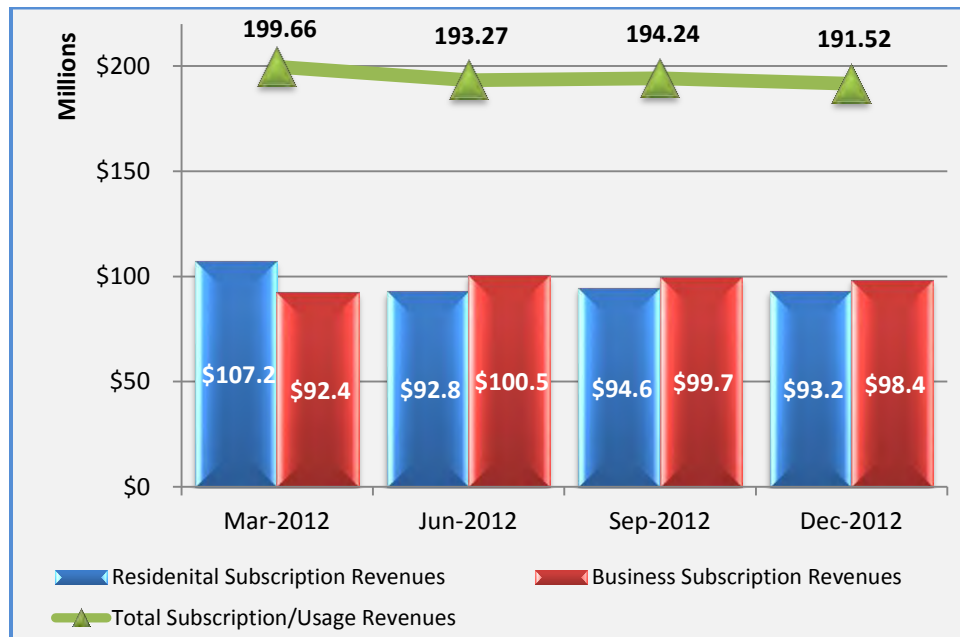


Source: TATT

3.4.2 Quarterly Fixed Voice Subscription Revenues

During 2012 quarterly fixed voice revenues fluctuated, decreasing by 4.1 per cent from the first quarter to the fourth quarter. Notably, total subscription revenues increased in the third quarter and dipped in the second and fourth quarters of 2012. Residential revenues peaked in the first quarter while business revenues peaked in the second quarter. The quarterly residential and business revenues for 2012 are depicted in Figure 27 below.

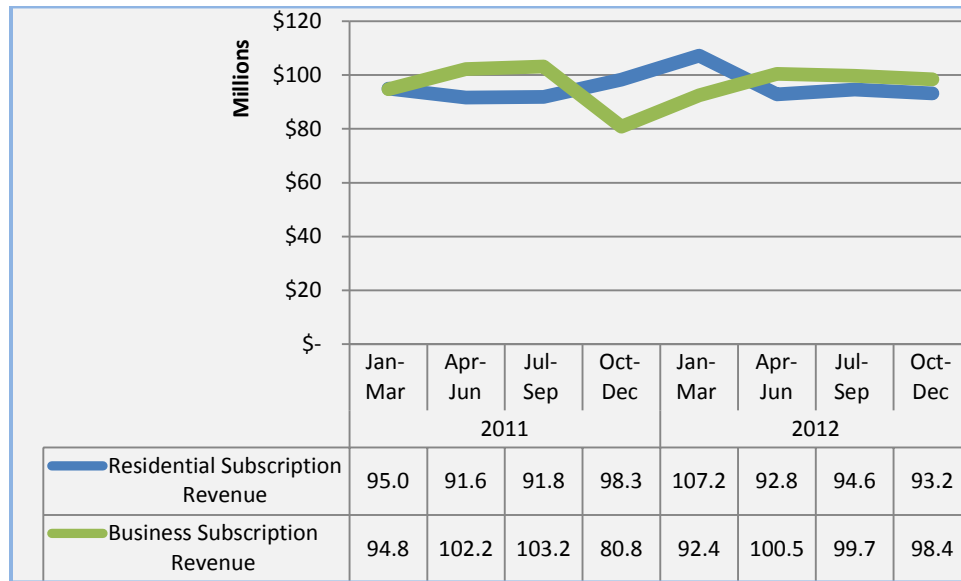
Figure 27: Quarterly Residential and Business Voice Subscription Revenues - 2012



Source: TATT

Comparing the previous period, quarterly fixed voice revenues generally followed the same pattern. Similar to 2011, less residential revenues were generated in the second quarter of 2012 as compared to the first quarter of the year. On the other hand, more business revenues were generated in the second quarter of 2012 compared to the first quarter of the year. Figure 28 illustrates.

Figure 28: Comparison of 2011 and 2012 Quarterly Residential and Business Voice Subscription Revenues

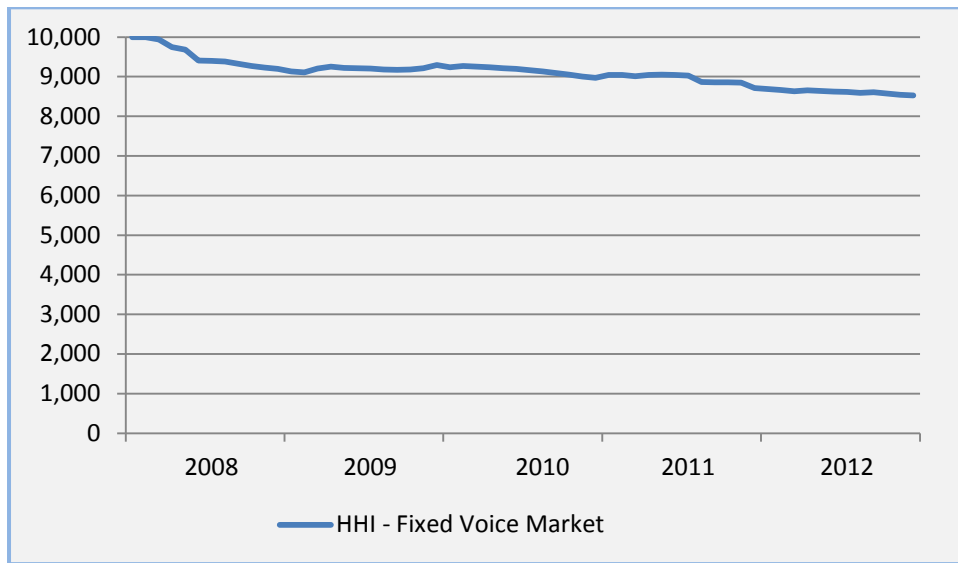


Source: TATT

3.5 Fixed Market Concentration

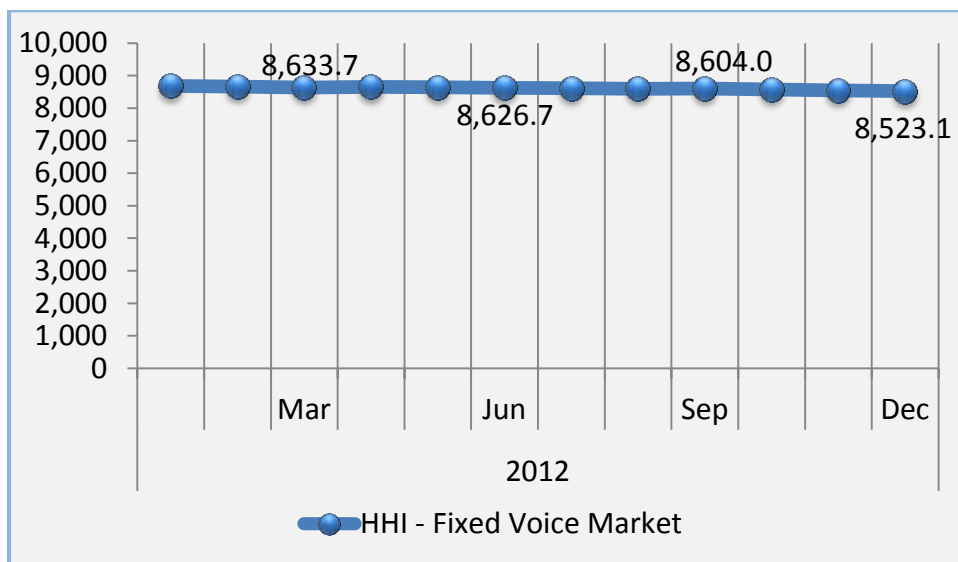
The Hirschman-Herfindahl Index (HHI) is a useful tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market shares of all firms within a particular market and ranges from approximately zero to 10,000. On comparing the last five years, Figure 29 shows that the HHI for the fixed voice market has been generally declining.

Figure 29: HHI for the Fixed Voice Market 2008-2012



As at December 2012, a slight decrease in the level of concentration in the fixed voice market was observed. The HHI calculated for the fixed voice market was 8,525³³ as at December 2012; a 2.1 per cent reduction as compared to last year. This decrease in the level of concentration implies a minor shift in the proportion of subscriptions between the players in the fixed voice market. As illustrated in Figure 30, the HHI remained relatively stable during 2012.

Figure 30: HHI for the Fixed Voice Market 2012



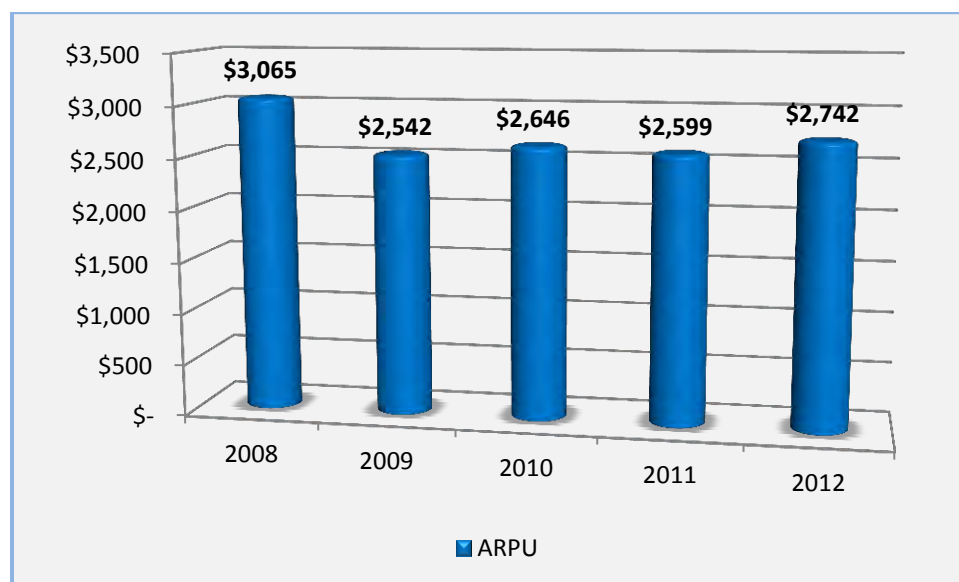
Source: TATT

³³ Based on subscription market share

3.6 Average Revenue per User (ARPU)

On average, each consumer spent TT \$2,742 in 2012 for fixed voice services. This represents an increase of TT \$142 or 5.5 per cent in the average revenue per user (ARPU)³⁴ over the amount recorded for 2011. The overall increase in ARPU is consistent with the observed decrease in total subscriptions offsetting the minimal increase in total revenues observed in 2012. The changes in ARPU for the last five years are highlighted in Figure 31.

Figure 31: ARPU Fixed Voice Services 2008-2012

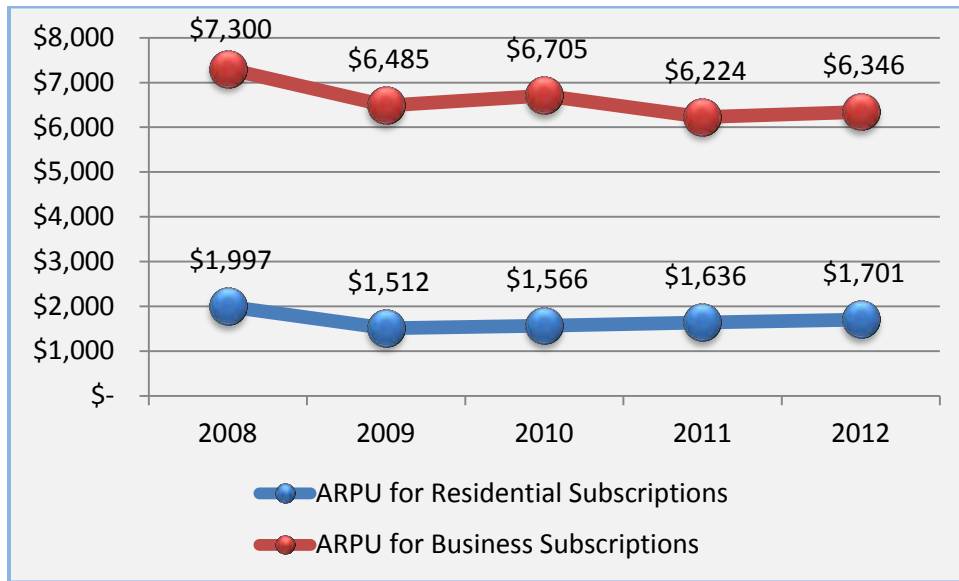


Source: TATT

The overall increase in fixed voice ARPU is attributed to increases in both residential ARPU and business ARPU. Residential consumers spent an average of TT \$1,701 on fixed voice subscription services, an increase of 1.9 per cent over 2011. On the other hand, business consumers spent an average of TT \$6,346 on fixed voice subscription services, an increase of 3.9 per cent. The trend in ARPU for residential and business consumers is illustrated in Figure 32.

³⁴ ARPU measures the average revenue generated by one subscriber. It is calculated = (Total revenues for fixed voice subscriptions / Total number of fixed subscriptions)

Figure 32: ARPU for Fixed Residential and Business Voice Services 2008- 2012



Source: TATT

Key Market trends and Observations in the Mobile Voice Market

- Bouncing back from 2011 Mobile voice subscriptions stands at 1.88 million in 2012
- TT \$2.2 billion in gross revenues generated from Mobile voice services
- Mobile Consumers made 2.3 million telephone calls in 2012
- 1,400 customers migrated from prepaid-to-postpaid

4. Mobile Voice Market Data³⁵

During 2012, there were two mobile service providers authorised 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 2012.

4.1 Mobile Voice Subscriptions³⁶

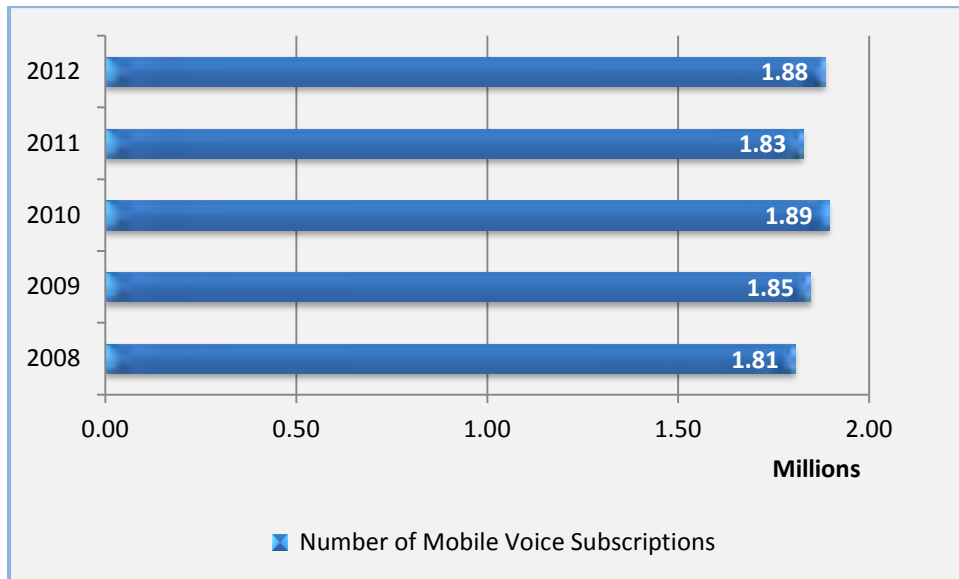
4.1.1 Annual Mobile Subscriptions

The mobile market seemed to have bounced back in 2012 following the marginal decrease observed in 2011. Recording a total of 1.88 million subscriptions as at December 2012, the mobile market experienced a 3.1 per cent or 57.5 million increase in the number of subscriptions when compared to 2011. As Figure 33 below highlights, the mobile voice market has been relatively flat.

³⁵ A mobile voice subscription includes SMS services

³⁶ 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 or SMS/MMS.

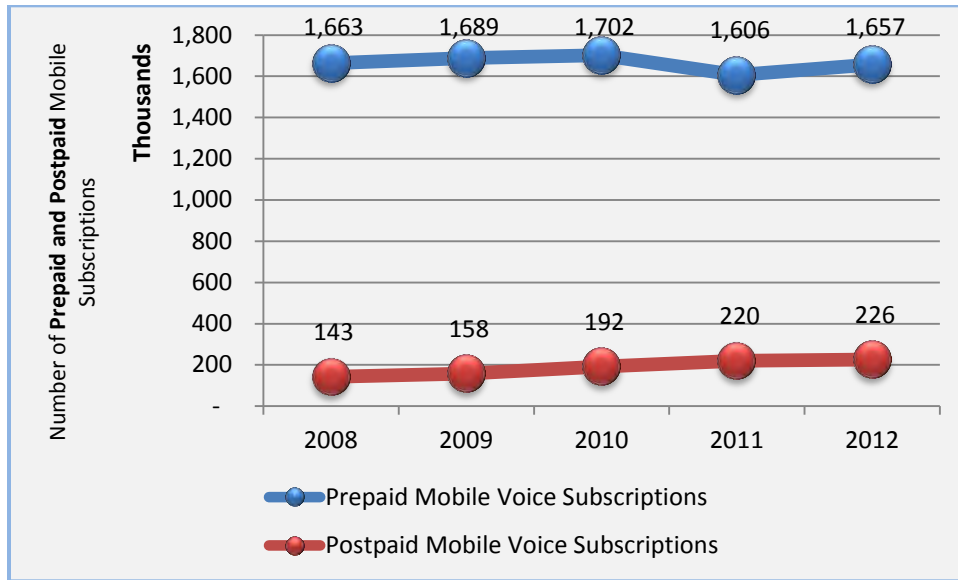
Figure 33: Mobile Subscriptions 2008 - 2012



Source: TATT

Mobile voice subscriptions can be sub-divided into prepaid, where customers purchase credit prior to service use, and postpaid, where customers enter into a contractual billing arrangement with a mobile service provider. Figure 34 highlights the number of prepaid and postpaid subscriptions in 2012 (approximately 1.66 million and 0.23 million subscriptions respectively). It has also been observed that both prepaid and postpaid subscriptions increased in 2012. Prepaid subscriptions increased slightly higher than postpaid subscriptions during the period by 3.2 per cent and 3.0 per cent correspondingly.

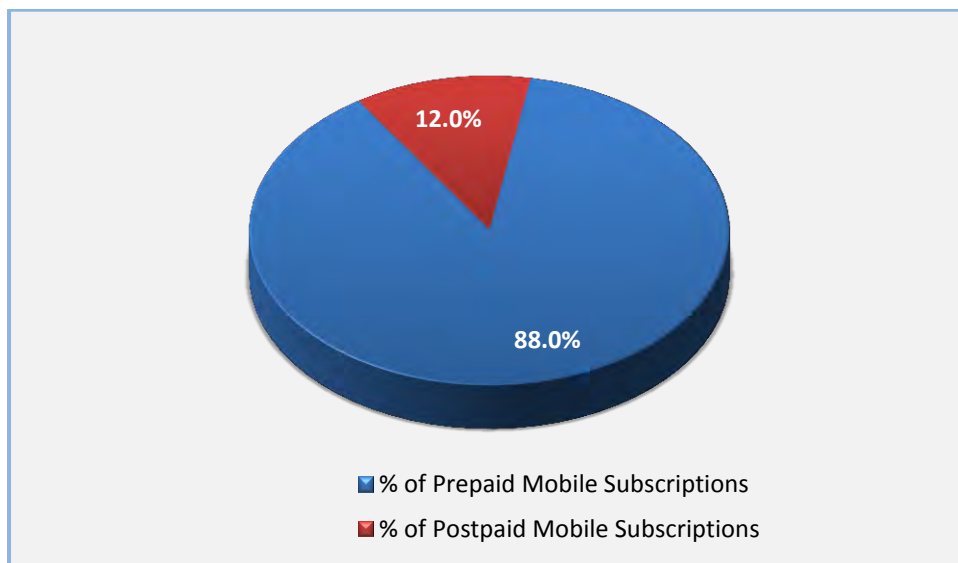
Figure 34: Mobile Prepaid and Postpaid subscriptions 2008-2012



Source: TATT

Similarly to last year, prepaid subscriptions continued to account for the majority of the mobile market, with the proportion of prepaid to postpaid subscriptions remaining the same. Prepaid subscriptions accounted for 88 per cent of total mobile voice subscriptions while postpaid made up the remaining 12 per cent. Figure 35 illustrates the percentage breakdown of mobile subscriptions in 2012.

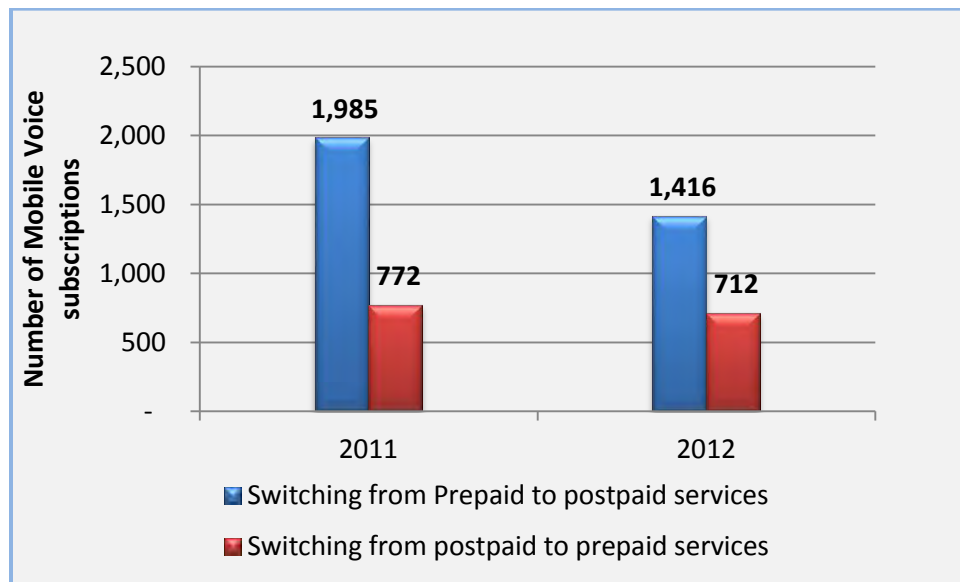
Figure 35: Percentage of Prepaid and Postpaid Subscriptions in 2012



Source: TATT

Although prepaid subscriptions continue to account for the majority of mobile voice subscriptions, more consumers switched from prepaid to postpaid packages as compared to those who switched from postpaid to prepaid services in 2012. During the period there were 1,416 subscriptions migrating from prepaid services to postpaid services in contrast to 712 subscriptions migrating from postpaid to prepaid services. Figure 36 illustrates.

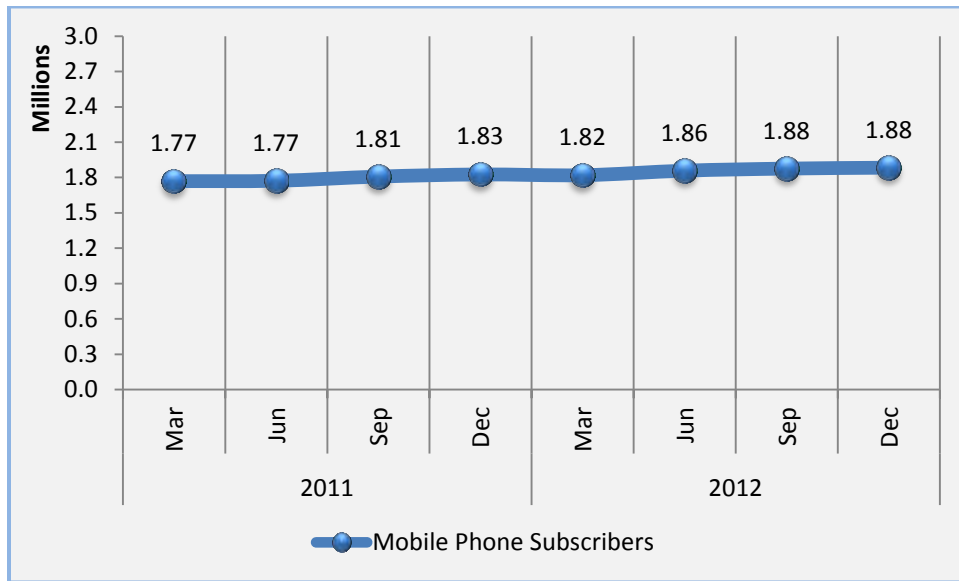
Figure 36: Mobile Subscription Migration in 2011-2012



4.1.2 Quarterly Mobile Subscriptions

Mobile subscriptions decreased slightly in the first quarter 2012, however steady increases were observed for the rest of the year. It was noted that mobile voice subscriptions decreased by 0.3 per cent in the first quarter of 2012 from 1.83 million at the end of the fourth quarter of 2011 to 1.82 million in the first quarter of 2012. This market picked up by the second quarter increasing by 2.1 per cent to 1.86 million subscriptions subsequent to which minimal increases were observed for the second half of the year. Similarly to last year, subscription in the mobile market peaked during the fourth quarter as Figure 37 below illustrates.

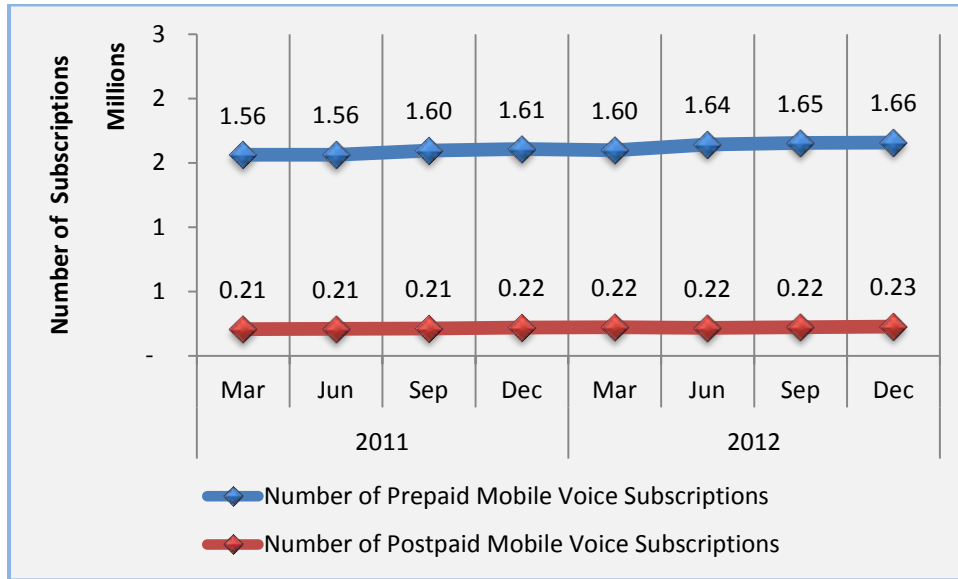
Figure 37: Quarterly Number of Subscriptions 2011 – 2012



Source: TATT

Figure 38 below shows the quarterly trend for both prepaid and postpaid subscriptions over the past two years. Despite the initial dip in the first quarter, gradual quarter on quarter growth was observed in prepaid subscriptions in 2012. Prepaid subscriptions experienced its highest growth in subscribership in the second quarter, increasing by 2.7 per cent while peaking in the fourth quarter with 1.66 million subscriptions. On the other hand, postpaid subscriptions experienced a 2.2 percentage dip in the second quarter while subscriptions peaked in the fourth quarter reaching 0.23 million subscriptions.

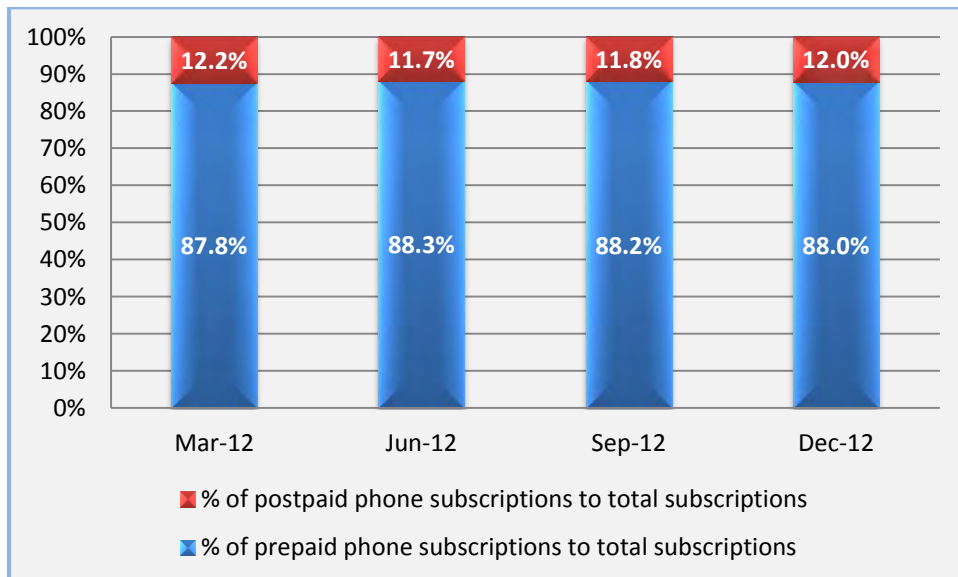
Figure 38: Quarterly Prepaid and Postpaid Subscriptions: 2011 – 2012



Source: TATT

In terms of the share of prepaid and postpaid mobile subscriptions, prepaid subscriptions on a quarterly basis averaged just over 88 per cent during 2012 as it continued to comprise the majority of the mobile voice market subscriptions. Figure 39 illustrates.

Figure 39: Percentage of prepaid and postpaid subscribers on a Quarterly Basis - 2012



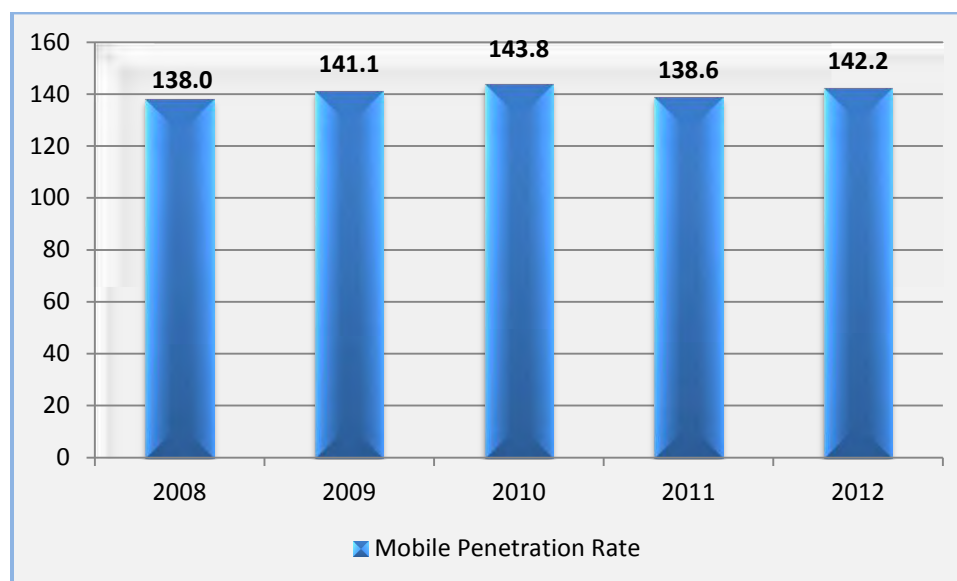
Source: TATT

4.2 Mobile Penetration

4.2.1 Mobile Penetration Rate in the Domestic Market

Similar to the number of subscriptions, the mobile penetration³⁷ rate also increased slightly in 2012. As at December 2012, mobile penetration stood at 142.2, an increase of 2.6 per cent from the previous year. This implies that there were approximately 142 mobile subscriptions per 100 inhabitants in Trinidad and Tobago at the end of 2012. Figure 40 highlights the mobile penetration rate from 2008 to 2012.

Figure 40: Mobile Penetration Rate per 100 Inhabitants for Trinidad and Tobago 2008-2012



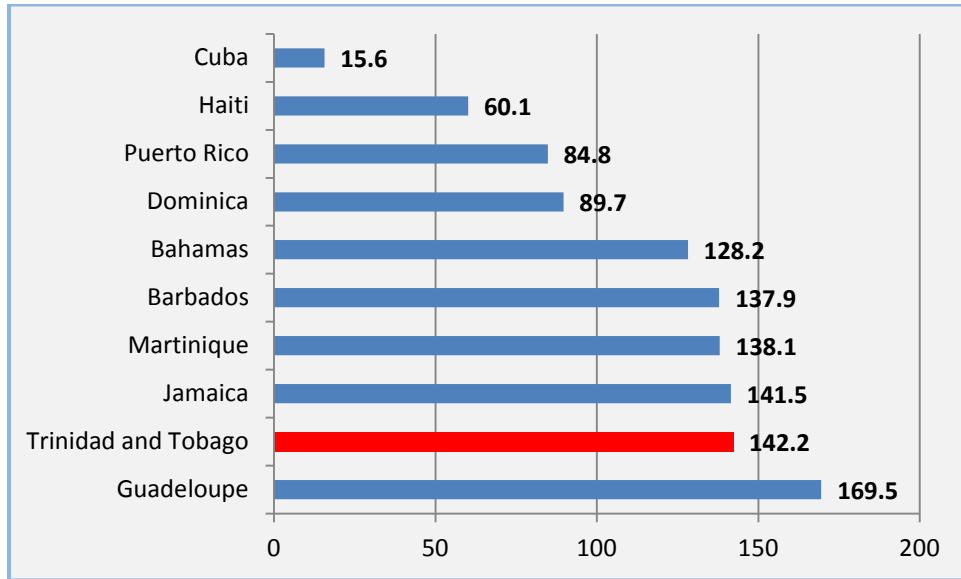
Source: TATT

4.2.2 Regional Mobile Penetration Rates

Figure 41 compares the mobile penetration rates for 10 selected Caribbean countries where Trinidad and Tobago recorded the second highest mobile penetration rate of 142.2 for the 2012 period. Second was Guadeloupe with 137.6 and third was Jamaica with 134.9.

³⁷ Mobile Penetration is calculated = (number of mobile subscriptions / total population *100). Population based on the Central Statistical Office's 2011 Population and Housing Census Preliminary Count.

Figure 41: Mobile Penetration Rates among Selected Caribbean Countries - 2012

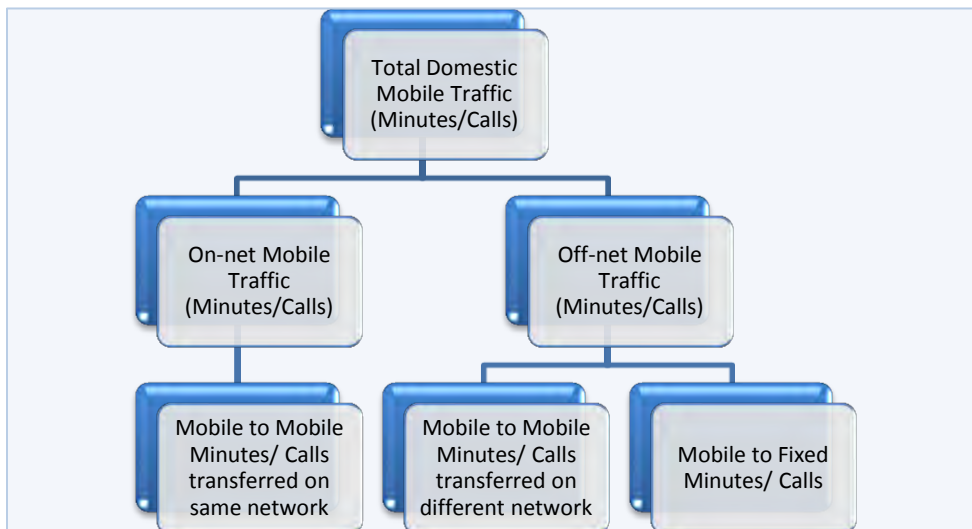


Source: BMI Caribbean Telecommunications Report Q1 2013 and TATT

4.3 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

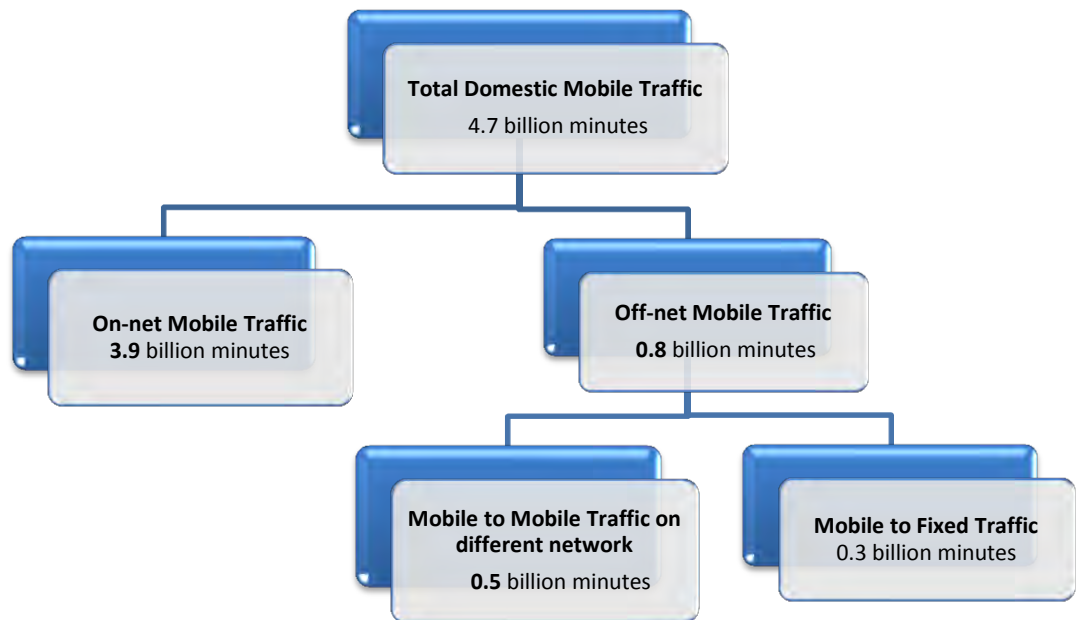


Source: TATT

4.3.1 Annual Domestic Mobile Voice Traffic in Minutes

As illustrated in Figure 43 below, domestic mobile voice traffic totalled 4.7 billion minutes for the 2012 period, a 4.9 per cent decrease from 2011. Of the 4.7 billion minutes of domestic mobile traffic, on-net³⁸ traffic totalled 3.9 billion minutes while off-net³⁹ traffic recorded 0.8 billion minutes. Off-net mobile to mobile minutes totalled 0.5 billion, while off-net mobile to fixed minutes totalled 0.3 billion minutes. It has been observed that all categories of traffic minutes decreased in 2012. Mobile to fixed minutes decreased by 4.7 per cent as mobile consumers continued to reduce the time spent on fixed calls while on-net minutes also fell by 5.3 per cent. Mobile to mobile traffic minutes on different networks also saw a decline, albeit small, by 1.8 per cent.

Figure 43: Breakdown of Domestic Mobile Traffic Minutes 2012



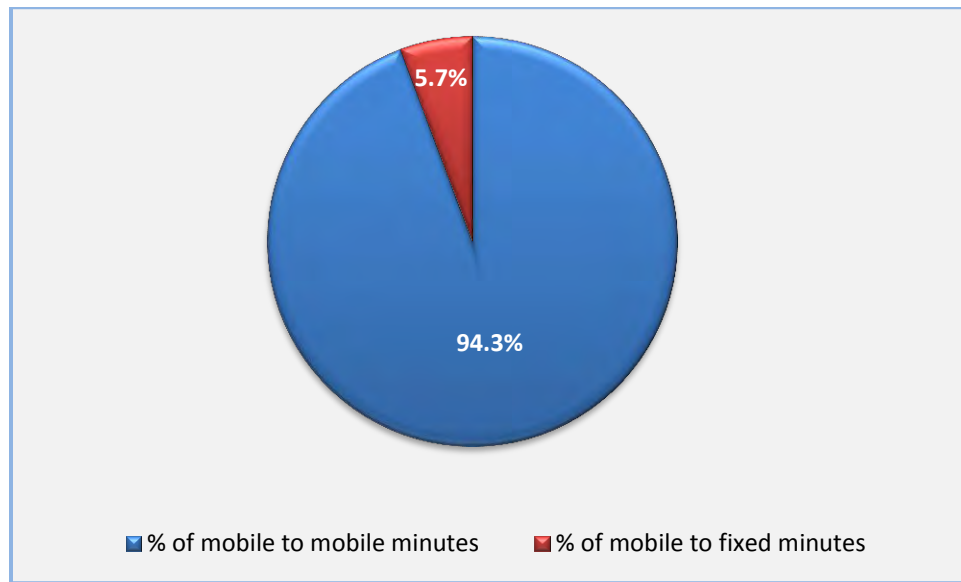
Source: TATT

³⁸ On-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on the same mobile network.

³⁹ 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.

Furthermore, the percentage of total domestic mobile voice minutes terminating on a domestic mobile network was estimated to be 94.3 per cent, while 5.7 per cent represented the number of domestic mobile minutes terminating on a domestic fixed network. Figure 44 gives a representation of this percentage contribution.

Figure 44: Percentage Breakdown of Fixed and Mobile Contribution to Total Mobile Voice Minutes 2012

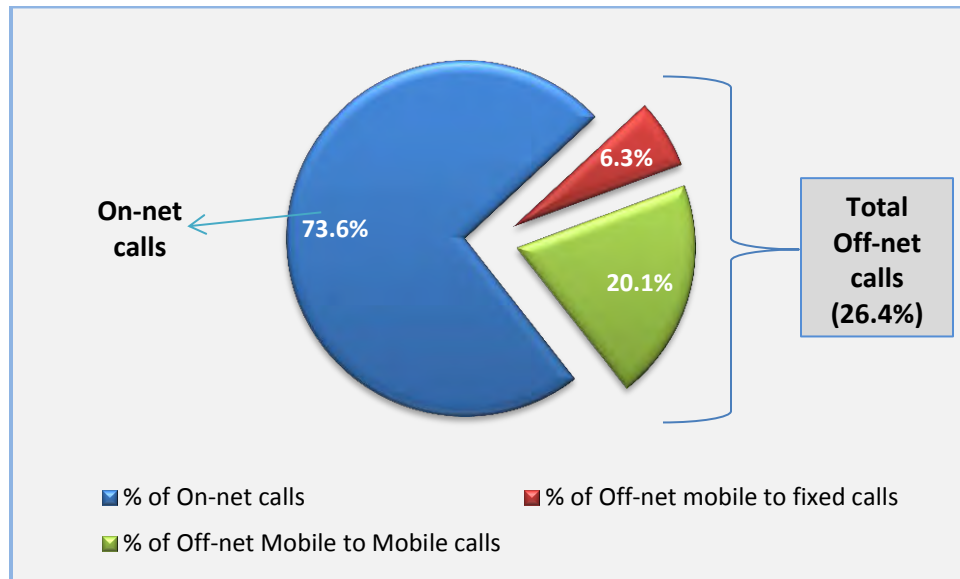


Source: TATT

4.3.2 Annual Domestic Mobile Voice Call Volumes

Domestic mobile voice calls totalled 3.1 billion calls for the 2012 period. Of the 3.1 billion calls, on-net traffic totalled 2.3 billion calls or 73.6 per cent of total mobile calls, whilst off-net traffic recorded 0.8 billion calls or 26.4 per cent of total mobile calls. Further divided, off-net traffic comprised 0.2 billion mobile to fixed calls or 6.3 per cent of total mobile calls, with the remaining 0.6 billion calls representing mobile to mobile off-net traffic (20.1 per cent of total mobile calls). A breakdown of the subcategories of traffic by number of calls is shown in Figure 45 below.

Figure 45: Breakdown of domestic Mobile Calls - 2012

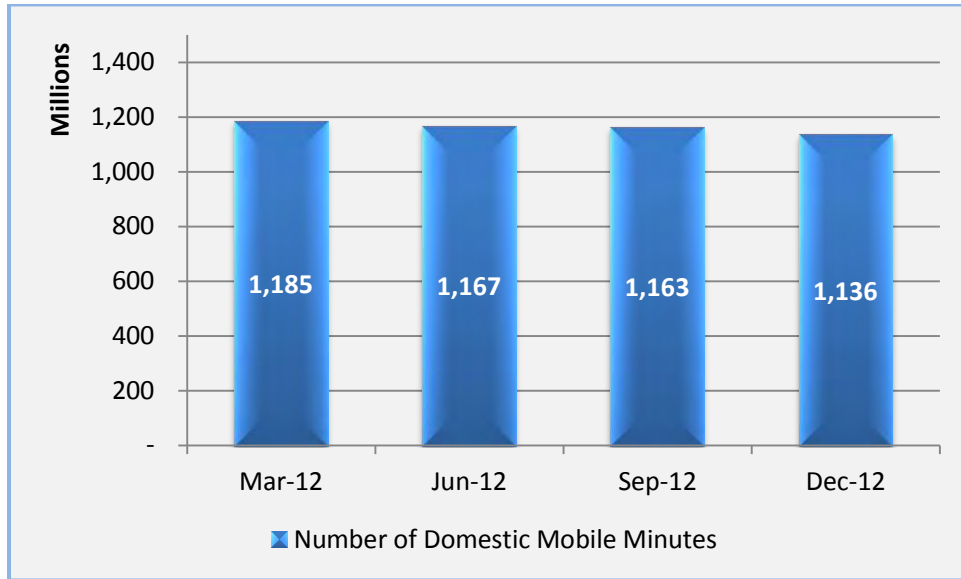


Source: TATT

4.3.3 Quarterly Domestic Mobile Voice Minutes

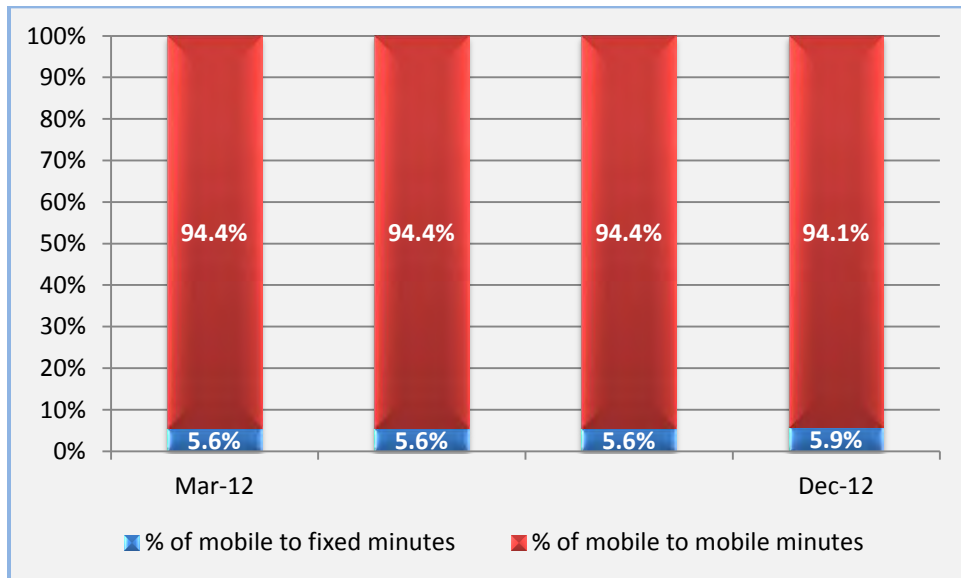
Gradual decreases were observed in mobile voice minutes as customers tended to spend less time on mobile voice calls in each subsequent quarter of 2012. As shown in Figure 46, total domestic mobile voice traffic decreased between the first quarter and the fourth quarter from 1,185 million minutes to 1,136 million minutes, a 4.1 per cent decrease between periods. Notably, total mobile minutes decreased slowly each quarter. As Figure 47 illustrates, this quarter on quarter decrease did not significantly change the ratio of mobile to fixed minutes and mobile to mobile minutes as this ratio remained relatively stable over the period.

Figure 46: Quarterly Mobile Voice Minutes 2012



Source: TATT

Figure 47: Quarterly Mobile Voice Minutes by Type 2012

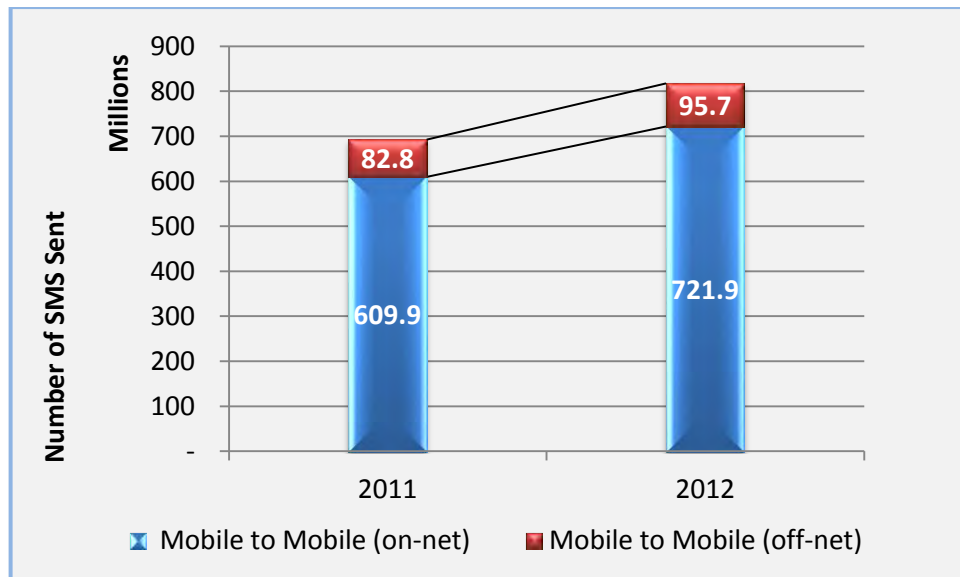


Source: TATT

4.4 Domestic Mobile Short Messaging Service (SMS)

The number of mobile SMS sent by mobile customers experienced a marked increase in 2012. Mobile subscribers sent a total of 817.6 million SMS in 2012 with 721.9 million being sent on-net and 95.7 million being sent off-net, as Figure 48 shows. This represented a significant increase of 18 per cent of total SMS sent while on-net and off-net SMS sent increased by 18.4 and 15.7 respectively.

Figure 48: Number and Percentage of on-net and off-net SMS sent in 2012



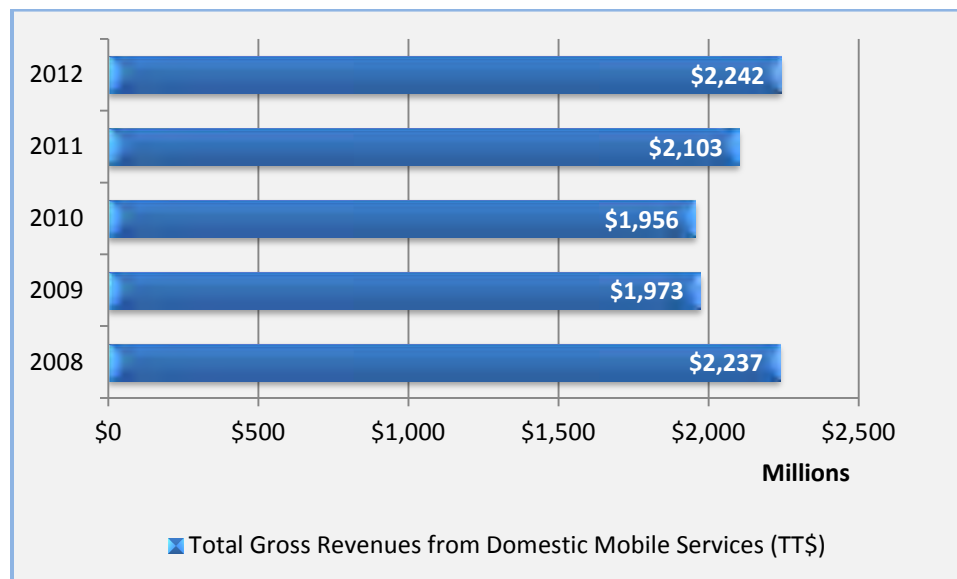
Source: TATT

4.5 Mobile Voice⁴⁰ Revenues

4.5.1 Annual Revenues from Mobile Voice Services⁴¹

For 2012, total annual revenues from mobile voice services totalled TT \$2,242 million increasing by 6.6 per cent when compared to 2011. The annual revenue trend from 2008 to 2012 is illustrated in Figure 49.

Figure 49: Annual revenues from Mobile Voice Services 2008-2012



Source: TATT

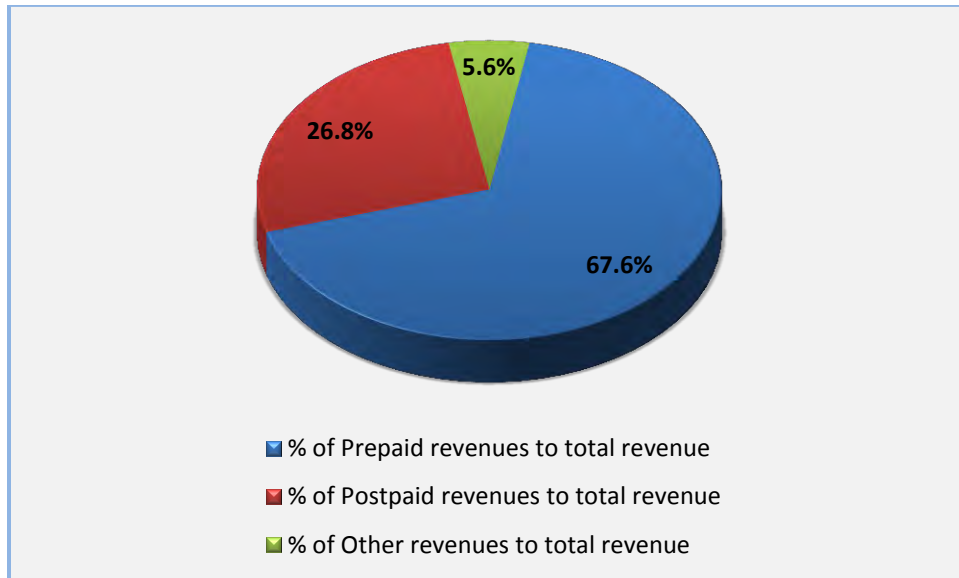
Of the TT \$2,242 million generated from the mobile voice market, prepaid revenues accounted for 67.6 per cent with a contribution of TT \$1,516 million. This represented a 5.8 percentage increase in revenues generated by prepaid subscriptions. Postpaid revenues contributed TT \$600 million representing 26.8 per cent of the total mobile earnings. This represents an increase of 4.2 per cent from 2011. The difference of TT \$126 million, classified as other, was generated from equipment sales, SIM card sales and administrative charges. Other revenues increased by 32.5 per cent in 2012. Figure 50 illustrates the percentage breakdown of revenues from mobile voice services while Figure 51 shows the five (5) year trend in prepaid and postpaid revenues.

⁴⁰ Mobile voice revenues includes revenues from SMS services

⁴¹ These revenues exclude mobile Internet revenue which is reported within the Internet section of this report.

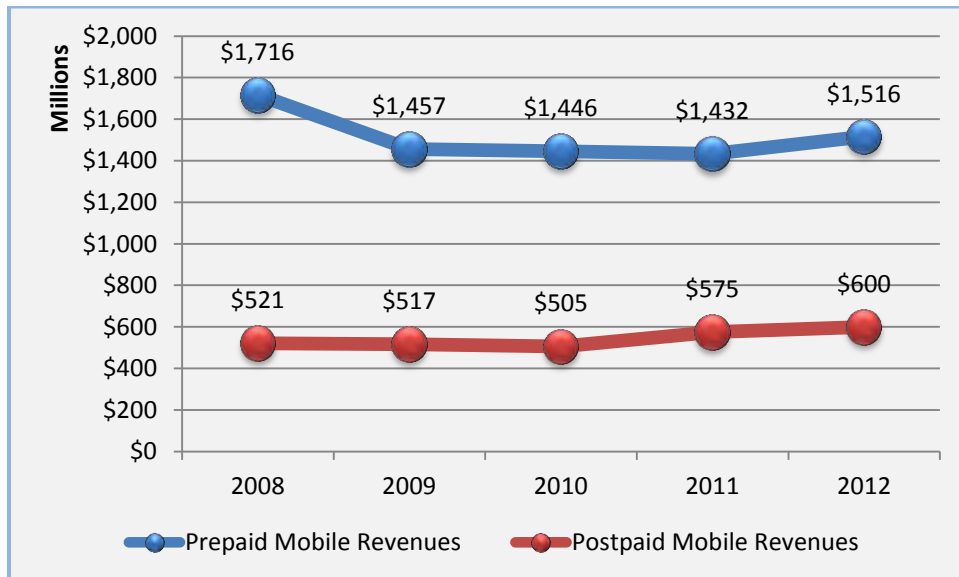
Increases in revenues from mobile voice services are supported with similar increases in the number of mobile subscriptions as explained in section 3.1.1.

Figure 50: Percentage of Prepaid and Postpaid Contributions to Revenues from Mobile Voice Services for 2012



Source: TATT

Figure 51: Revenues from Mobile Voice Services-Prepaid and Postpaid 2008-2012

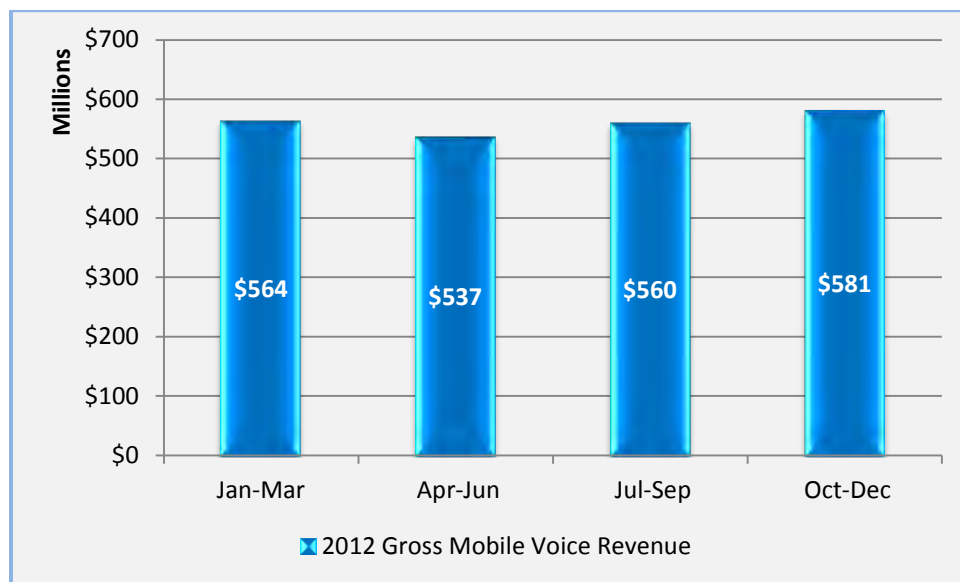


Source: TATT

4.5.2 Quarterly Revenues from Mobile Voice Services

Mobile voice revenues experienced a positive growth over the year, despite a drop in revenues observed in the second quarter. Recording TT \$564 million in revenues for the first quarter, the mobile voice market subsequently declined by 4.8 per cent in the second quarter to TT \$537 million. Revenues in the mobile voice market picked up in the second half of the year with revenues increasing by 4.3 per cent to TT \$560 million in the third quarter. This positive trend continued in the fourth quarter as the mobile voice revenues peaked at TT \$581 million. Figure 52 illustrates.

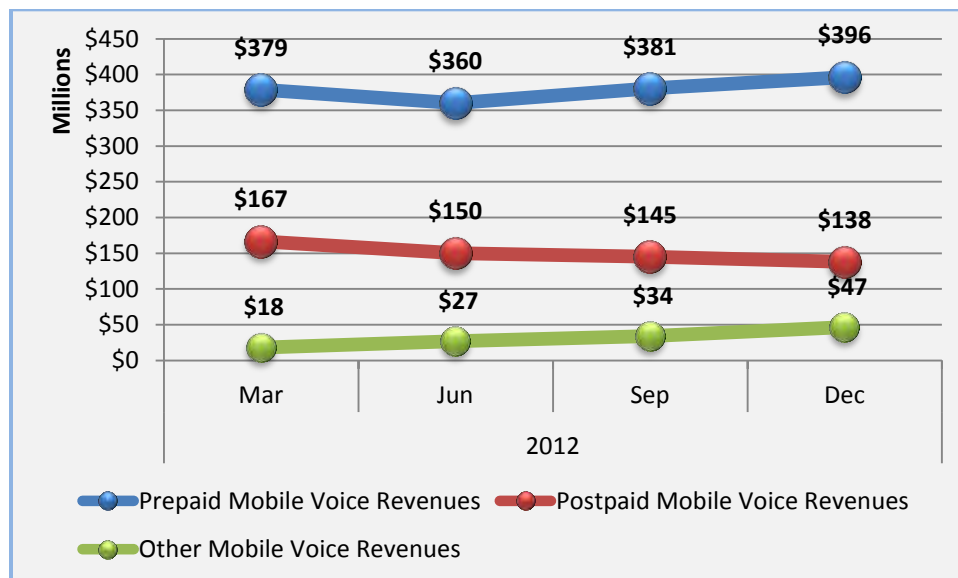
Figure 52: Quarterly revenues from mobile voice services 2012



Source: TATT

Although mobile voice revenues generally experienced positive growth on a quarterly basis, the different categories of revenues tell a different story. While prepaid and other revenues increased during 2012, postpaid revenues decreased steadily. Prepaid revenues increased from TT \$379 million in the first quarter to TT \$396 million in the fourth quarter, with a decrease being observed in the second quarter. On the other hand, postpaid revenues decreased in the second quarter from TT \$167 million to TT \$150 million, declining also in the third and fourth quarters. Figure 53 illustrates.

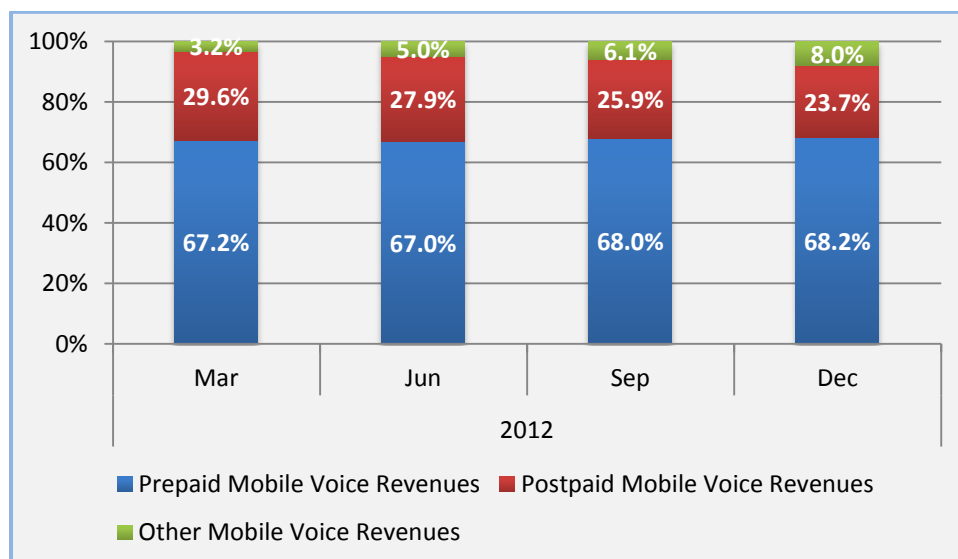
Figure 53: Quarterly Prepaid and Postpaid Mobile Voice Revenues - 2012



Source: TATT

From a market share position, prepaid subscriptions contributed the majority of the revenues in the mobile voice market with a quarterly average of 67.6 per cent while postpaid subscriptions contributed an average of 26.8 per cent. As Figure 54 illustrates, the proportion of prepaid to postpaid revenues fluctuated during each quarter of 2012. Other mobile voice revenues contributed an average of 5.6 per cent of gross revenues during the 2012 period.

Figure 54: Percentage of Revenues Contributed by Prepaid and Postpaid Mobile Voice Subscriptions - 2012

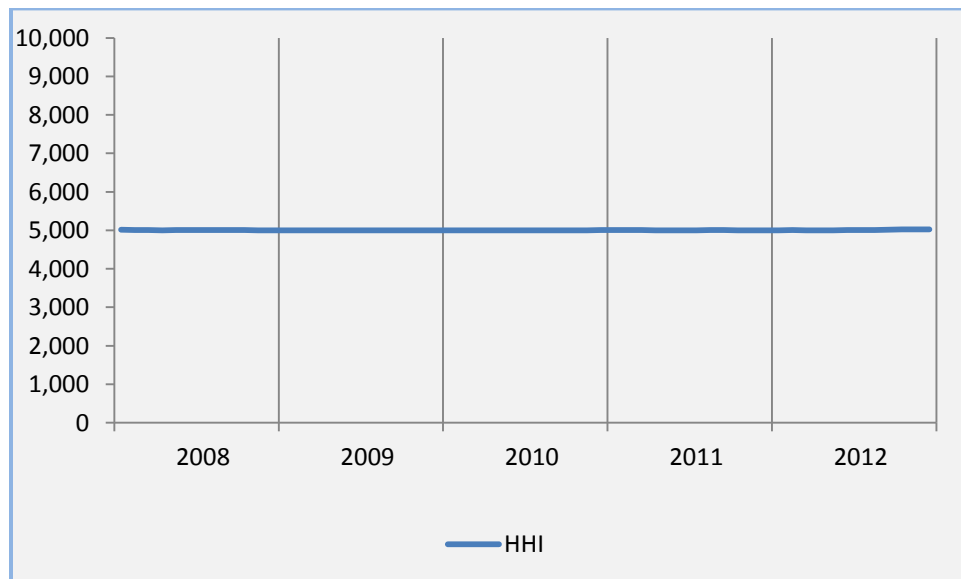


Source: TATT

4.6 Mobile Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration in the mobile voice market of Trinidad and Tobago for the year ending December 2012. ‘Number of subscriptions’ was used to determine market share for the service providers. On comparing the last five years, Figure 55 shows that the HHI has been relatively stable with roughly 5000 points being achieved over the period.

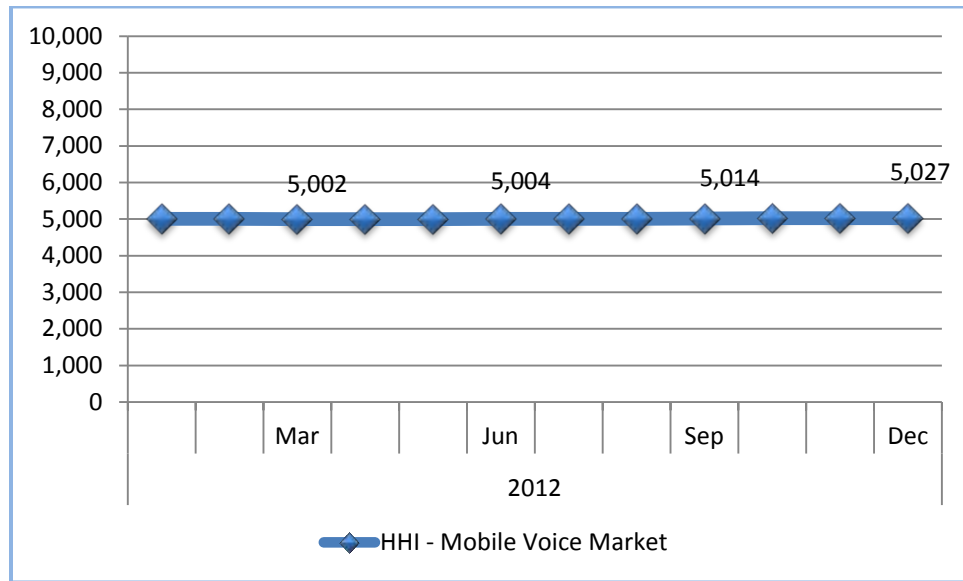
Figure 55: Hirschman-Herfindahl Index for the Mobile Voice Market 2008-2012



Source: TATT

As at December 2012 an HHI of approximately 5,027 was calculated, representing an increase of 24 points from 2011, a 0.48 per cent increase. Figure 56 illustrates the HHI trend for 2012.

Figure 56: Hirschman-Herfindahl Index for the Mobile Voice Market - 2012



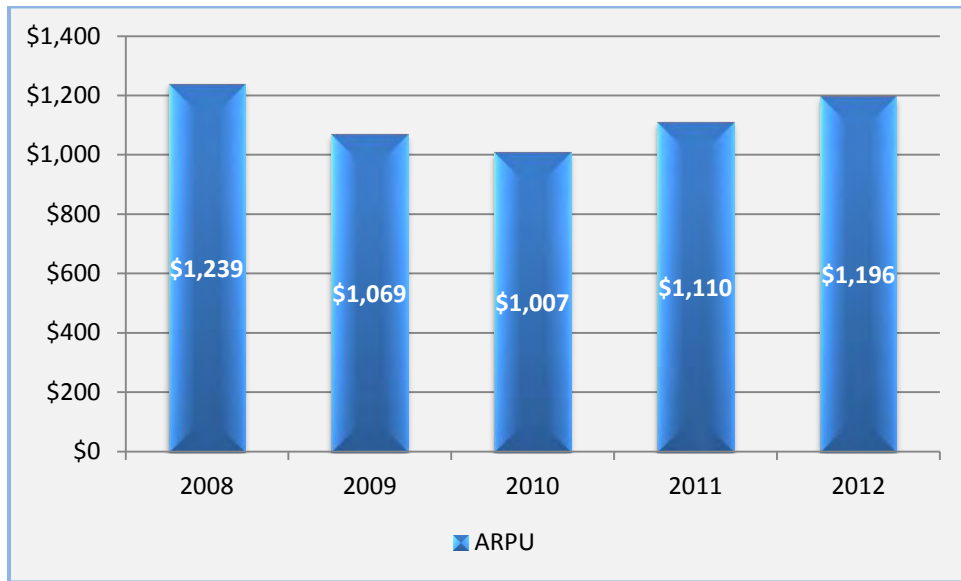
Source: TATT

4.7 Average Revenue per User

During 2012, customers of mobile subscriptions spent an average of TT \$1,196 for mobile services⁴². This represents an increase of TT \$86 or 7.7 per cent in the average revenue per user (ARPU) over the amount recorded for 2011. The ARPU generated for prepaid mobile subscriptions stood at TT \$914, an increase of TT \$23 or 2.6 per cent when compared to 2012. On the other hand, the ARPU generated for postpaid subscriptions was TT \$2,649, an increase of TT \$32 or 1.2 per cent. Figure 57 highlights total ARPU for mobile voice services while Figure 58 compares the ARPU earned for prepaid and postpaid subscriptions over the past five years.

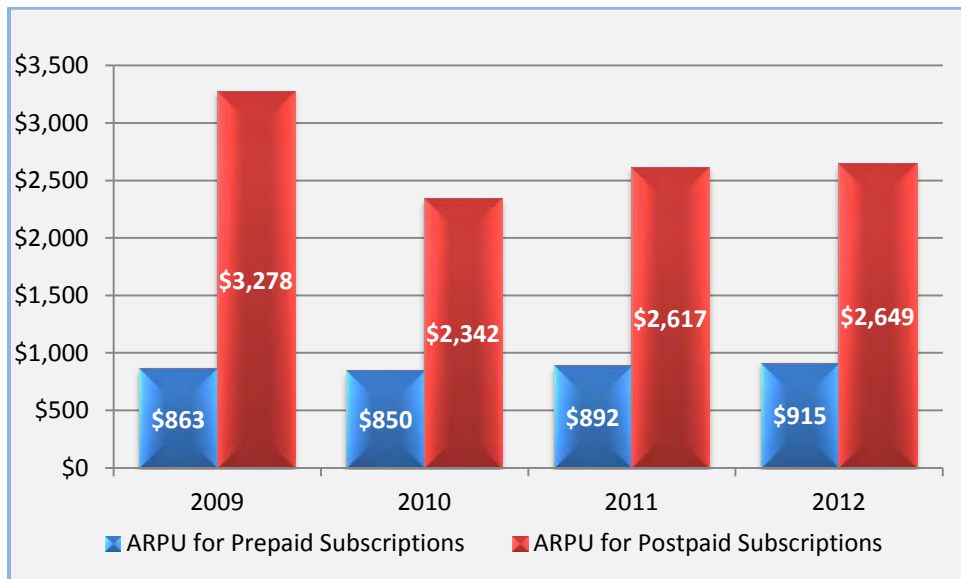
⁴² ARPU from mobile voice services excludes Mobile Internet services.

Figure 57: ARPU for Mobile Voice Services 2007-2012



Source: TATT

Figure 58: ARPU for Prepaid and Postpaid Mobile Voice Subscriptions - 2012



Key Market trends and Observations in the Internet Market

- Fixed Internet market continued to rise with 224,000 subscriptions; 18% growth in fixed broadband subscriptions
- 422,000 Mobile Internet Subscriptions
- 95 % of residential broadband customers subscribe to speeds between the range 256 kbit/s to less than 10 Mbit/s.
- 52 out of every 100 households had a fixed Internet subscription in 2012
- Significant uptake of broadband Internet services
- 87 out of every 100 persons estimated to regularly use the Internet
- Internet market (fixed and mobile) generated TT \$805.6 million in revenues, an increase of 19%

5. 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 2012, there were fourteen (14) operators authorised to provide fixed domestic telecommunications services which included the provision of Internet services. In 2012 the following seven operational concessionaires provided 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 were also two mobile operators that were authorised to provide domestic mobile telecommunications services, including the provision of Internet services to the public. They were:

- Telecommunications Services of Trinidad and Tobago (bmobile)⁴³, and
- Digicel Trinidad and Tobago Limited

Operators in Trinidad and Tobago use a mix of technologies to provide fixed wired and wireless broadband Internet services to the public. Fixed wired broadband Internet services employ ADSL2+ over copper cables, hybrid Fibre-coax networks utilizing DOCSIS 3.0 technology, as well as a mix of Fibre to the Curb (FTTC), Fibre to the Business (FTTB) or Home (FTTH) topologies while fixed wireless Broadband Internet⁴⁴ operators employ WiMAX technologies to support the need for services demanding ever higher speeds on the access network.

In the mobile Internet market, 2012 saw a jump in technology with the introduction of High Speed Packet Access (HSPA+) by the operators in Trinidad and Tobago. The jump to a purported 4G network has paved the way for the provision of services at broadband mobile Internet access speeds, a significant step up from the 2.5G technology (i.e. Enhanced Data Rates for GSM Evolution (EDGE)). In 2012, mobile Internet operators offered customers mobile Internet services utilizing both HSPA+ and EDGE technology.

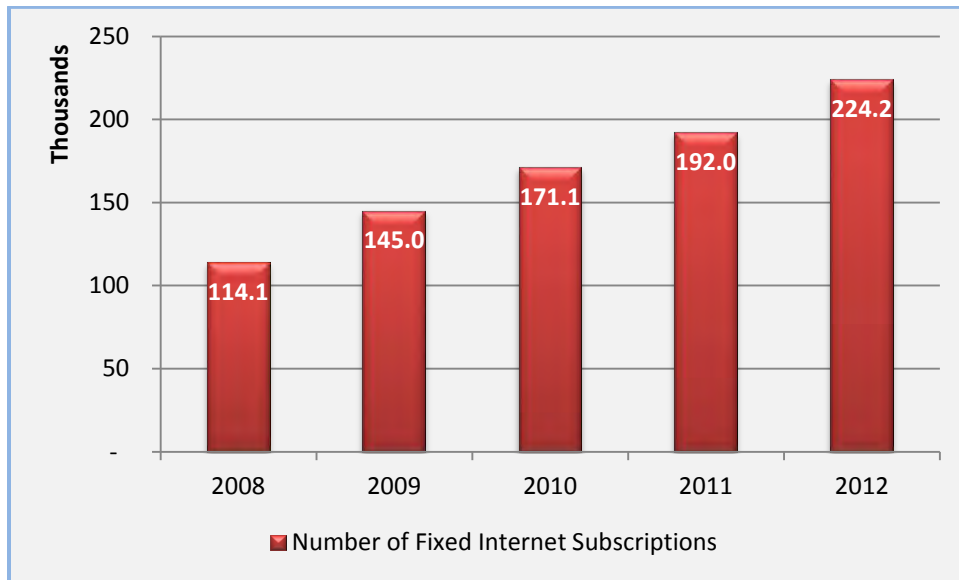
5.1 Fixed Internet Subscriptions

The market for Fixed Internet services experienced significant growth in 2012 as a result of the increased take-up of fixed Internet services. There were approximately 224.1 thousand fixed Internet subscriptions in Trinidad and Tobago, as at December 2012. Figure 59 illustrates the trend for fixed Internet subscriptions from 2008 to 2012. Fixed Internet subscriptions continued on its upward trend, increasing by 16.7 per cent in 2012.

⁴³ bmobile is the mobile services division of TSTT, therefore their Internet services are recorded as one concessionaire.

⁴⁴ Fixed Wireless Internet Broadband subscriptions include some CDMA2000 EvDO subscriptions that cannot be separated at this time.

Figure 59: Total Number of Fixed Internet Subscriptions – 2008 to 2012



Source: TATT

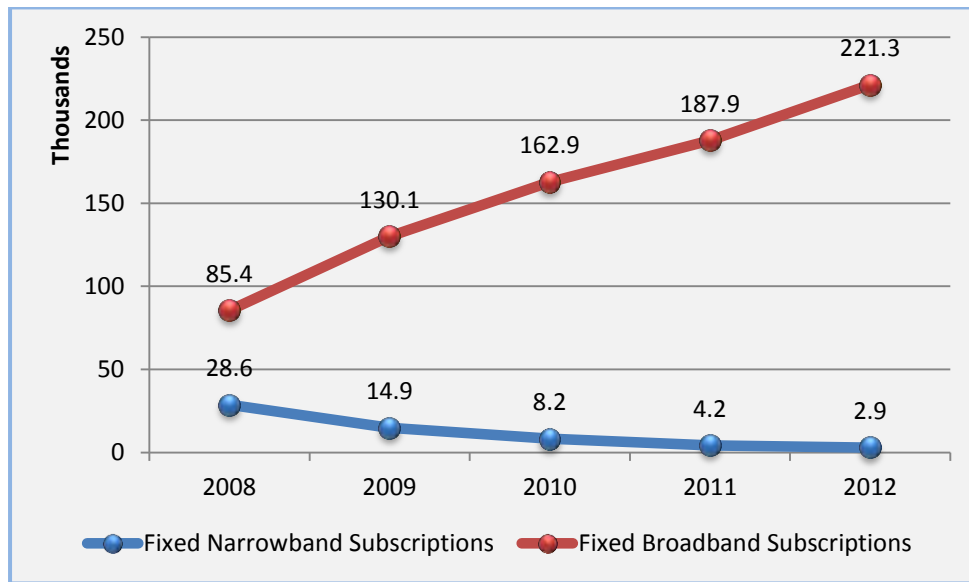
5.1.1 Fixed Broadband and Fixed Narrowband Internet Subscriptions

Fixed broadband⁴⁵ Internet subscriptions accounted for 221.3 thousand or 98.7 per cent of total fixed Internet subscriptions while fixed narrowband⁴⁶ Internet subscriptions accounted for 2.9 thousand or 1.3 per cent. Over the last five years fixed broadband subscriptions have significantly outnumbered fixed narrowband subscriptions as illustrated in Figure 60 and further highlighted in Figure 61 below, which depicts the percentage of broadband and narrowband subscriptions to total fixed Internet subscriptions at the end of 2012.

⁴⁵ Broadband can be defined as speeds > 256 kbits per second

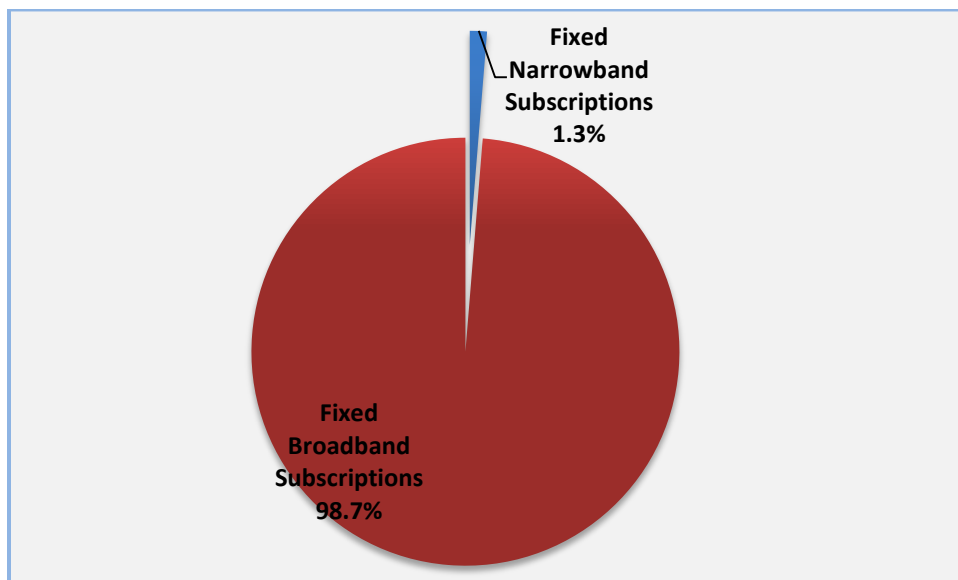
⁴⁶ Narrowband can be defined as speeds ≤ 256 kbits per second

Figure 60: Fixed Narrowband and Broadband Subscriptions – 2008 to 2012



Source: TATT

Figure 61: Percentage of Broadband and Narrowband Fixed Internet Subscriptions 2012



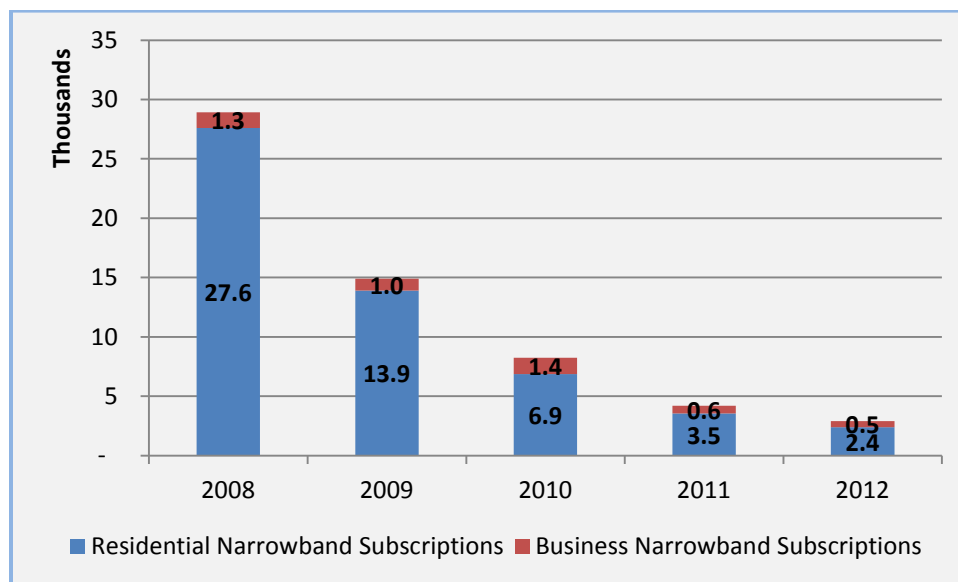
Source: TATT

In comparison to 2011, broadband subscriptions increased by 18 per cent or an estimated 33.4 thousand subscriptions, whereas narrowband subscriptions decreased by 31 per cent or 1.3 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. The continued substitution from narrowband to broadband is also possibly due to the continued expansion of broadband Internet infrastructure in Trinidad and Tobago to geographic areas not previously equipped for broadband Internet services.

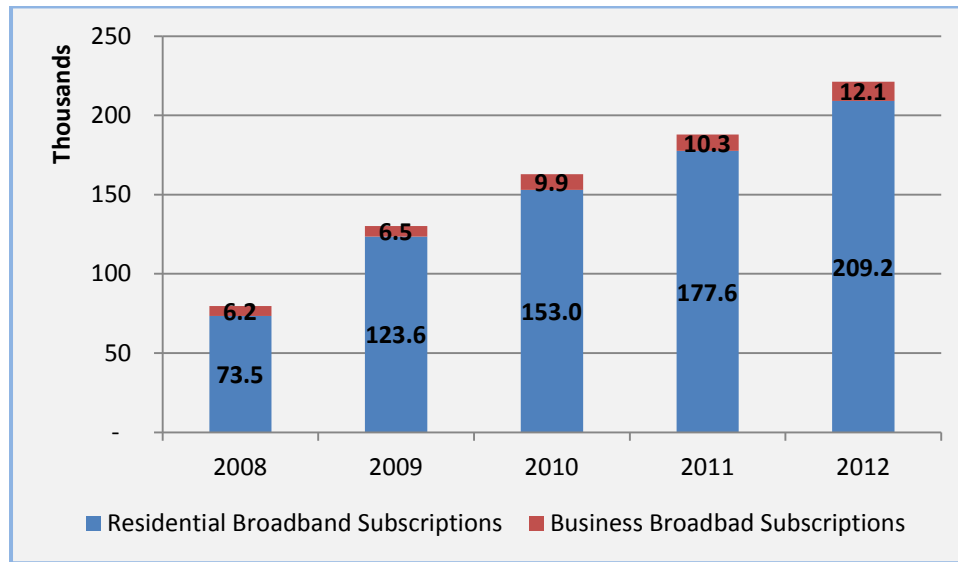
The number of fixed Internet subscriptions can be further subdivided into residential and business categories. Of the 2.9 thousand narrowband subscriptions, approximately 2.4 thousand were residential while 500 were business subscriptions, as Figure 62 illustrates. It was observed that, compared to 2011, both residential and business narrowband subscriptions decreased by 33 per cent and 22 per cent respectively. Of the 221.3 thousand broadband subscriptions 209.2 thousand were residential while 12.1 thousand were business subscriptions, as Figure 63 illustrates. It was also observed that, compared to 2011, both residential and business broadband subscriptions increased by 18 per cent and 17 per cent respectively.

Figure 62: Residential and Business Fixed Narrowband Internet Subscriptions – 2008 to 2012



Source: TATT

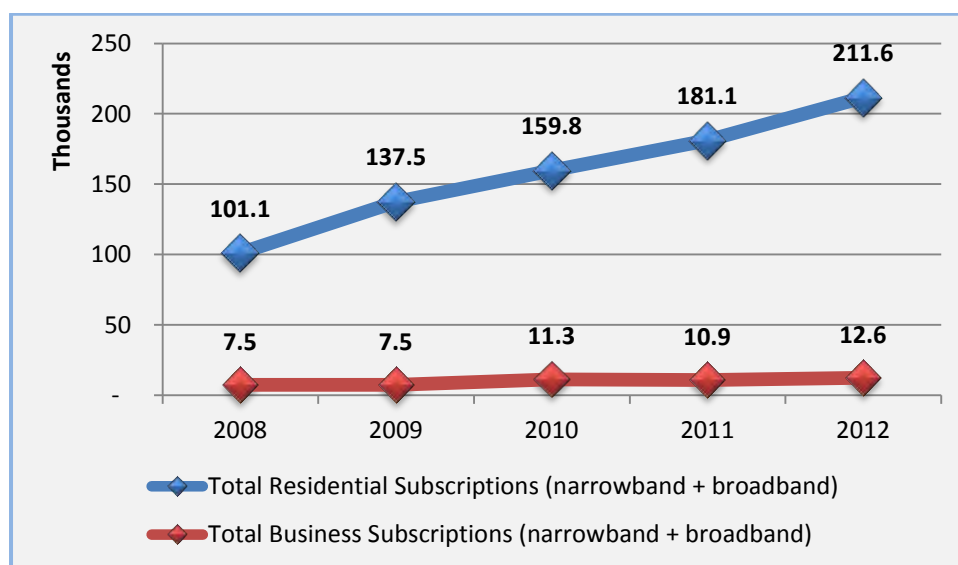
Figure 63: Residential and Business Fixed Broadband Internet Subscriptions – 2008 to 2012



Source: TATT

Total residential subscriptions, including narrowband and broadband, amounted to approximately 211.6 thousand, growing by 16.8 per cent or 30.5 thousand subscriptions from 2011. Total business subscriptions measured roughly 12.6 thousand, increasing from 2011 by 15 per cent or 1.6 thousand subscriptions. Figure 64 illustrates the five year trend of residential and business fixed Internet subscriptions from 2008 to 2012.

Figure 64: Total Residential and Business Fixed Internet Subscriptions – 2008 to 2012

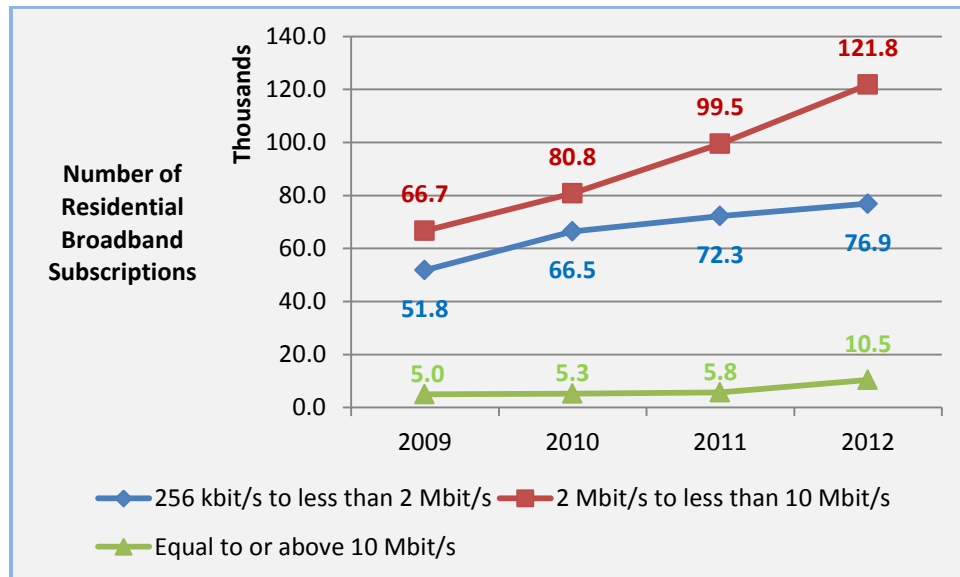


Source: TATT

5.1.2 Residential Fixed Broadband Internet Subscriptions by Speed

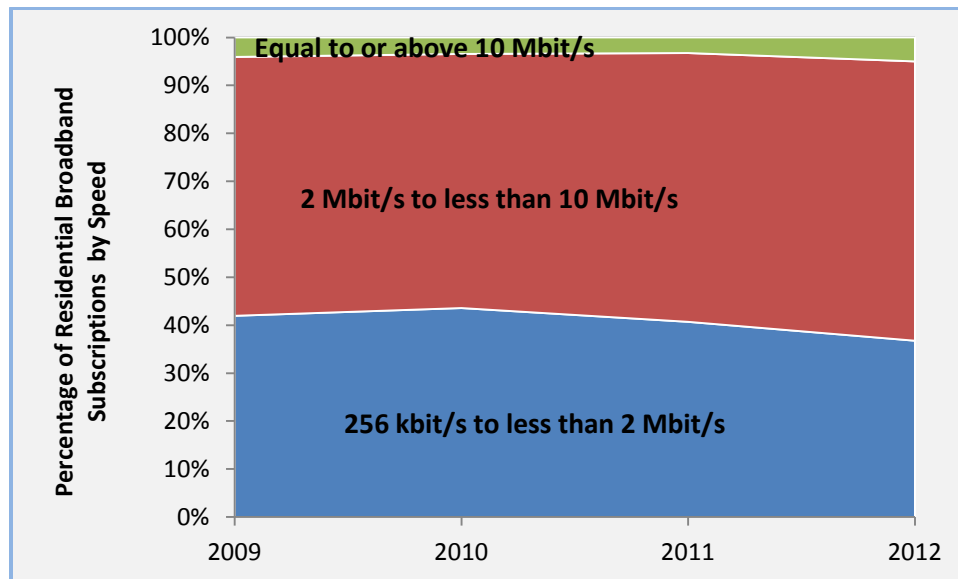
The data for the broadband market also showed that customers subscribed to Internet speeds from 256K up to 100MB. More than half of residential broadband customers subscribed to Internet speeds between 2 Mbit/s to less than 10 Mbit/s, that is, 121.8 thousand subscriptions out of 209.2 thousand residential broadband customers. Broadband Internet speeds equal to or above 10 Mbit/s were less popular among residential customers with only 10.5 thousand customers. As Figure 65 shows, all categories of residential broadband internet speeds increased steadily over the past four years, however, it is noted that a higher growth rate was observed for Internet speeds between 2 Mbit/s to less than 10 Mbit/s. This is further supported by the increasing proportion of residential broadband Internet subscription to speeds between 2 Mbit/s to less than 10 Mbit/s, as Figure 66 illustrates. In 2012, approximately 58 per cent of residential broadband customers subscribed to speeds between 2 Mbit/s to less than 10 Mbit/s while 37 per cent subscribed to speeds between 256 kbit/s to less than 2 Mbit/s. Cumulatively, it is noted that 95 per cent of residential broadband customers subscribed to speeds between 256 kbit/s to less than 10 Mbit/s.

Figure 65: Number of Residential Broadband Subscriptions by Download Speed – 2009 to 2012



Source: TATT

Figure 66: Proportion of Residential Broadband Subscriptions by Download Speed – 2009 to 2012

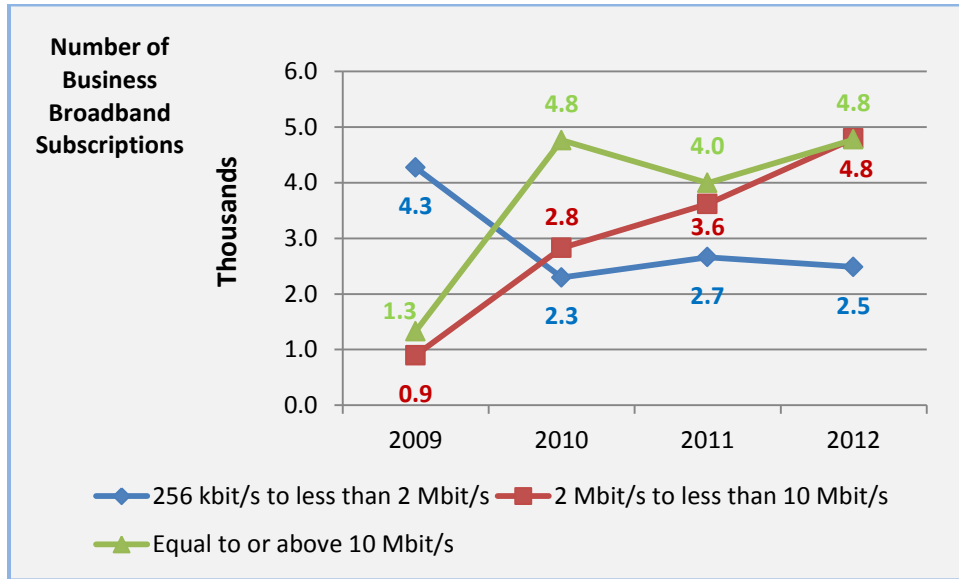


Source: TATT

5.1.3 Business Fixed Broadband Internet Subscriptions by Speed

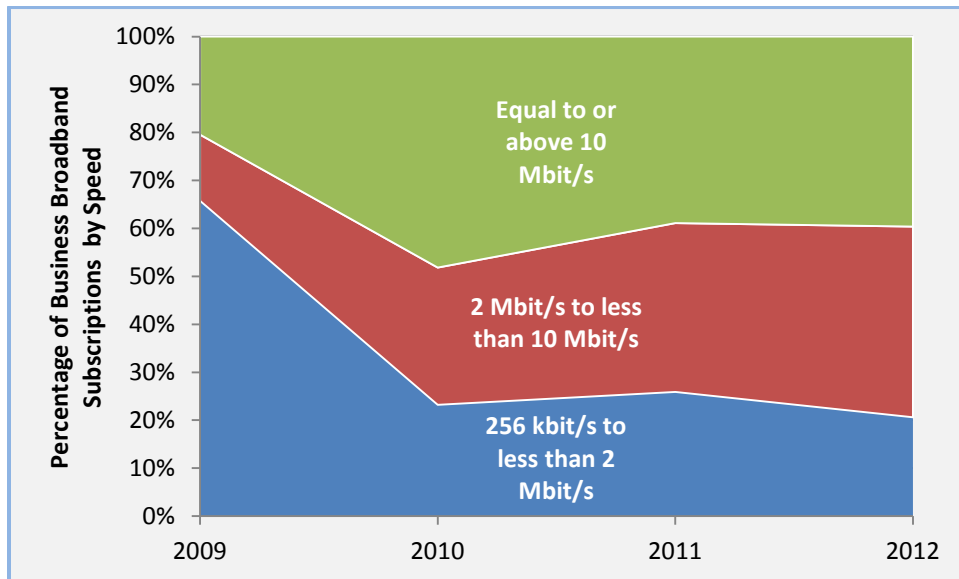
The number of business broadband customers subscribing to Internet speeds between 2 Mbit/s to less than 10 Mbit/s and to Internet speeds equal to or above 10 Mbit/s was roughly the same in 2012 with 4.8 thousand subscriptions each. Broadband Internet speeds of 256 kbit/s to less than 2 Mbit/s were less popular among business customers with only 2.5 thousand subscriptions. Figure 67 shows the number of business broadband subscriptions by download speed. It was noted that the demand for higher Internet speeds (2 Mbit/s to less than 10 Mbit/s) by business customers generally increased over the past four years. On the other hand, the demand for lower Internet speeds (256 kbit/s to less than 2 Mbit/s) declined sharply in 2010 then remained flat over the last two years. In 2012, business broadband customers who utilized speeds between 2 Mbit/s to less than 10 Mbit/s and speeds equal to or above 10 Mbit/s comprised approximately 40 per cent each of total business broadband customers. Cumulatively, it is noted that 80 per cent of residential broadband customers subscribed to speeds between 2 Mbit/s to above 10 Mbit/s. Figure 68 illustrates.

Figure 67: Number of Business Broadband Subscriptions by Download Speed – 2009 to 2012



Source: TATT

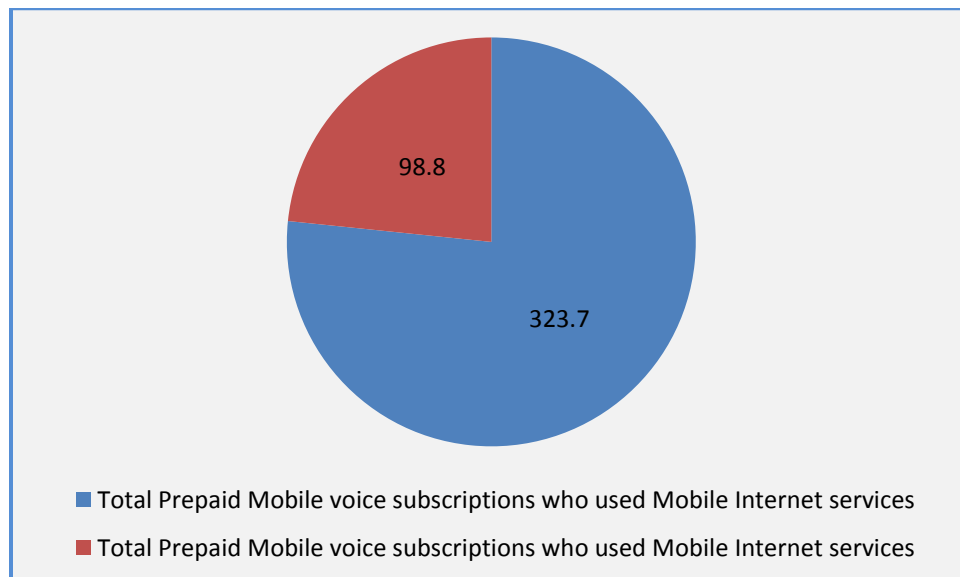
Figure 68: Proportion of Business Broadband Subscriptions by Download Speed – 2009 to 2012



5.1.4 Mobile Subscriptions with Internet Access

With 1.88 million mobile voice subscriptions in 2012, it is estimated that 22.4 per cent⁴⁷ of the mobile population used mobile Internet services via their phones. As at December 2012, approximately 422.5 thousand mobile voice subscriptions were using mobile Internet services. Consistent with the proportion of prepaid mobile voice subscriptions, total prepaid mobile Internet users exceeded that of postpaid users. There were 323.7 thousand prepaid mobile Internet users compared to 98.8 thousand postpaid mobile Internet users. Figure 69 gives a breakdown of prepaid and postpaid mobile Internet users at the end of 2012. Although there were more prepaid mobile Internet users, it was noted that a greater percentage of postpaid mobile subscriptions used the Internet in 2012. Out of the 1,657 thousand prepaid subscriptions (see Figure 34), only 20 per cent used mobile Internet services. In contrast, out of the 226 thousand postpaid mobile subscriptions (see Figure 34), 44 per cent used mobile Internet services. This is illustration in Figure 70 which compares prepaid and postpaid mobile subscriptions sub-divided by mobile voice only users and mobile voice and Internet users.

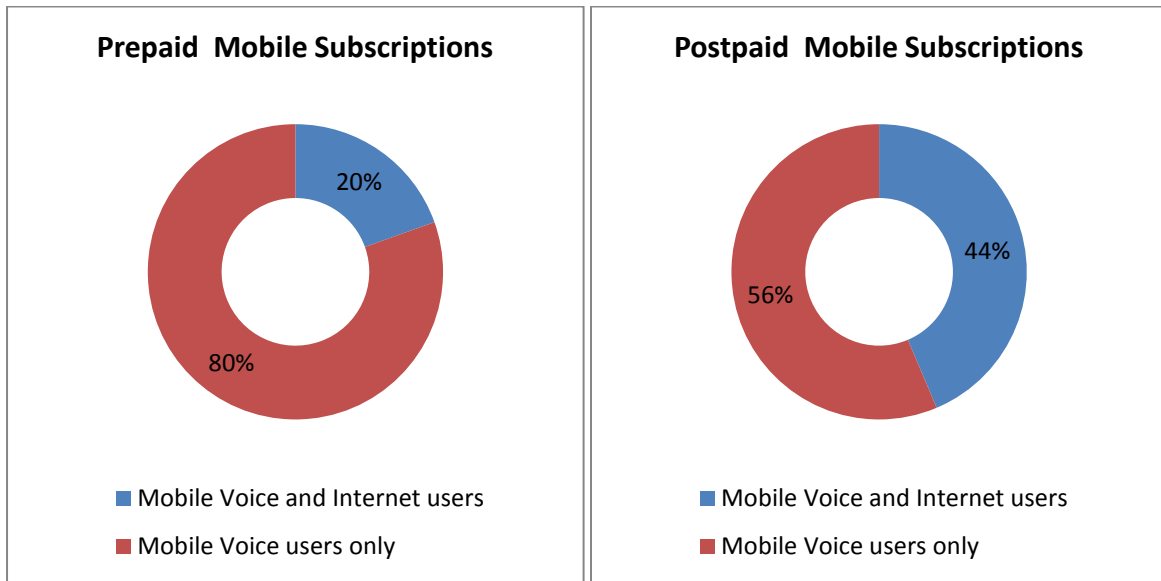
Figure 69: Number of Mobile Subscriptions Internet Subscription by Prepaid and Postpaid – 2012



Source: TATT

⁴⁷ This estimate was derived using the formula: number of active mobile Internet subscriptions / number of mobile voice subscriptions.

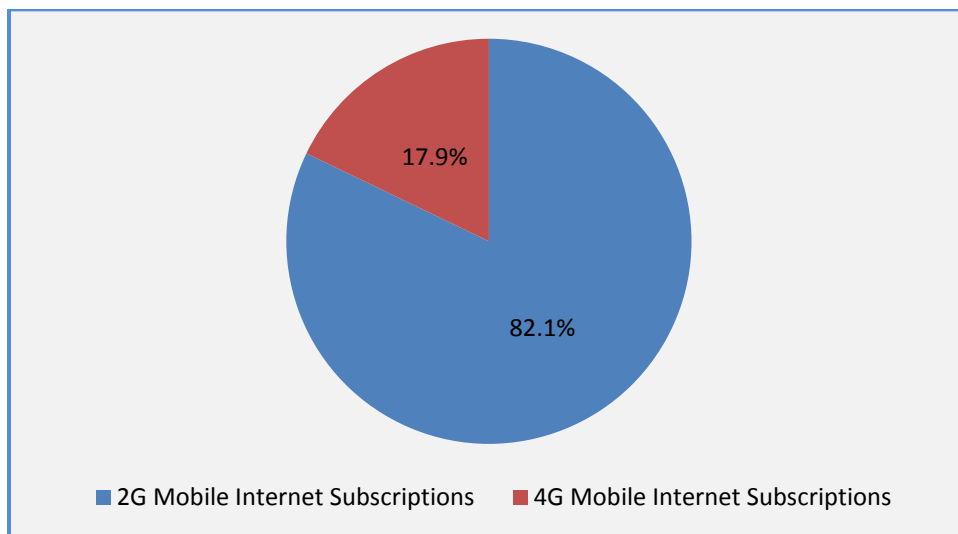
Figure 70: Comparison of Prepaid and Postpaid mobile Internet subscriptions 2012



Source: TATT

In 2012, both service providers launched their 4G mobile Internet services to the public. This service is relatively new to the market and therefore is still in the introduction phase. Increased growth is anticipated in the short term. As at December 2012, 2G mobile Internet subscriptions accounted for the larger percentage of total mobile Internet subscriptions with approximately 82 per cent. In comparison 4G mobile Internet subscriptions accounted for 18 per cent. Figure 71 illustrates.

Figure 71: Percentage of 2G and 4G Mobile Internet 2012



Source: TATT

Mobile Technology- Do you know of it?

Recently, there has been much ado and mention of “4G” in the mobile market by both mobile service providers. While some may be well aware of what it means to move from “2G” to “4G” others find the changing technology landscape and its associated acronyms too much to keep up with! Here is a snap shot of the basics in the evolution of mobile wireless technology.

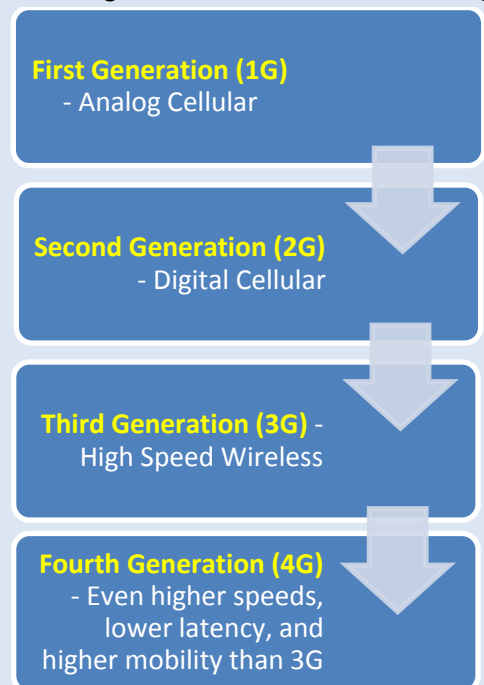
Mobile or “Cellular” technology began with analogue, or first generation, networks (“1G”) in the late 1980’s. By the early 1990’s the first mobile evolution occurred with the commercial deployment of second generation (2G) digital networks. However, there were three distinct flavors of 2G mobile technology:- the North American markets pioneered two technologies, CDMA (Code Division Multiple Access) and TDMA (Time Division Multiple Access), while the European markets established a single technological standard that was soon ubiquitous worldwide; GSM (Global System for Mobile Communications). Indeed, many would recall the migration from analogue to TDMA to GSM technologies in Trinidad and Tobago.

While 2G mobile networks are still very much voice-centric, the standards slowly evolved to facilitate systems, such as GPRS (General Packet Radio Service) for GSM networks, to support data transmission via these networks. As demand grew to access the Internet via mobile devices at the turn of the century, innovations began to evolve the 2G standards to support even higher speeds, such as GPRS’ successor, EDGE (Enhanced Data Rates for GSM Evolution).

As mobility grew to be more of a desired characteristic of communications in the 21st century and high-speed access to the now content rich Internet, the industry proposed quantum leaps in technology deployment. These new third generation (3G) mobile technologies included upgrades to 2G systems such as CDMA’s successor CDMA2000 as well as drastic departures in technologies such as GSM’s successor UMTS (Universal Mobile Telecommunications Service). These data-centric networks continued to evolve with interim specifications such as UMTS’ HSPA (High Speed Packet Access) and CDMA’s EvDO (Enhanced Voice Data Only) driving the provision of mobile Internet speeds up to 5 Mbit/s.

With the ever-increasing need for higher mobile data speeds in order to enjoy the capabilities of smartphones and bandwidth intensive content such as interactive websites, video/audio streaming and large downloadable files, there continues to be further development as evidenced by the deployment of new technologies. These include new fourth generation (4G) mobile networks utilizing technologies such as HSPA+ (i.e. Evolved HSPA), Mobile WiMAX (Wireless Interoperability for Microwave Access) and LTE (Long Term Evolution), all providing mobile data speeds that can exceed 10Mbit/s.

As mobile technology continues to evolve, mobile consumers will continue to look on with much expectancy for launches of the newest, innovative mobile technologies and experiences.

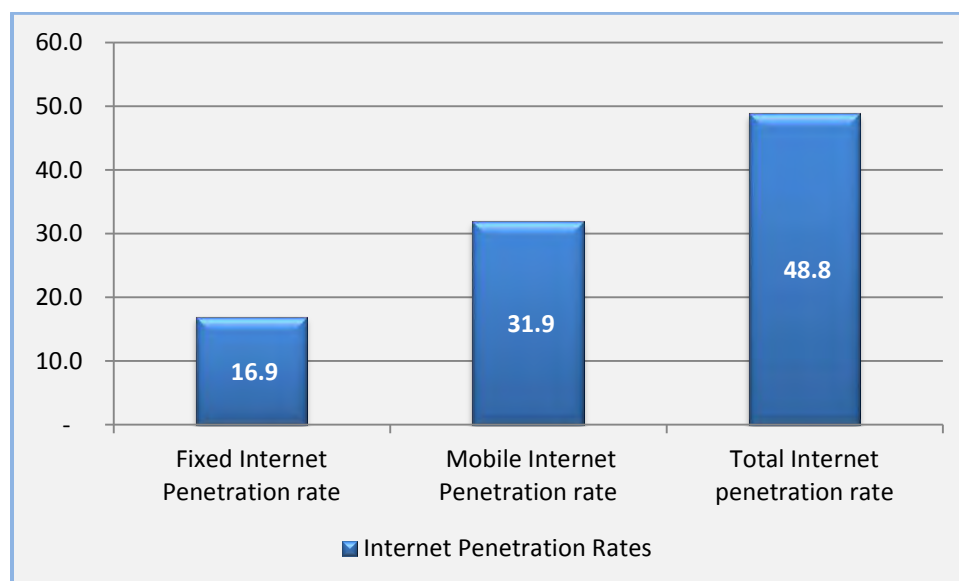


5.2 Internet Penetration

For 2012, Trinidad and Tobago recorded a fixed Internet penetration⁴⁸ of 16.9 increasing by 16.1 per cent when compared to 2011. This means that approximately 16 out of every 100 persons in Trinidad and Tobago had a fixed Internet subscription at the end of 2012. On the other hand, mobile Internet penetration⁴⁹ measured 31.9 per cent in 2012. This means that approximately 31 out of every 100 persons in Trinidad and Tobago were using mobile Internet services at the end of 2012.

The above suggests a consolidated Internet penetration rate of 48.8 was achieved. This implies that approximately 49 out of every 100 persons in Trinidad and Tobago had either a fixed Internet subscription and/or a mobile Internet subscription at the end of 2012. Figure 72 below looks at the Internet penetration in 2012.

Figure 72: Fixed and Mobile Internet Penetration from 2012



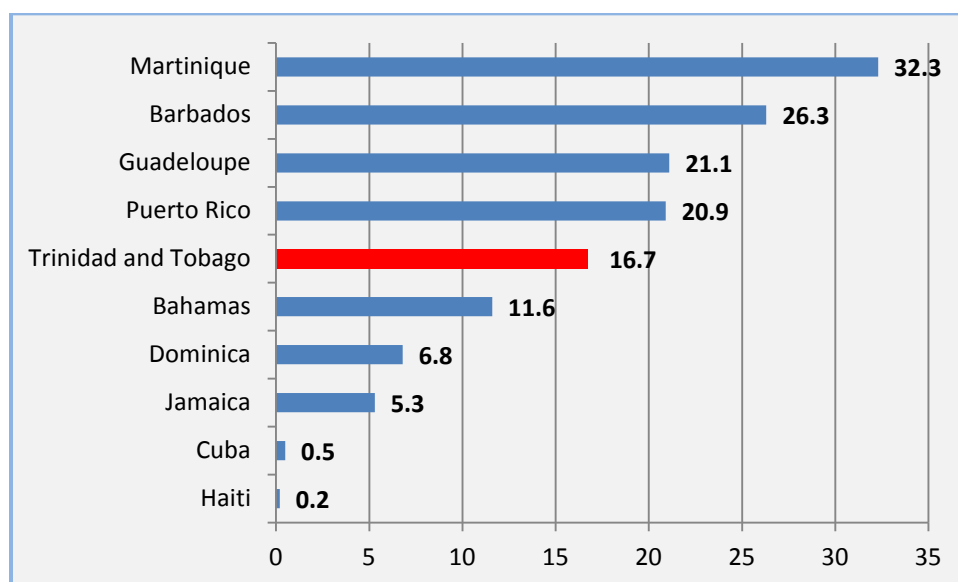
Source: TATT

⁴⁸ Fixed Internet penetration is calculated: $(\text{total number of Fixed Internet Subscriptions} / \text{Total Population}) * 100$

⁴⁹ Mobile Internet penetration is calculated: $(\text{total number of Prepaid and Postpaid Mobile Internet Subscriptions} / \text{Total Population number}) * 100$.

Compared regionally among Caribbean countries, Trinidad and Tobago ranked fifth in terms of fixed broadband Internet penetration as highlighted in Figure 73 below. Martinique ranked first, with approximately 32 out of every 100 inhabitants having a fixed broadband subscription with Barbados ranking second with a fixed broadband Internet penetration rate of 26.3.

Figure 73: Fixed Broadband Internet Penetration among Caricom Countries 2012



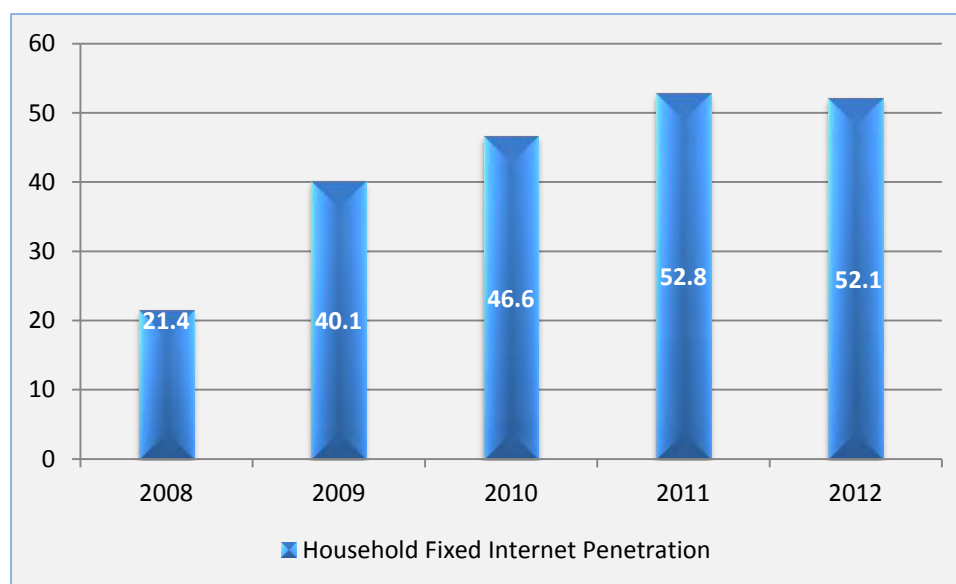
Source: BMI and TATT

Similar to Internet penetration, Internet household penetration⁵⁰ is used to measure the proportion of households with Internet access at home. For 2012, Internet household penetration measured approximately 52.1. This indicates that approximately 52 out of every 100 households in Trinidad and Tobago subscribe to a fixed Internet service. Figure 74 below depicts the growth in Internet household penetration for the period 2008 to 2012. It is noted that the Internet household penetration rate decreased in 2012 despite significant increases in the number of fixed Internet subscriptions due to an increase in the number of households used. While the 2011 household penetration rates were calculated using the Central Statistical Office's (CSO) 2000

⁵⁰ Internet household penetration = (number of residential fixed Internet subscriptions / total number of households) * 100. The number of households increased from 343,180 in 2000 to 406,198 in 2012

housing figures, while 2012 penetration rates were calculated using the CSO's 2011 Population and housing Census figures.

Figure 74: Internet Household Penetration – 2008 to 2012



Source: TATT

5.2.1 Internet Users

Another useful indicator to measure progress towards an Information society is the Internet penetration based on the number of Internet users⁵¹. In 2007, the Authority conducted a Digital Divide survey⁵² 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, 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 household⁵³ and the number of mobile Internet users. For 2012, this approximates to 1,148.7 thousand Internet users or 87 out of every 100 persons who regularly

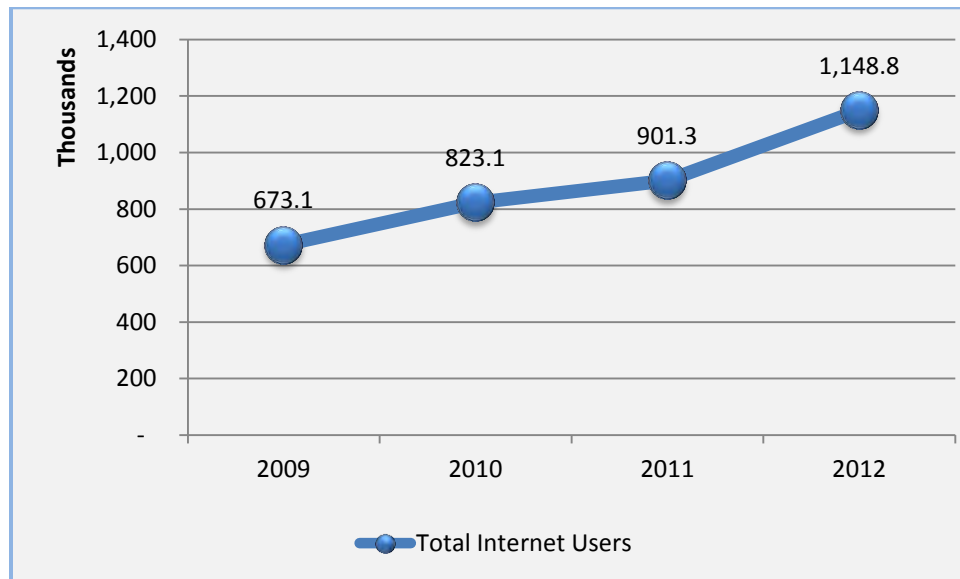
⁵¹ Persons who regularly used Internet services. A person does not have to have a personal Internet subscription to be considered an Internet user.

⁵² The complete Digital Divide Report 2007 can be found on the Authority's website: www.tatt.org.tt

⁵³ The Central Statistical Office estimated that an average of 3.24 persons reside within a household in its 2011 Census Report.

used fixed and/or mobile Internet services. The number of Internet users increased from 901.3 thousand to 1,148.7 thousand mainly due to the inclusion of prepaid Internet users in the 2012 definition. Figure 75 below shows the growth in number of Internet users (both Fixed and mobile) over the last four years.

Figure 75: Number of Internet Users (fixed and Mobile) 2009 to 2012

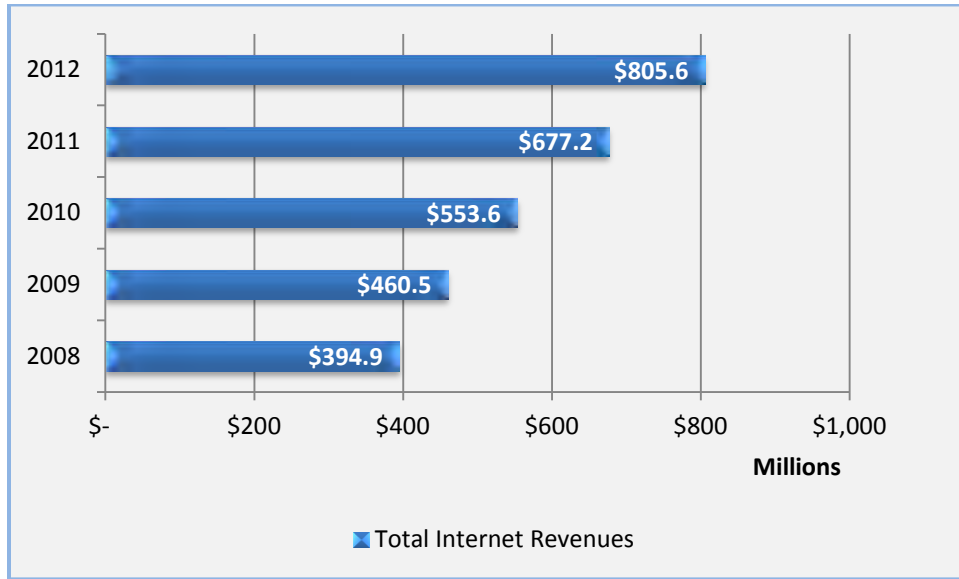


Source: TATT

5.3 Total Internet Revenues

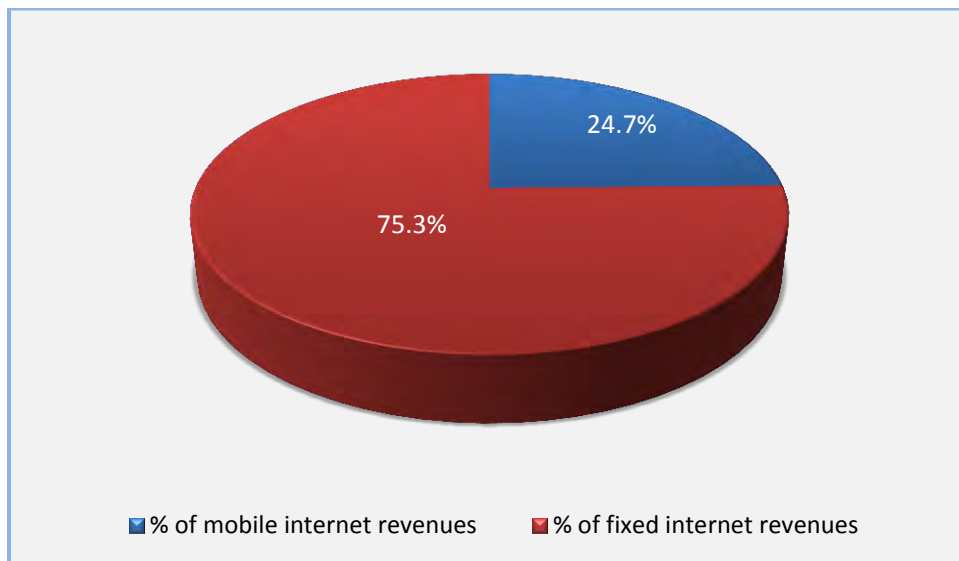
Revenues generated from fixed and mobile (prepaid and postpaid) Internet services totalled TT \$805.6 million, an increase of TT \$128.4 million or 19.0 per cent when compared to 2011. The continued rise in revenues is attributed to the growth in fixed and mobile Internet subscriptions. Figure 76 shows the Internet revenues trend from 2008 to 2012 and Figure 77 depicts the proportion of revenues by the fixed Internet and mobile Internet markets.

Figure 76: Total Internet Revenues 2008-2012



Source: TATT

Figure 77: Percentage of Fixed and Mobile Contributions to Internet Revenues 2012



Source: TATT

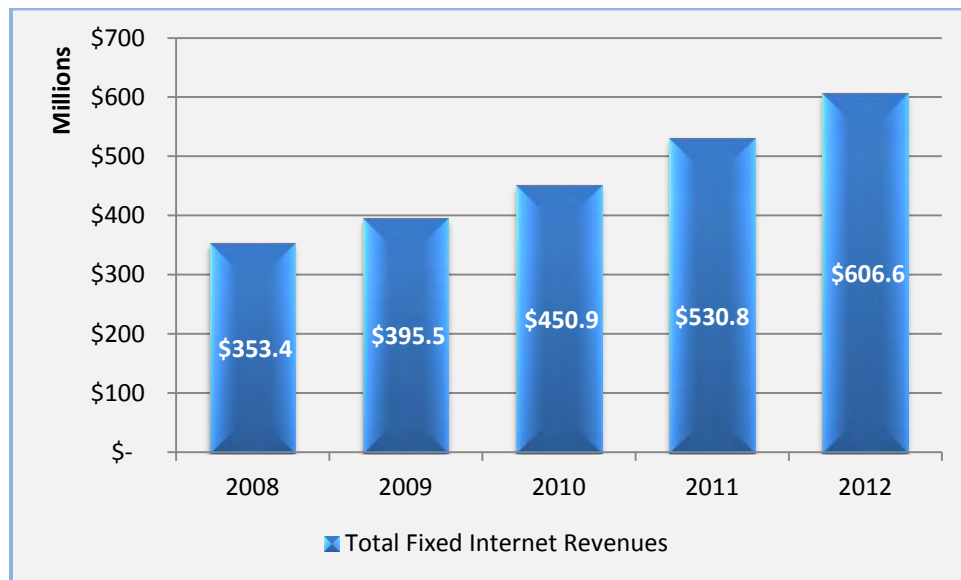
The individual categories of fixed and mobile Internet revenues are discussed below.

5.3.1 Fixed Internet Revenues

For the period under review, the total estimated gross revenues for the fixed Internet market stood at TT \$606.6 million, an increase of TT \$75.7 million or 14.3 per cent over the revenues reported in 2011. Of this amount, narrowband Internet accounted for TT \$6.4 million and broadband Internet contributed TT \$600.1 million.

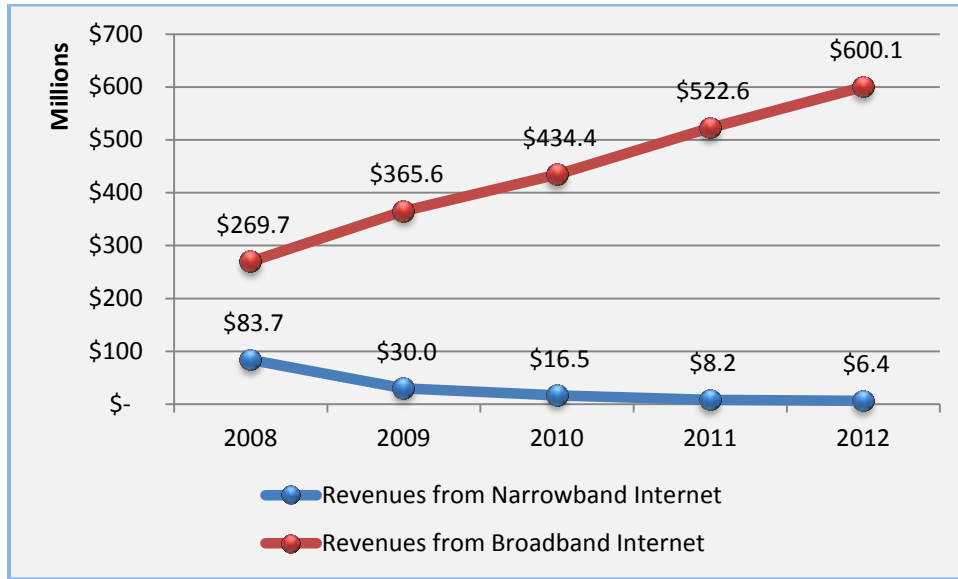
As the migration of subscriptions from narrowband to broadband services continued in 2012, narrowband revenues declined by TT \$1.8 million or 21.6 per cent whereas broadband revenues rose by TT \$77.5 million or 14.8 per cent when compared to the 2011 period. Figure 78 shows the annual revenue trend in the fixed Internet market from 2008 to 2012 while Figure 79 presents narrowband revenues for the same period.

Figure 78: Fixed Internet Revenues – 2008 to 2012



Source: TATT

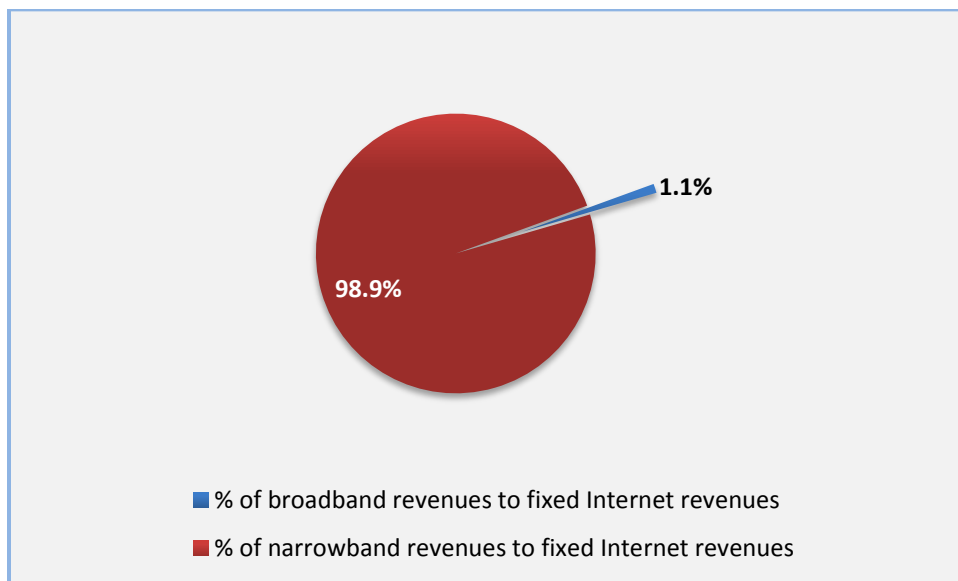
Figure 79: Revenues from Fixed Narrowband and Broadband Subscriptions – 2008 to 2012



Source: TATT

With broadband Internet being the predominant choice of service in the market, broadband contributed 98.9 per cent to total fixed Internet revenues while narrowband contributed only 1.1 per cent. Figure 80 portrays the revenue percentage contributions for 2012.

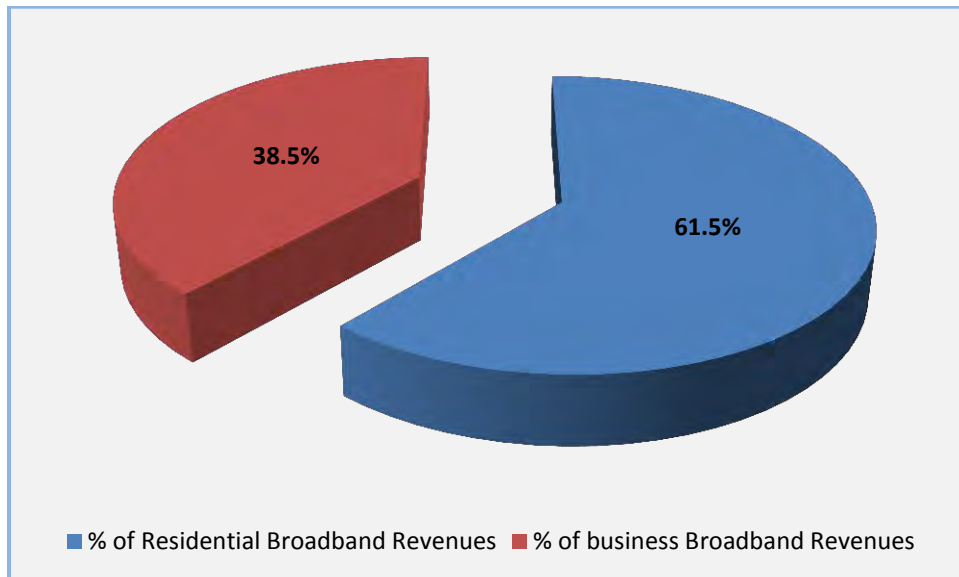
Figure 80: Percentage of Narrowband and Broadband Revenues to Total Fixed Internet Revenues 2012



Source: TATT

From total fixed broadband revenues, residential broadband subscriptions contributed TT \$321.3 million or 61.9 per cent, whilst revenues from business broadband subscriptions totalled TT \$201.3 million or 38.1 per cent. Figure 81 illustrates.

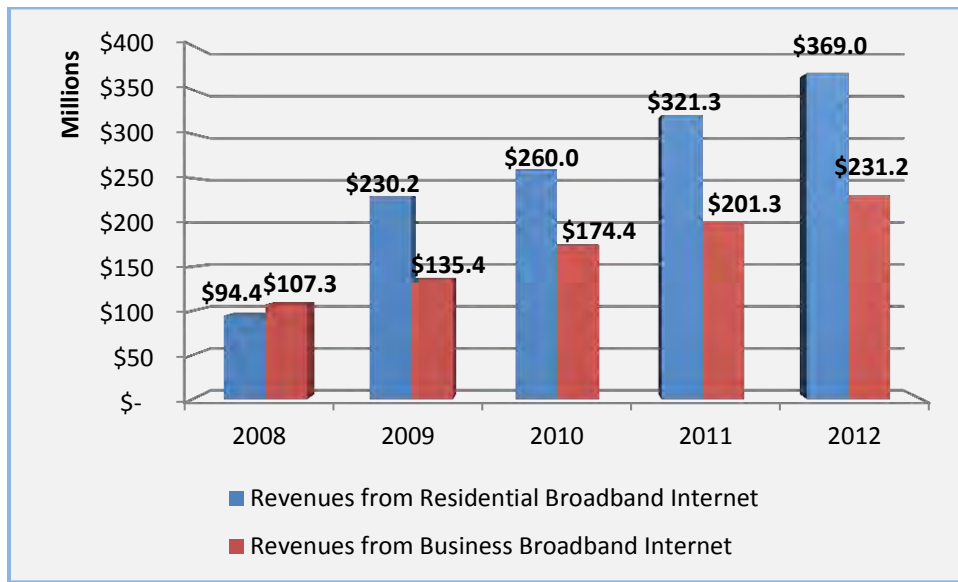
Figure 81: Broadband Revenues by Residential and Business 2012



Source: TATT

Residential and business fixed broadband revenues experienced the same growth rate in 2012. Following a 23.6 per cent growth rate in 2011, residential fixed broadband Internet revenues increased by 14.8 per cent to TT \$369.0 million in 2012. Similarly, business fixed broadband revenues also increased by 14.8 per cent to TT \$231.2 million in 2012. Figure 82 shows revenues from residential and business broadband subscriptions over the last five years.

Figure 82: Revenues from Residential and Business Fixed Broadband Subscriptions – 2008 to 2012

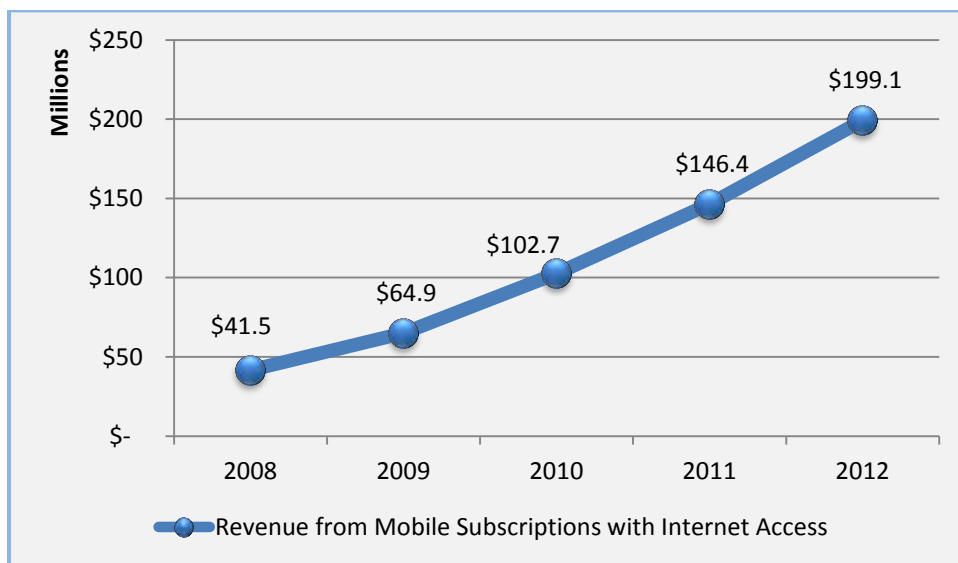


Source: TATT

5.3.2 Mobile Internet Revenues

Total gross revenues for the mobile (prepaid and postpaid) Internet market continued its strong growth trend in 2012. Mobile Internet revenues generated TT \$199.1 million, increasing by TT \$52.7 million or 36.0 per cent over 2011. Figure 83 highlights the annual trend for total revenues received from mobile subscriptions with Internet access.

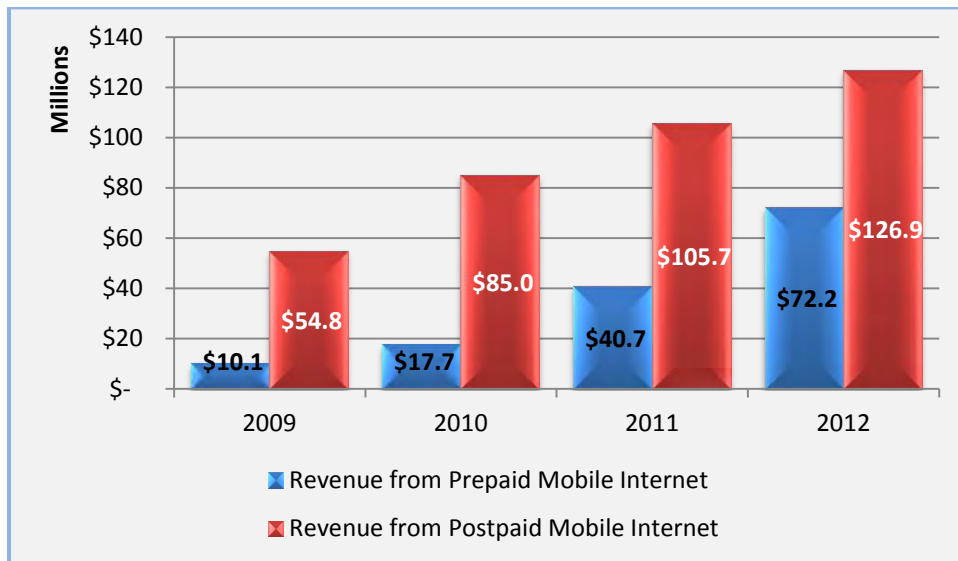
Figure 83: Total Mobile Internet Revenues – 2008 to 2012



Source: TATT

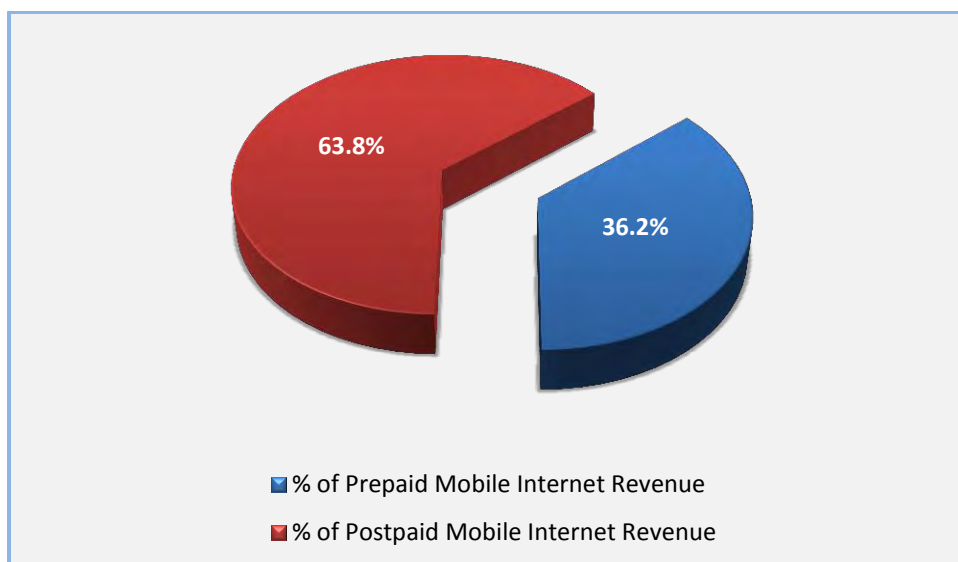
Prepaid subscriptions with Internet access contributed TT \$72.2 million, or 36.2 per cent to total mobile Internet revenues, while postpaid subscriptions accounted for TT \$126.9 million or 63.8 per cent. Figure 84 shows the separation of mobile Internet revenues into prepaid and postpaid from 2009 to 2012, while Figure 85 depicts the percentage revenue contributions of the individual prepaid and postpaid categories for 2012.

Figure 84: Revenues from Prepaid and Postpaid Mobile Internet Subscriptions – 2009 to 2012



Source: TATT

Figure 85: Percentage of Prepaid and Postpaid Revenues to Mobile Internet Revenues 2012

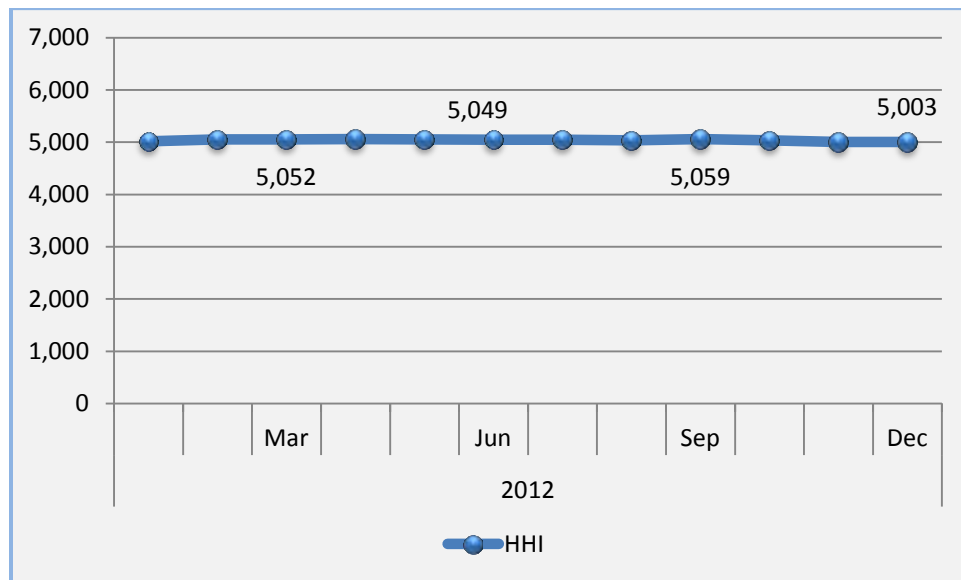


Source: TATT

5.4 Fixed Internet Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the fixed Internet market⁵⁴ of Trinidad and Tobago for 2012. The average HHI for this market stood at 5039 in 2012 decreasing by 0.2 per cent from 2011. As reflected in Figure 86 the HHI remained relatively stable throughout the 2012 period, peaking in the first quarter. Following a downward trend in the HHI in 2008 and 2009, the HHI has been relatively stable over the last three years implying that there have been little movements in level of concentration in the fixed Internet market. This is illustrated in Figure 87.

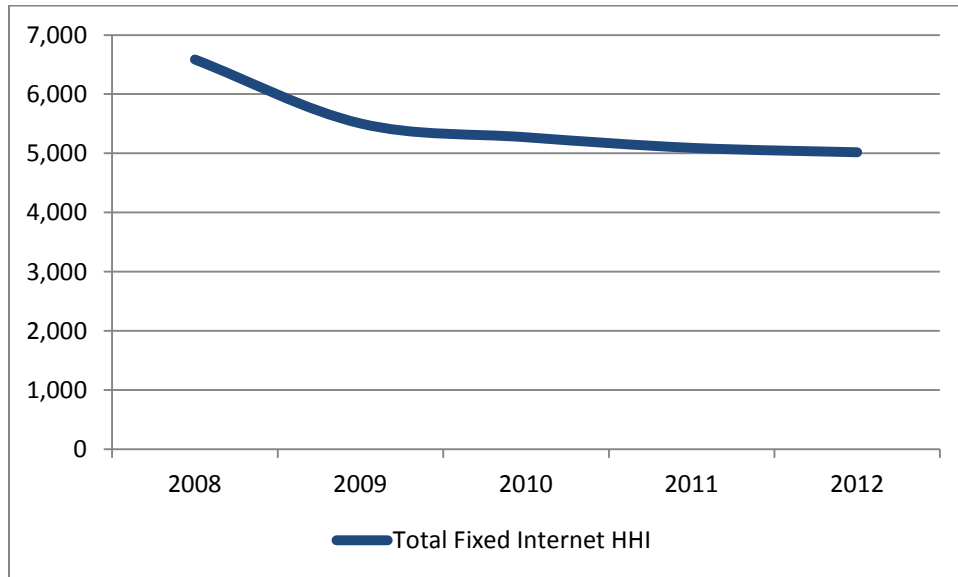
Figure 86: Hirschman-Herfindahl Index of Fixed Internet Market January–December 2012



Source: TATT

⁵⁴ Subscriber market share was used in the calculation of the HHI.

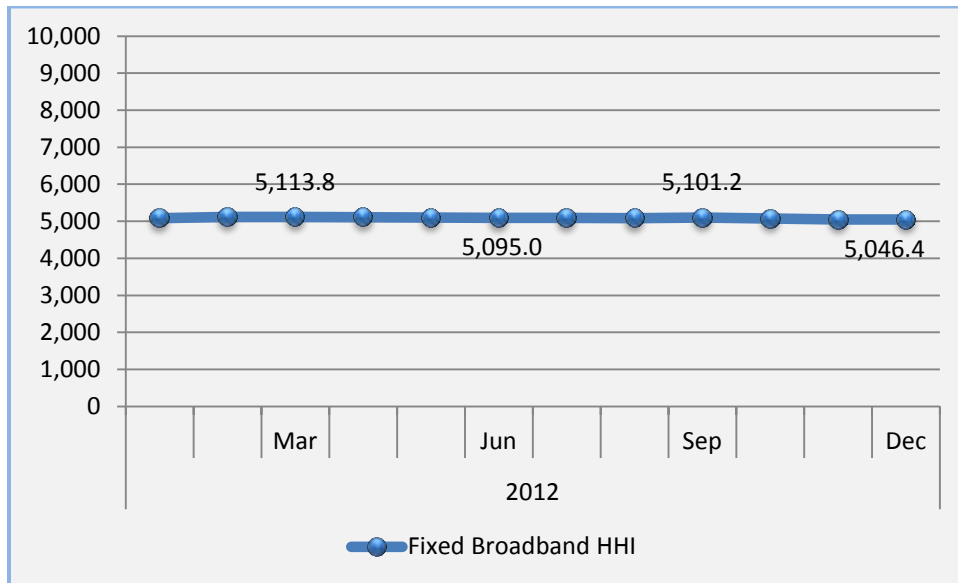
Figure 87: HHI of Total Fixed Internet Services – 2008 to 2012



5.4.1 HHI for Broadband and Narrowband Services

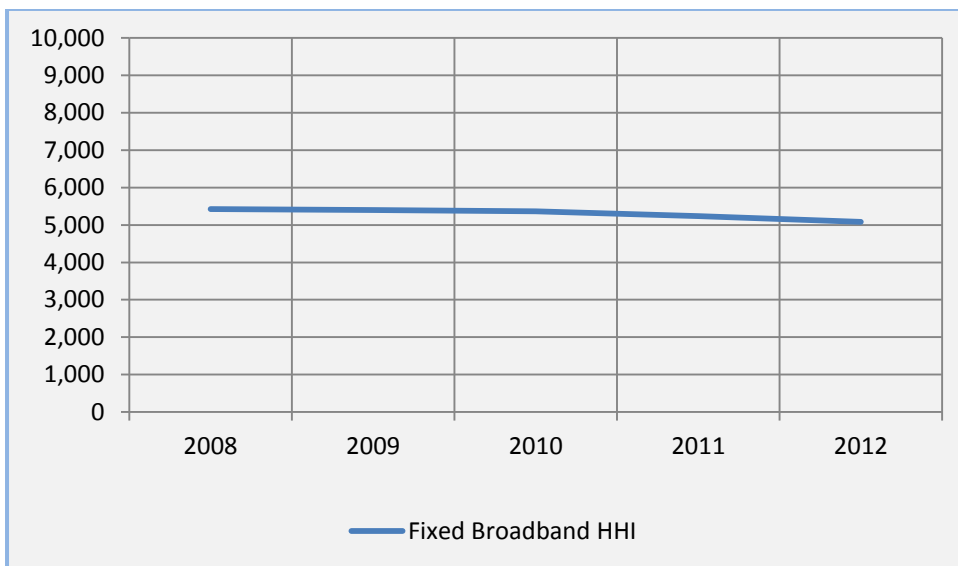
The HHI was separately examined for the fixed broadband market and the fixed narrowband market. The calculation for fixed broadband services showed an average HHI of 5089 in 2012 decreasing by 1.5 per cent. Although the HHI results for fixed broadband services decreased minimally from the first quarter to the fourth quarter of 2012, as Figure 88 below depicts, it remained relatively stable during the year. The HHI in the fixed Broadband Internet market has been relatively stable over the last five years, with a slight downward movement being observed in 2012. This is illustrated in Figure 89.

Figure 88: 2011 HHI for Fixed Broadband Services 2012



Source: TATT

Figure 89: HHI of Fixed Broadband Services - 2008 to 2012

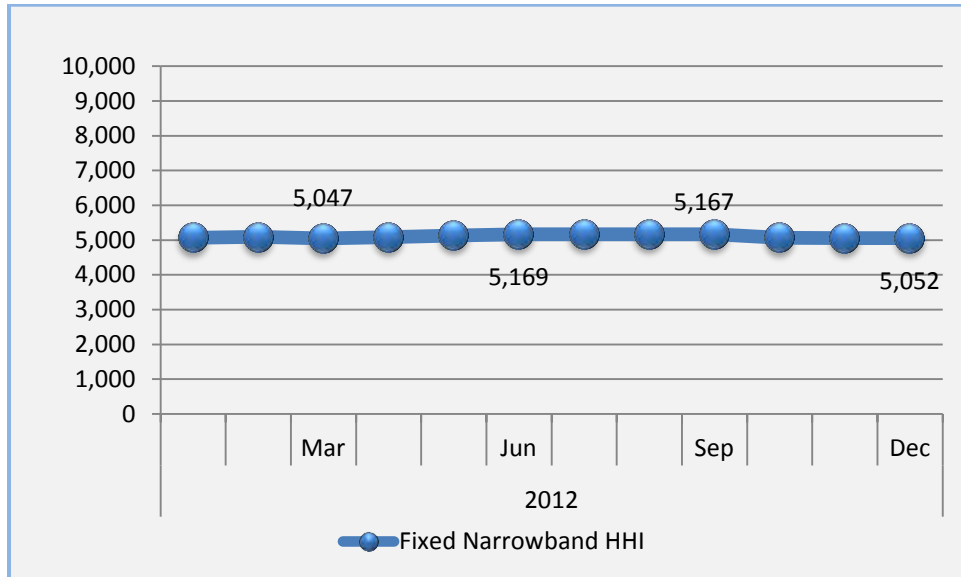


Source: TATT

The fixed narrowband Internet market recorded an average HHI of 5107 in 2012 increasing by 2.1 per cent. The level of concentration, as measured by the HHI, fluctuated in 2012 reaching a high of 5169 in the second quarter and a low of 5012 in the fourth quarter. Figure 90 illustrates the narrowband HHI trends throughout the year. The level of concentration in the fixed

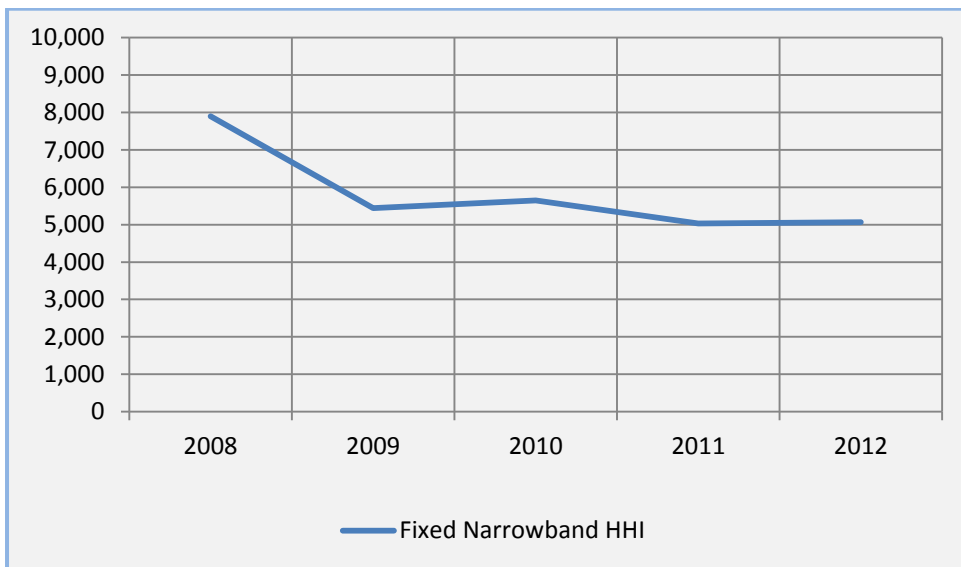
narrowband market remained relatively unchanged from 2011 to 2012. However, several fluctuations were observed for the period 2009 to 2011. Figure 91 illustrates.

Figure 90: HHI for Fixed Narrowband Services 2012



Source: TATT

Figure 91: HHI of Fixed Narrowband Services – 2008 to 2012

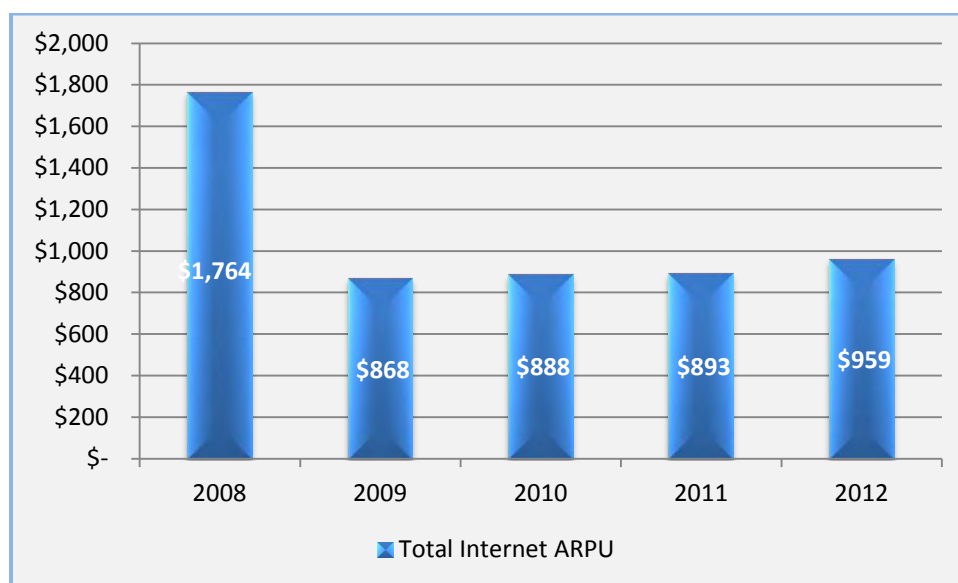


Source: TATT

5.5 Average Revenue per User

On average, Internet customers spent more for Internet services in 2012 as compared to 2011. During the review period, customers with Internet (fixed and mobile) subscriptions spent an average of TT \$959⁵⁵ in 2012 for Internet services, an increase of 7.4 per cent. For fixed Internet services, customers spent approximately TT \$2,706⁵⁶ during 2012. This represents a decrease of TT \$58 or 2.1 per cent in the average revenue per user (ARPU) over the amount recorded for 2011. For mobile Internet services, customers spent an average of TT \$323⁵⁷ in 2012. This represents an increase of TT \$65 or 25 per cent over the ARPU for mobile Internet recorded for 2010. Figure 92 and 93 show the ARPU trends for the individual categories over the last five years.

Figure 92: ARPU for Total Internet Services – 2008 to 2012



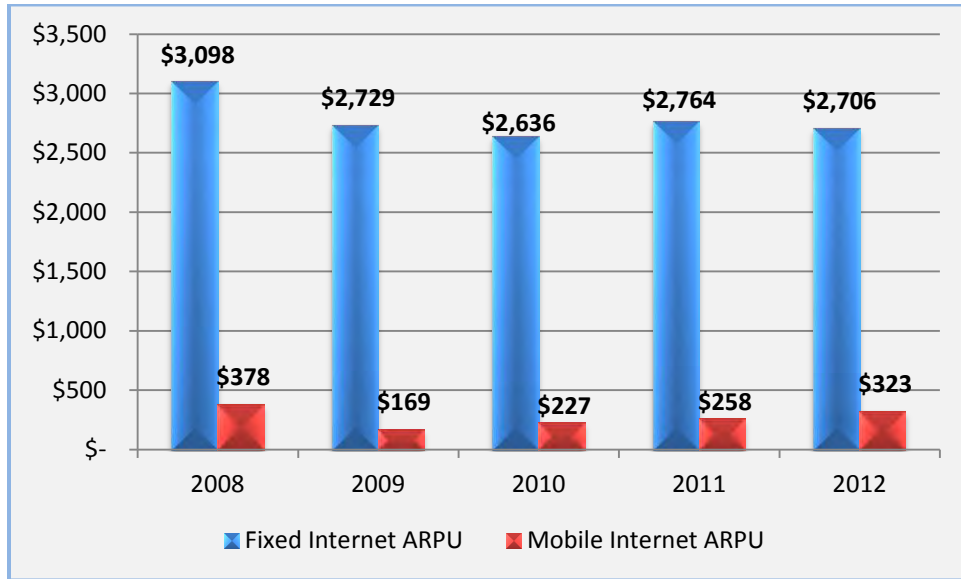
Source: TATT

⁵⁵ ARPU for fixed and mobile Internet subscriptions combined.

⁵⁶ 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)

⁵⁷ 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)

Figure 93: ARPU for Fixed and Mobile Internet Services – 2008 to 2012



Source: TATT

Key Market trends and Observations in the International Voice Market

- **4% decrease in both incoming and outgoing international voice minutes**
- **9% decrease in outgoing international voice revenues**
- **35% increase in incoming international voice revenues**

6. International Voice Traffic Data

In 2012, nine (9) concessionaires were authorised to provide international telecommunications services to the public, which included the provision of international voice services. These operators included:

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

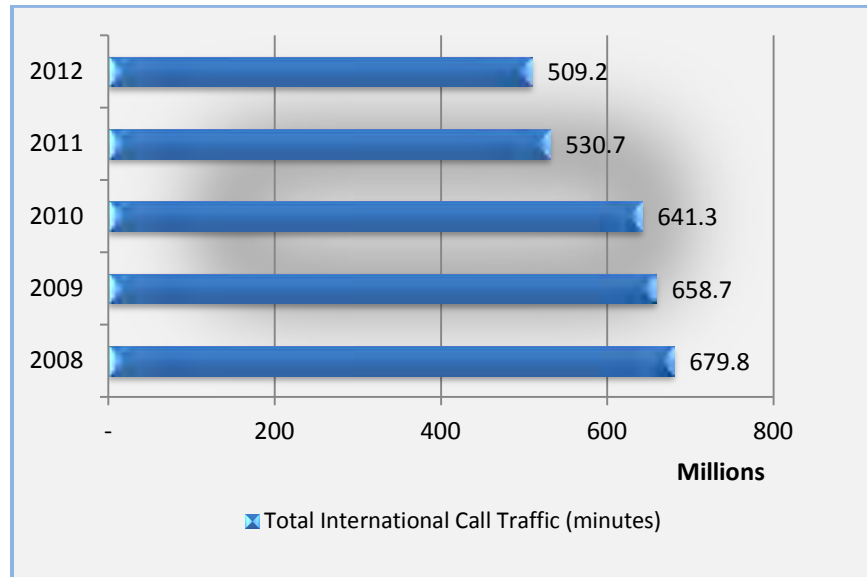
At the end of 2012, Green Dot Limited and Laqtel Limited were not operational in the international voice market and The Authority has not received any information of Windward Telecom's operation as of January 2011 in Trinidad and Tobago.

6.1 International Voice Traffic (Minutes)

For the review period, total traffic minutes for both incoming and outgoing international calls made via fixed and mobile networks was approximately 509.2 million minutes. When compared to 2011, total minutes decreased by 4.1 per cent or 21.5 million minutes. As seen in the Figure

94, the number of international minutes has been experiencing a downward trend over the last five years.

Figure 94: International Traffic (Minutes) –2008 to 2012



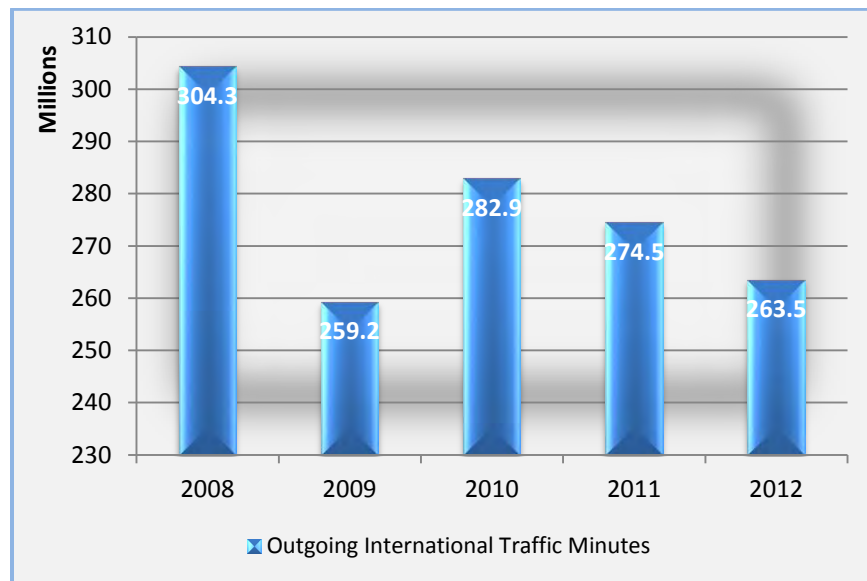
Source: TATT

The decrease in international minutes was observed for both incoming and outgoing minutes. Incoming traffic volumes continued to decline in 2012 following similar decreases in 2010 and 2011. As illustrated in Figure 95, incoming international traffic for 2012 was estimated at 245.7 million minutes, a decrease of 10.5 million minutes or 4.1 per cent. Similarly, a decrease in outgoing international traffic was also observed for the 2012 period. Outgoing international traffic was estimated to be 263.5 million minutes, a decrease of 11.0 million minutes or 4.0 per cent as Figure 96 illustrates. The decrease in the volume of international minutes may be indicative of consumers utilizing alternative technologies to conduct international communications.

Figure 95: Incoming International Traffic (Minutes) – 2008 to 2012



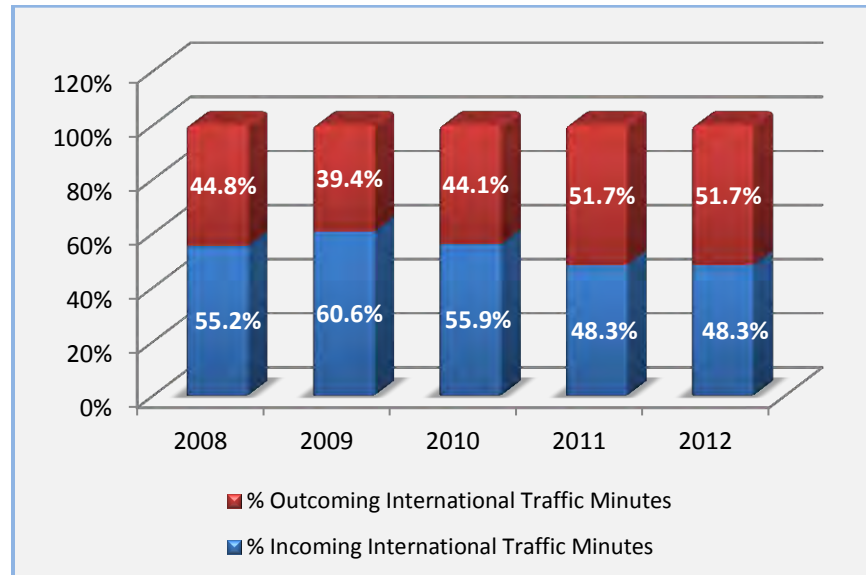
Figure 96: Outgoing International Traffic (Minutes) – 2008 to 2012



Source: TATT

The number of outgoing international minutes generated was greater than that of incoming minutes in 2012. Outgoing traffic accounted for 51.7 per cent of total international minutes; while incoming comprised the other 48.3 per cent. Figure 97 illustrates the proportion of incoming traffic compared to outgoing traffic over the past five years.

Figure 97: Incoming and Outgoing International Traffic (Minutes) - 2008 to 2012



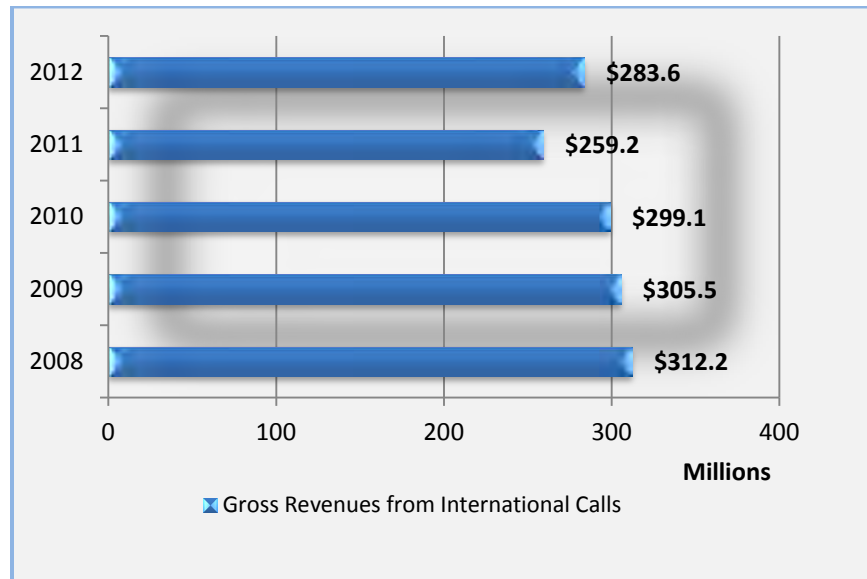
Source: TATT

6.2 International Traffic Revenues

Gross revenues⁵⁸ generated by international telecommunications voice services totalled TT \$283.6 million in 2012. Although the number of international minutes decreased, gross revenues in this market increased by approximately TT \$24.4 million or 9.4 per cent over the previous year. It was observed that the increase in gross international revenues was as a result of an increase in incoming revenues, as explained below. Figure 98 depicts the trend in revenues generated by the international voice market from 2008 to 2012.

⁵⁸ 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 (Minutes) – 2008 to 2012



Source: TATT

As indicated above, revenues generated from incoming voice traffic increased in 2012. Revenues earned from incoming traffic were estimated at TT \$160.6 million, an increase of TT \$49.1 million or 35.5 per cent when compared to 2011. It is noted that international incoming termination rates increased across the market in April 2012. It appears that this increase in rates coincided with a decrease in total incoming traffic, as shown in Figure 95 above. However, the increase in incoming international revenues suggests that the percentage increase of the minimum international incoming termination rates was more than proportional to the rate of decrease in total incoming traffic. Figure 99 shows the five year trend for international incoming revenues.

Figure 99: Revenues from Incoming International Traffic (Minutes) – 2008 to 2012



Source: TATT

Revenues received from outgoing international traffic totalled TT \$142.5 million in 2012, decreasing by TT \$14.4 million or 9.0 per cent over the last period. Outgoing international voice revenues over the past five years is depicted in Figure 100.

Figure 100: Revenues from Outgoing International Traffic (Minutes) – 2008 to 2012



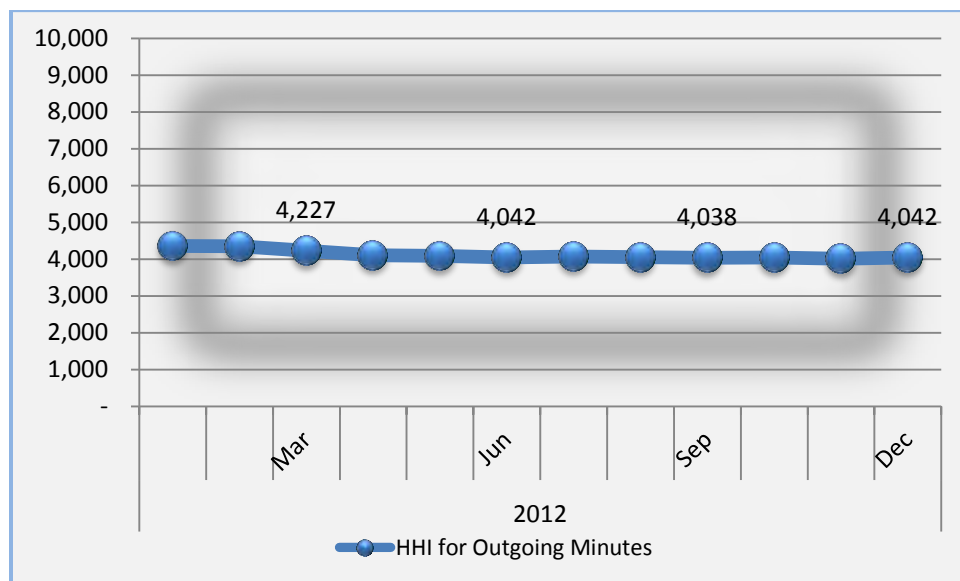
Source: TATT

6.3 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 2012. The market share used in the calculation of the HHI was defined in terms of number of international outgoing and incoming minutes generated by the service providers.

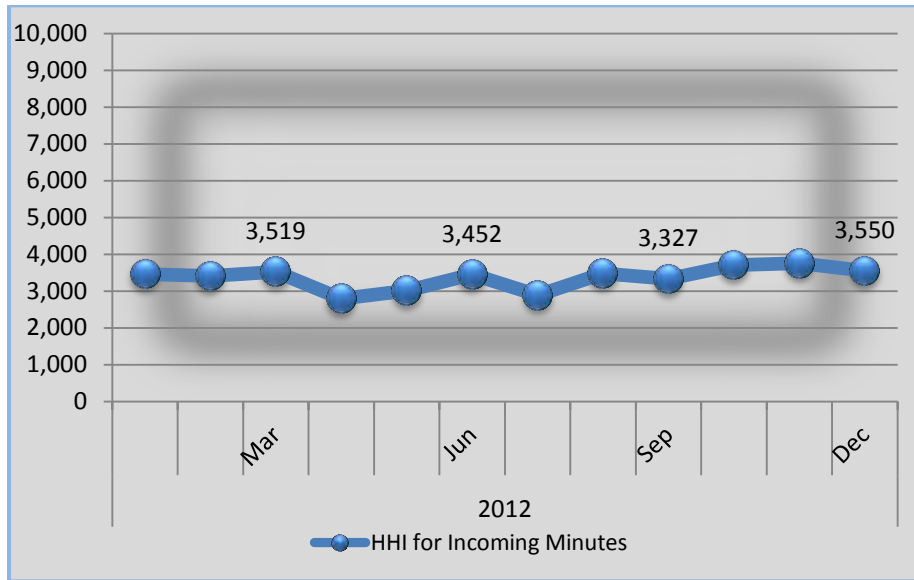
As outlined in Figures 101 and 102 below, during 2012 the level of concentration in the outgoing international voice market remained relatively stable while the incoming market experienced a few fluctuations. The HHI for the outgoing market was calculated as 4042 compared to 3550 for the incoming market. This implies that the incoming market is more competitive than the outgoing.

Figure 101: Hirschman-Herfindahl Index of International Outgoing Minutes - 2012



Source: TATT

Figure 102: Hirschman-Herfindahl Index of International Incoming Minutes - 2012



Source: TATT

Box 2: Global Telecommunications Trends

Ever wondered what the ICT world would look like at the end of 2013? The ITU in its ‘The World in 2013: ITU Facts and Figures’ publication has estimated the level of key ICT indicators. According to the ITU, the uptake of ICTs will continue on its growth path in 2013 with the following key indicators expected in 2013:

- ✓ 6.8 billion mobile cellular subscriptions
- ✓ Mobile cellular penetration rates stand at 96% globally, 128% in developed countries, and 89% in developing countries
- ✓ 2.7 billion people – almost 40% of the world’s population are online
- ✓ In the developing world, 31% of the population is online, compared with 77% in the developed world.
- ✓ 750 million households – 41% globally connected to the Internet

Source: International Telecommunications Union - <http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf>

Key Market Trends and Observations in the Broadcasting Market

- **Free-to-air Television and Radio revenues increased by 9.5 and 4.1% respectively**
- **Subscription TV Subscriptions increased by 12.9%**
- **There are 199,000 subscribers to subscription TV services**
- **15 out of every 100 persons and 48 out of every 100 households subscribe to subscription TV.**

7. Broadcasting Market Data

As at December 31st 2012, there were nine concessions in the free-to-air TV market, ten in the subscription television market, thirty-eight in the free-to-air radio market and two concessions providing television broadcasting services via cable. Table 4 below gives a breakdown of the number of concessions in the broadcasting market from 2008 to 2012.

Table 4: Number of Concessions in the Broadcasting Market – 2008 to 2012

Types of Broadcasting Concessions	Number of Concessions				
	2008	2009	2010	2011	2012
Free-to-air Television	9	9	9	9	9
National ⁵⁹	6	6	6	6	6
Major Territorial ⁶⁰	3	3	3	3	3
Subscription Television	8	8	9	9	10
National ⁶¹	4	4	4	4	4
Major Territorial	1	1	1	1	1
Niche ⁶²	2	2	3	3	4
Minor Territorial	1	1	1	1	1

⁵⁹ A national network/ service provider provides its network and/or service to 100% of the geographical area of both Trinidad and Tobago.

⁶⁰ A major territorial network/ service provider provides its network and /or service to 100% of the geographical area of the island of Trinidad.

⁶¹ A minor territorial network/ service provider provides its network and/ or service to 100% of the geographical area of the island of Tobago.

⁶² A niche network/ service provider provides its services to specific groups of subscribers identified by the Authority in either island of Trinidad or Tobago.

	Number of Concessions				
Types of Broadcasting Concessions	2008	2009	2010	2011	2012
TV Broadcasting via Cable					
National	1	1	1	1	2
Free-to-air Radio	37	37	37	37	38
National	30	30	30	30	30
Major Territorial	6	6	6	6	6
Minor Territorial	1	1	1	1	2
Total	55	55	56	56	59

Source: TATT

7.1 Free-to-Air Television Broadcasting Market

In 2012, 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 Information Services Limited (GISL).

In addition to the above, the following concessionaires provide television broadcasting services via cable:

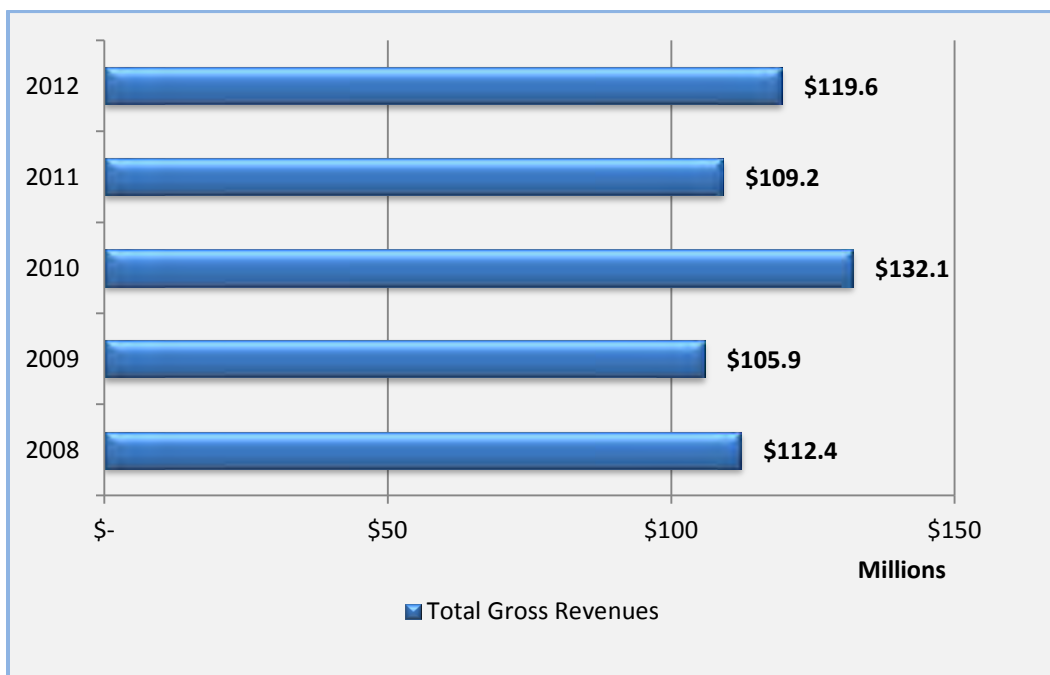
- IETV Limited
- IBN Communications Company Limited

This section provides information on the performance of both the free-to-air market and the television broadcasting services via cable. Thus, all references to free-to-air television below include free-to-air market and the television broadcasting services via cable.

7.1.1 Free-to-air Television Revenues

Gross revenues in the free-to-air television market increased in 2012. Total gross revenues for this market stood at TT \$119.6 million, increasing by 9.5 per cent over the previous year. As Figure 103 shows, revenues for the free-to-air television broadcasting market fluctuated over the past five years.

Figure 103: Gross Revenues for FTA Television Broadcasting Service Providers – 2008 to 2012

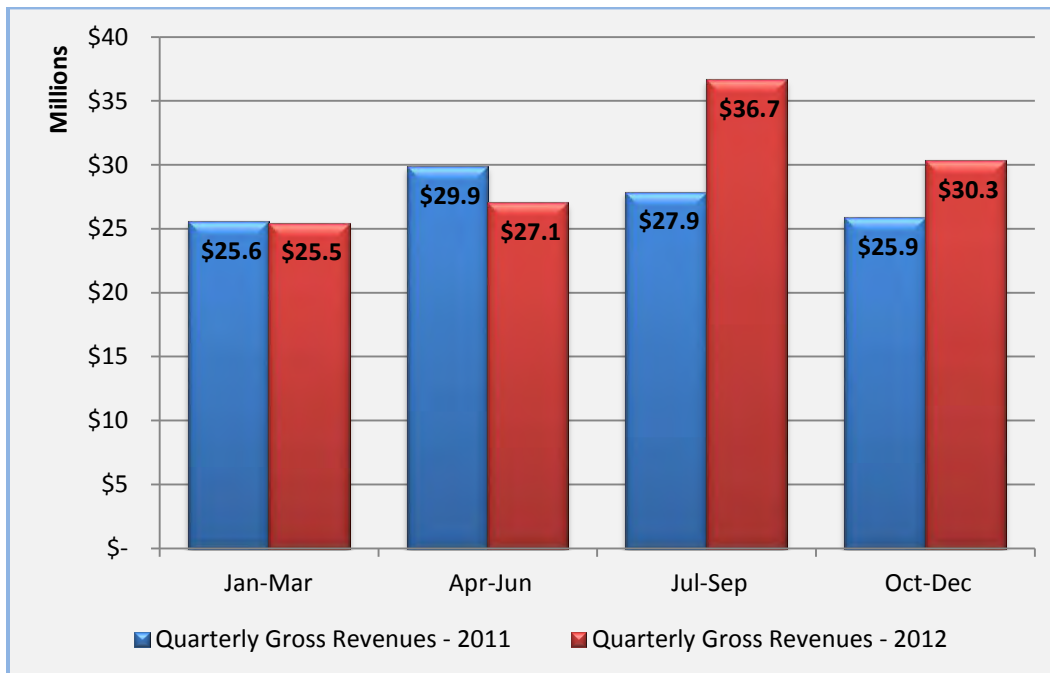


Source: TATT

On a quarterly basis, a general upward trend was observed with revenues peaking in the third quarter. The free-to-air television market generated \$36.7 million in the third quarter. Compared to 2011, the free-to-air market performed better in the second half of 2012 than the first half of 2012 as revenues generated in the third and fourth quarter were noticeably higher. Revenues in

the third quarter of 2012 totalled \$36.7 million, increasing by 32.0 per cent over the previous period. Similarly, revenues in the fourth quarter of 2012 totalled \$30.3 million, increasing by 17.3 per cent over the previous period. On average the free-to-air television market generated approximately TT \$29.9 million per quarter of 2012. Figure 104 illustrates.

Figure 104: Quarterly Gross Revenues FTA Television Service Providers 2011 and 2012



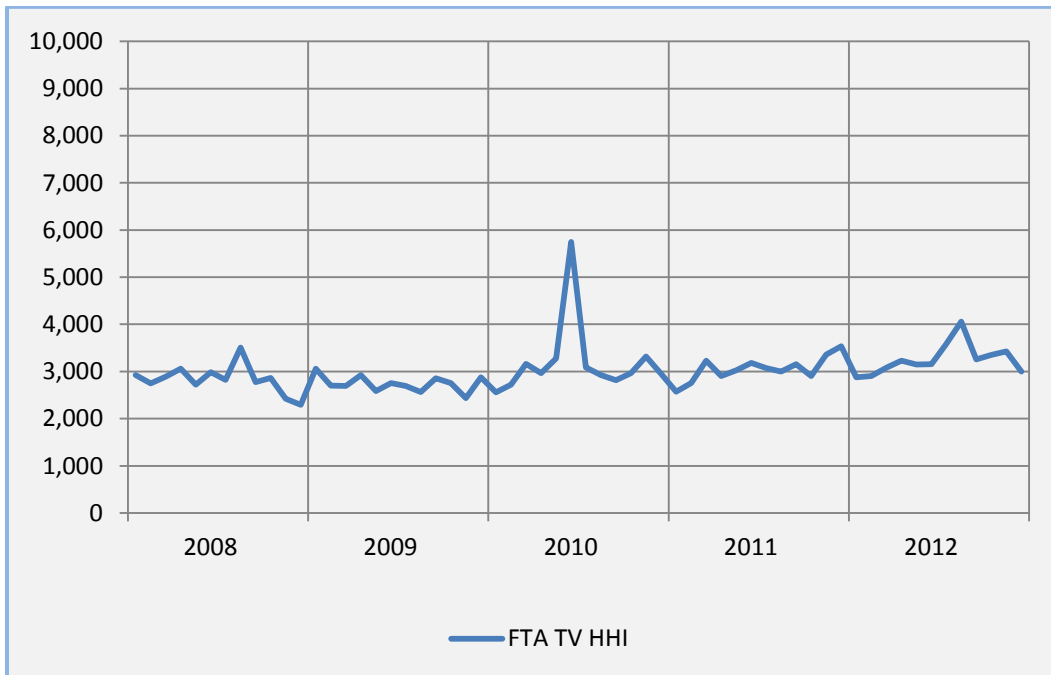
Source: TATT

7.1.2 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 market⁶³. Over the five year period 2008 to 2012, the HHI in the free-to-air television market experienced several minor fluctuations, with the exception of 2010 which experienced a sharp increase (Figure 105 illustrates). During 2012, the free-to-air television market recorded an average HHI of 3256, increasing by 244 points as compared to 2011. This suggests that the free-to-air television market was less concentrated in 2012 compared to 2011. It was observed that the HHI experienced a spike in the third quarter. Figure 106 shows the HHI values for this market in 2012.

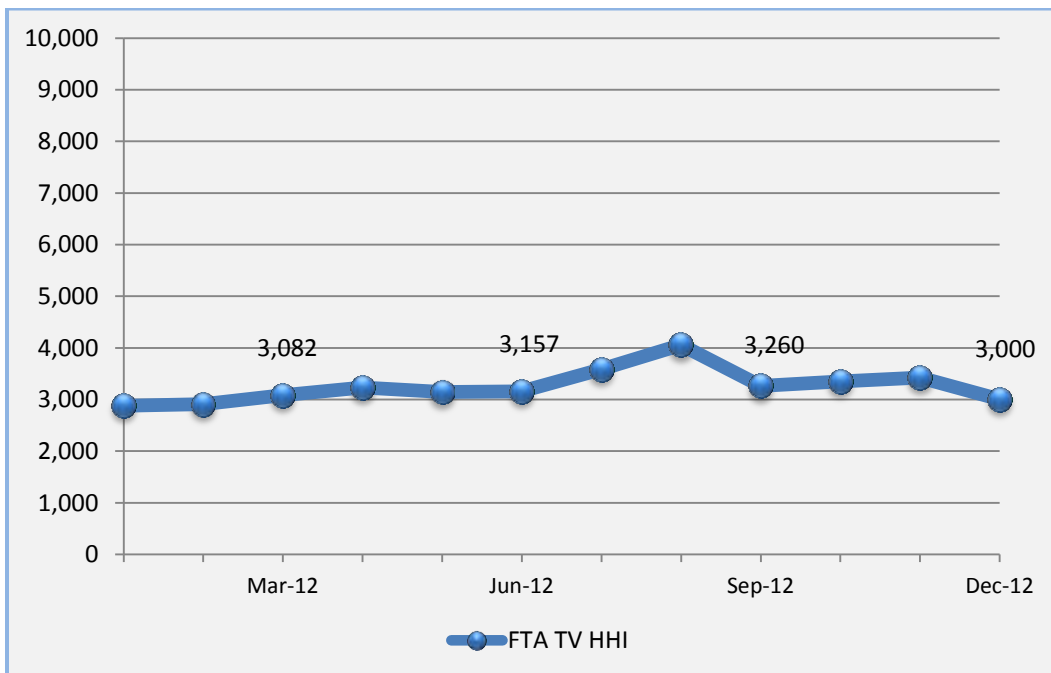
⁶³ The revenue market share was used in the calculation of the HHI

Figure 105: HHI for FTA Television Market 2008 to 2012



Source: TATT

Figure 106: HHI for FTA Television Broadcasting Market - 2012



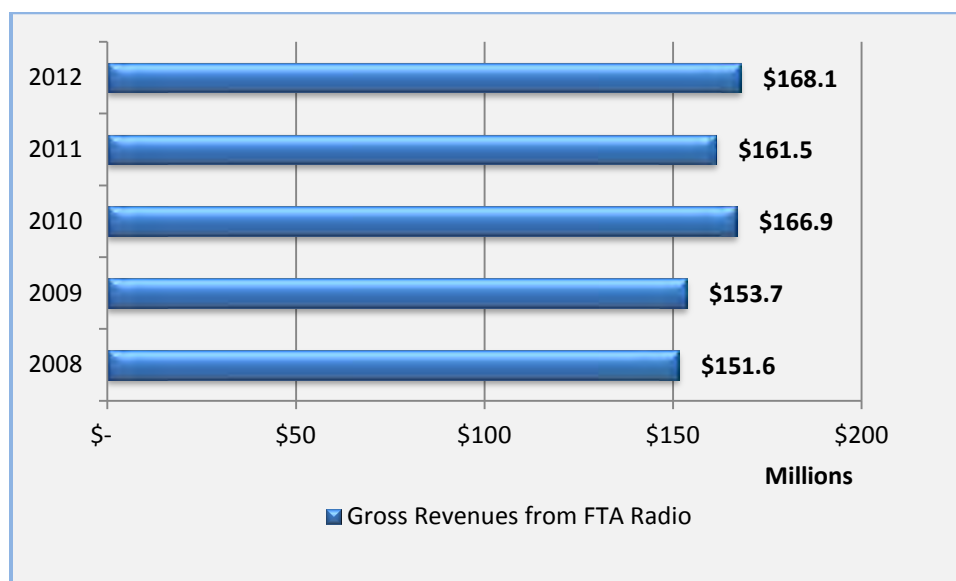
Source: TATT

7.2 Free-to-Air Radio Broadcasting Market

In 2012, the free-to-air (FTA) radio broadcasting market consisted of one (1) AM and thirty seven (37) FM concessions. Only one concessionaire, Trico Industries, was not operational as at December 2012. Trico Industries was granted a minor territorial concession to provide free-to-air radio services to Tobago on October 11th 2012. It is noted that some concessionaires hold more than one concession and as a result operate more than one radio station.

During 2012, free-to-air radio broadcasting market earned an estimated TT \$168.1 million⁶⁴ in gross revenues. This represents a 4.1 per cent, or TT \$6.6 million increase over the previous year. Figure 107 compares gross revenues from 2008 to 2012.

Figure 107: Gross Revenues for FTA Radio Service Providers – 2008 to 2012



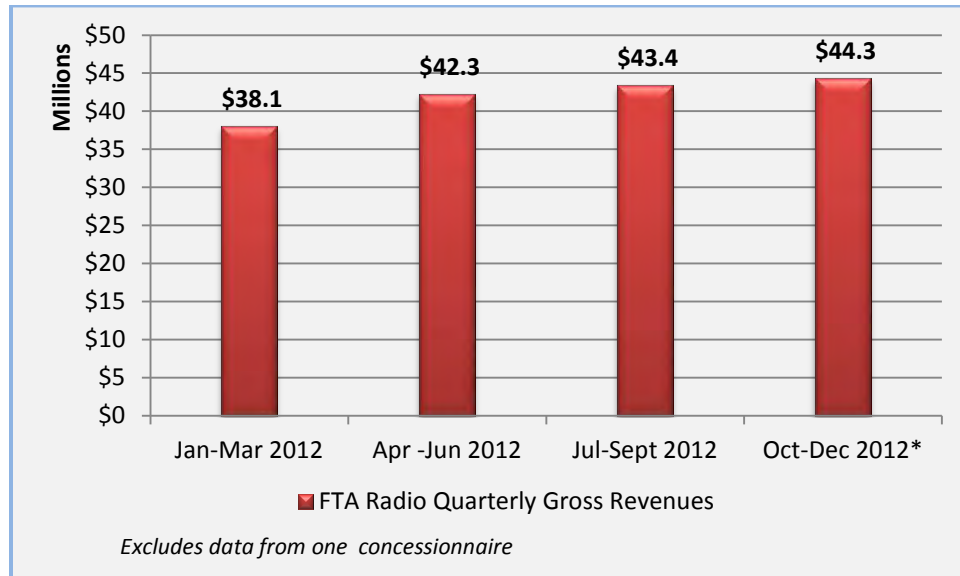
Source: TATT

Figure 108 highlights quarterly gross revenues earned by concessionaires in the Free-to-air radio market in 2012. Steady increases were observed during 2012, with revenues peaking in the fourth quarter. Gross revenues generated in the first quarter totalled TT \$38.1 million increasing

⁶⁴ Excludes data from one concessionaire for the fourth quarter of 2012

to TT \$42.3 million in the second quarter. Subsequently, gross revenues peaked in the fourth quarter with TT \$44.3 million. On average the free-to-air radio market generated approximately TT \$42.0 million per quarter of 2012.

Figure 108: Quarterly Gross Revenues for FTA Radio Service Providers - 2012



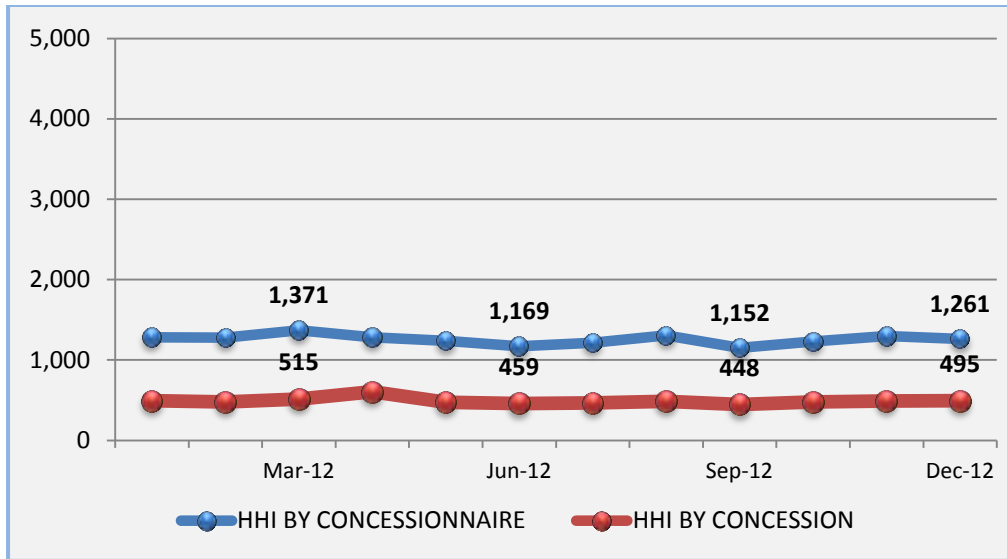
Source: TATT

7.2.1 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 market⁶⁵ based on the number of concessions as well as on the number of concessionaires in the market. The result, as illustrated in Figure 109, revealed that there was an average HHI of 497 based on the number of *concessions* in the market. Based on the number of *concessionaires* in the market, an average HHI of 1276 was calculated. A comparison of these two HHIs indicates that, based on the number of concessionaires, the market is more concentrated than one based on the number of concessions.

Figure 109: HHI in the Free-to-air Radio Broadcasting Market - 2012

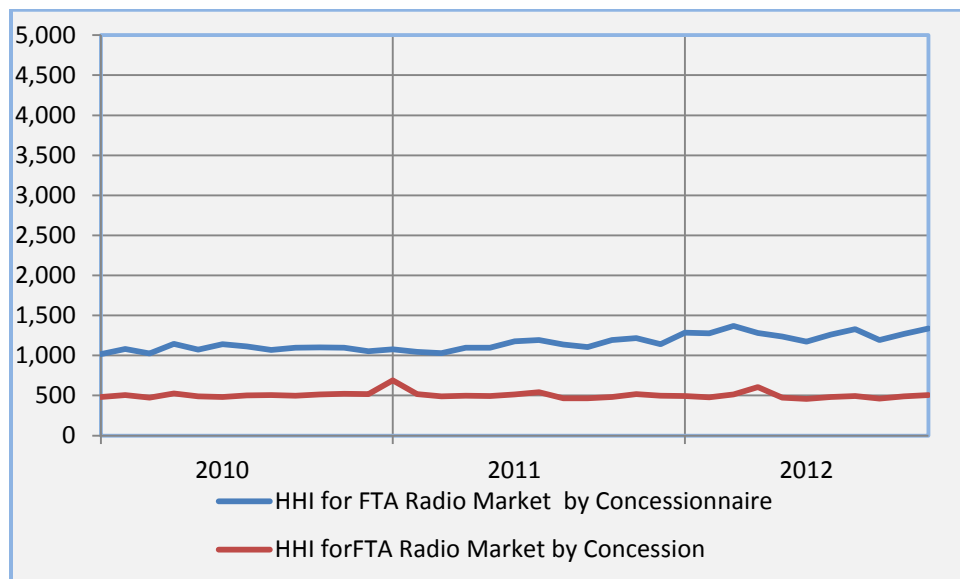
⁶⁵ The revenue market share was used in the calculation of the HHI



Source: TATT

Over the past three years, the HHI in the free-to-air radio market has been relatively stable, with a decrease being observed in 2012. Based on the number of concessions in the market, the HHI value decreased from an average of 514 in 2011 to 497 in 2012. Based on the number of concessionaires in the market, the average HHI value increased from 1124 in 2011 to 1276 in 2012. Figure 110 illustrates.

Figure 110: HHI in the Free-to-air Radio Broadcasting Market – 2010 to 2012



Source: TATT

Mergers & Acquisitions 2012

One Caribbean Media (OCM)

On July 16 2012 OCM's subsidiary, GEM Radio- a Broadcasting concessionaire, received the Authority's approval for the transfer of four national FTA radio operators' concessions under its control. This effectively formalized OCM acquisition of four radio frequencies which had been publicly announced approximately three (3) months prior. This acquisition moreover increased GEM Radio's market share and supports the HHI's results of the Concessionaires and Concession holders in 2012 which diverged, increasing in the case of the former and decreasing in that of the latter. It was also observed that within the three (3) month period following public announcement of the acquisition OCM stock prices jumped 32.5% peaking at TT\$16.10 on 25.07.2012 (source TTSE).

Guardian Media Limited (GML)

Comparing with 2011, the Broadcasting sector witnessed the acquisition of Wonderland Entertainment Limited (WEL)-a FTA radio concession holder, by Concessionaire Guardian Media Limited (GML). The Authority granted approval for the transfer of control of WEL's concession to GML on 27.05.2011. The market responded similarly albeit less pronounced, as the HHI of Concessionaires increased slightly over the year, while the HHI of concession holders decreased over the month of the approval, but overall, increased in 2011 due to other overwhelming factors. This softer impact is reasonable due to the fact that GML only gained one additional concession from taking over WEL as compared to GEM which acquired four (4) concessions in its acquisition. Also less pronounced was the acquisitions impact on the company's stock prices. GML's stock prices remained largely flat throughout the two-month period following public announcement of the acquisition.

7.3 Subscription Television ('Pay TV') Broadcasting Market

For the 2012 period, the Subscription TV market comprised the following ten authorised and operational service providers. It is noted that Diversified Technologies Limited was granted a niche concession on October 11th 2012.

Table 5: List of Subscription TV Providers 2012

Name of Provider	Technology Used	Authorised Coverage Area
1. Columbus Communications Trinidad Limited (CCTL)	Analogue and Digital cable	National
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	Major Territorial
6. TRICO Industries Limited	Analogue cable	Minor Territorial
7. RVR International Limited	Analogue cable	Niche - Princes Town and Rio Claro
8. Network Technologies Limited	Analogue cable	Niche-Mayaro and Guayaguayare
9. Airlink Communications	Analogue cable	Niche - Mayaro and Rio Claro
10. Diversified Technologies Limited ⁶⁶	Analogue cable	Niche - Penal and Eviron

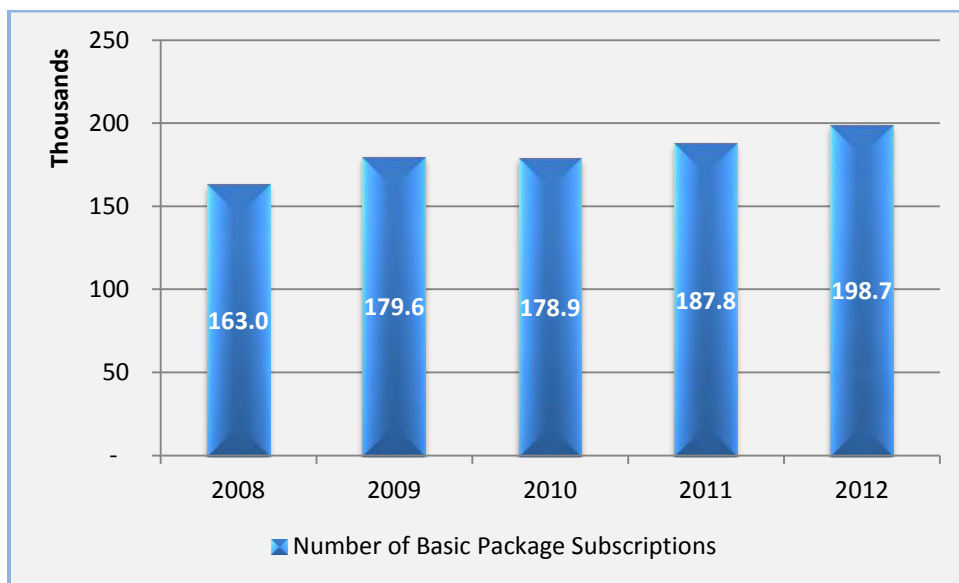
⁶⁶ Diversified Technologies Limited was granted a concession on October 11th 2012 and thus this report excludes information from this concessionaire.

7.3.1 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 2012, the total number of subscriptions to basic Subscription TV services stood at approximately 198.7 thousand, an increase of 10.9 thousand subscriptions or a 5.8 per cent increase when compared to December 2011. Figure 111 shows the trend in subscriptions to Subscription TV for the period 2008 to 2012.

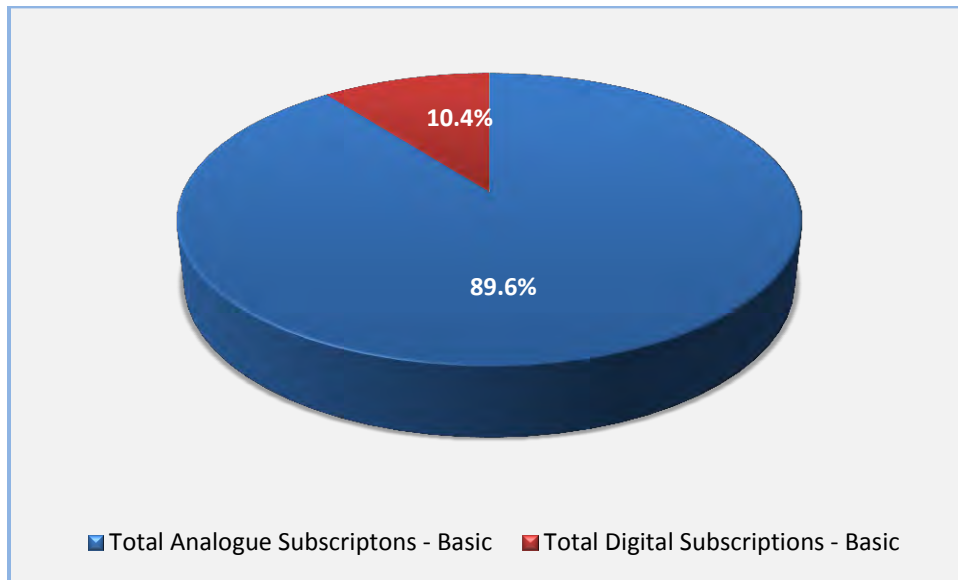
Figure 111: Number of Subscription TV Subscriptions (Basic Package Subscriptions) - 2008 to 2012



Source: TATT

Of the total number of subscriptions, analogue subscriptions represented 20.8 thousand or 10.4 per cent, whilst digital subscriptions contributed 178.0 thousand or 89.6 per cent. Figure 112 below presents a percentage breakdown of the number of Subscription TV subscriptions by platform for 2012.

Figure 112: Subscription TV Subscriptions (Basic Package Subscriptions) by Platform for 2012



Source: TATT

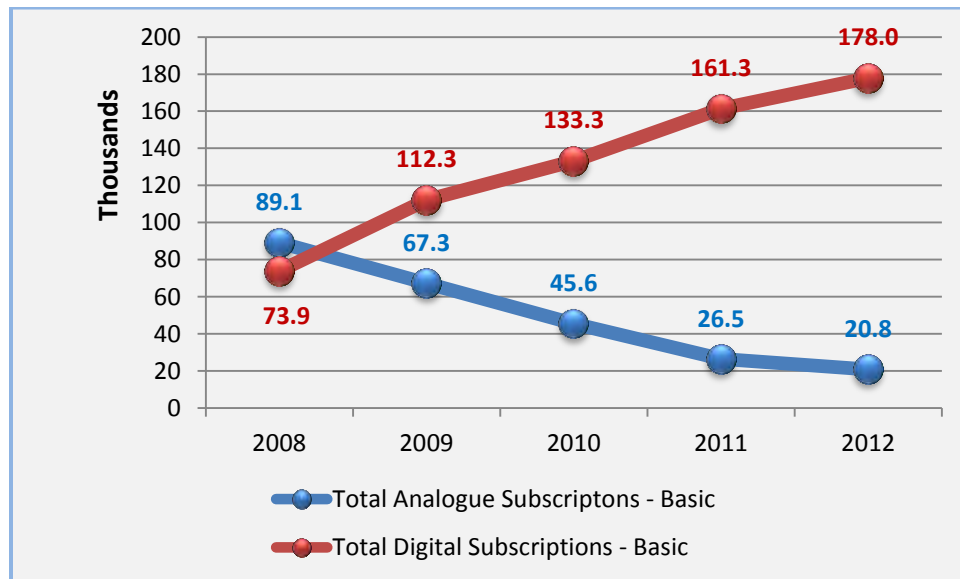
Digital subscriptions increased by 16.6 thousand or 10.3 per cent from 2011 to 2012 as it continued to comprise the larger share of subscriptions. Analogue subscriptions, however, decreased by 5.7 thousand or 21.6 per cent for the same period under review. This noticeable trade-off between digital and analogue subscriptions may be attributed to digital subscription TV providers continued expansion of their services. This annual change in subscribership via platform is shown in Table 6 and illustrated in Figure 113.

Table 6: Growth Rate of Subscription TV Subscriptions by Platform 2012

Type of Platform	Number of Basic Subscription TV Subscriptions -2012 (*000)	Percentage change between 2011 and 2012
Analogue	20.8	(21.6 %)
Digital	178.0	10.3 %

Source: TATT

Figure 113: Subscription TV Subscriptions by Platform – 2008 to 2012

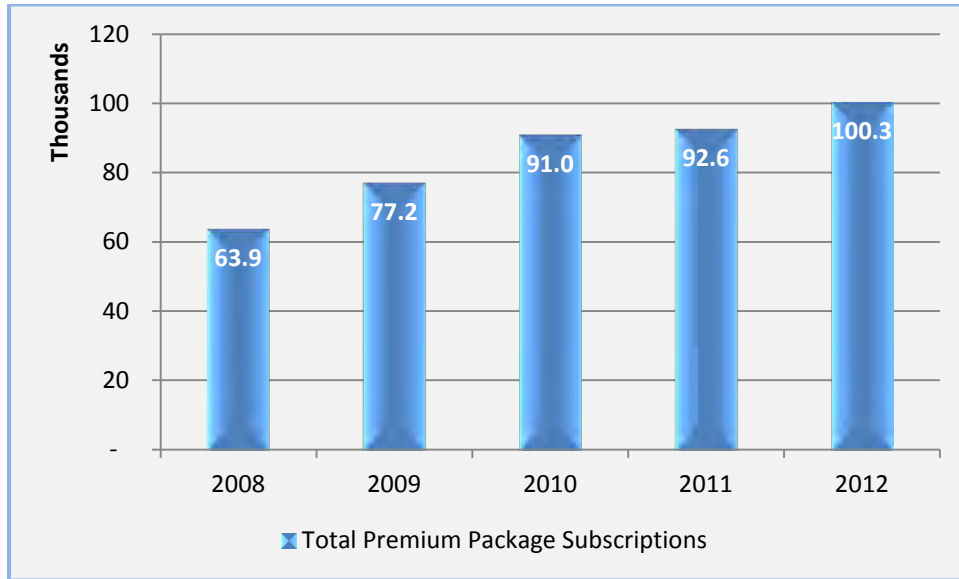


Source: TATT

7.3.2 Premium Packages Subscriptions

As mentioned in the previous section, all subscription television 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 and it is noted that a subscriber can subscribe to more than one premium package. As at December 2012, the total number of subscriptions to premium packages was approximately 100.3 thousand, an increase of 7.7 thousand subscriptions or an 8.4 per cent increase from 2011. As illustrated in Figure 114, the demand for premium packages has grown steadily over the past five years.

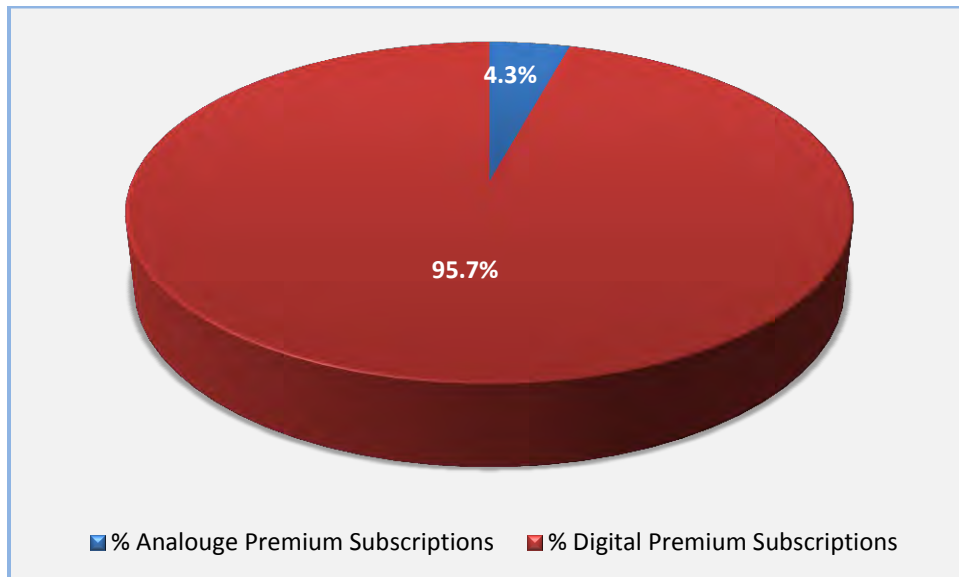
Figure 114: Number of Premium Package Subscriptions 2008 – 2012



Source: TATT

Subscription to premium packages by analogue subscribers accounted for 4.3 thousand or 4.3 per cent of total premium packages subscriptions while Digital premium packages contributed the remaining 96.1 thousand or 95.7 per cent. Figure 115 below presents a percentage breakdown of the number of premium package subscriptions by platform for 2012.

Figure 115: Number of Premium Package Subscriptions by Platform - 2012



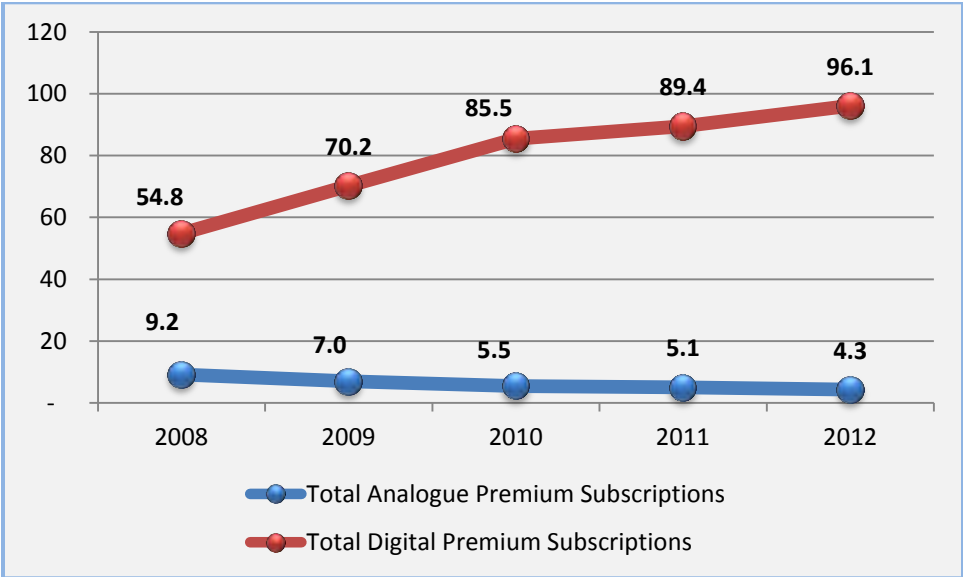
Source: TATT

Similar to the number of basic subscriptions, digital premium packages represented the largest share of premium packages in 2012, increasing by approximately 6.6 thousand or 7.4 per cent. Subscriptions to analogue premium packages decreased by 0.8 thousand, or 15.8 per cent, for the same period under review. This was expected as the number of analogue subscriptions continued to decline. The annual change in subscriptions to premium packages by platform for 2012 is shown in Table 7 while the trend in subscription to premium packages over the last five years is illustrated in Figure 116.

Table 7: Growth Rate of Premium Package Subscriptions by Platform

Platform	Number of Premium Package Subscriptions - 2012 ('000)	% Change between 2011 and 2012
Analogue	4.3	(15.8 %)
Digital	96.1	7.41 %

Figure 116: Subscriptions to Premium Packages by Platform - 2008 to 2012

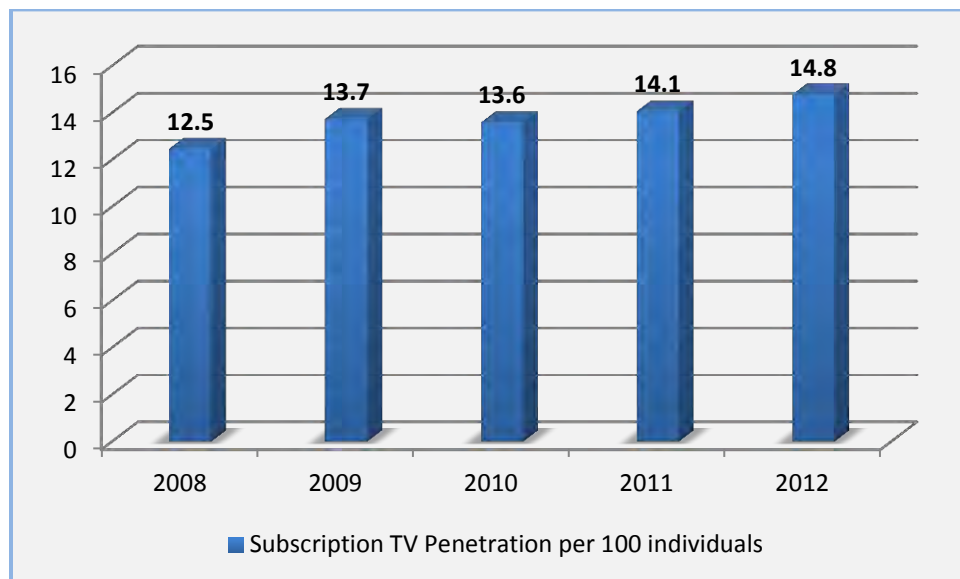


Source: TATT

7.3.3 Subscription TV Penetration

Although experiencing a minor dip in 2010, Subscription TV penetration in the broadcasting market grew steadily over the past five years. As at December 2012, the penetration of Subscription TV services (the number of Subscription TV subscriptions per 100 inhabitants⁶⁷) was 14.8 while Subscription TV household penetration (the number of subscriptions per 100 households⁶⁸) measured 54.7. This means that approximately 15 out of every 100 persons and 48 out of every 100 households subscribe to these services. Figures 117 and 118 highlight the trend in Subscription TV penetration over the last five years.

Figure 117: Subscription TV Penetration –2008 to 2012

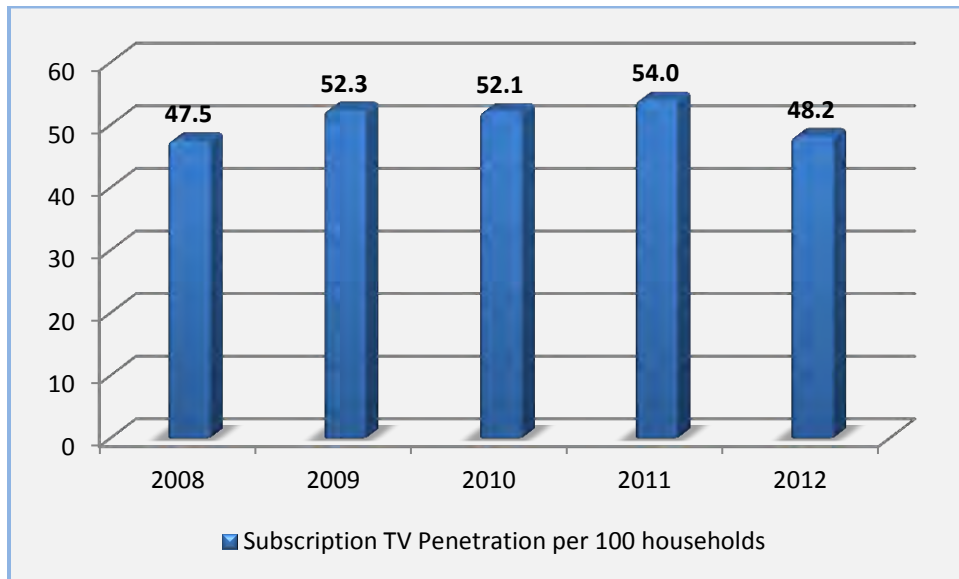


Source: TATT

⁶⁷ Number of Subscription TV subscriptions per 100 inhabitants = (number of Subscription TV subscriptions / population) * 100

⁶⁸ Subscription TV penetration per 100 households = (number of Subscription TV subscriptions / number of households) * 100

Figure 118: Subscription TV Household Penetration - 2008 to 2012

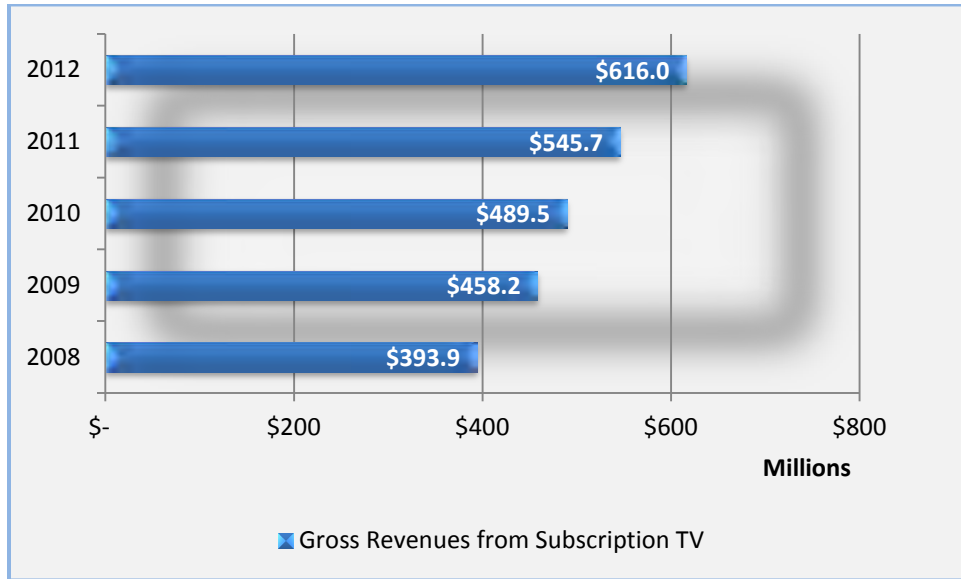


Source: TATT

7.3.4 Subscription TV Broadcasting Revenues

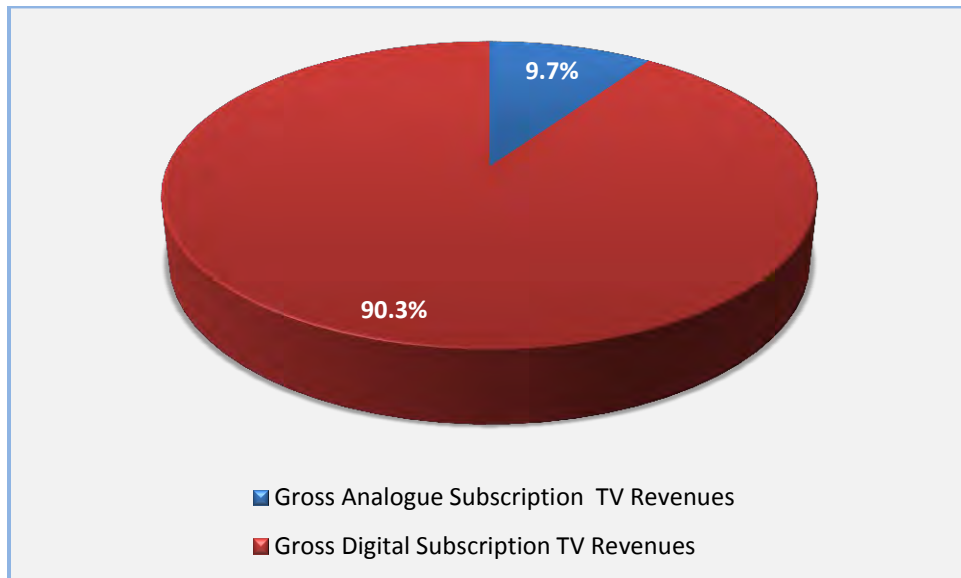
For 2012, the total estimated gross revenues from the Subscription TV broadcasting market was TT \$616.0 million, an increase of TT \$70.4 million or 12.9 per cent from 2011. As Figure 119 shows, gross revenues in this market increased steadily over the past five years. Analogue Subscription TV revenues accounted for TT \$59.5 million or 9.7 per cent, while digital Subscription TV revenues recorded TT \$556.5 million or 90.3 per cent. The percentage breakdown of Subscription TV revenues by platform is shown in Figure 120.

Figure 119: Subscription TV Gross Revenues - 2008 to 2012



Source: TATT

Figure 120: Breakdown of Subscription TV Revenues for 2012

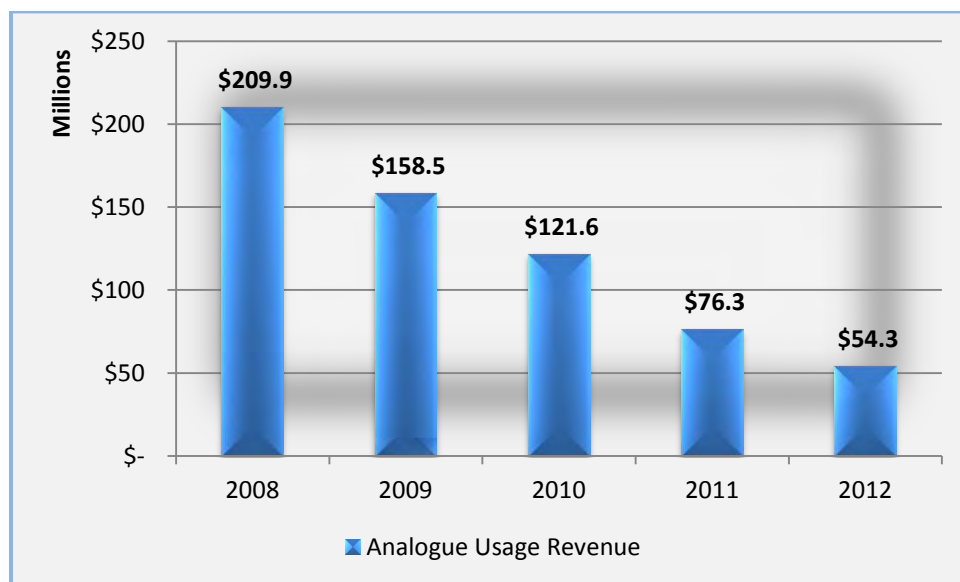


Source: TATT

7.3.5 Revenues from Analogue Subscription TV

Of the TT \$59.5 million analogue subscription TV revenues generated in 2012, TT \$54.3 million comprised analogue usage revenues whereas miscellaneous⁶⁹ analogue revenues accounted for TT \$5.2 million. Consistent with decreasing subscriptions to analogue packages, Figure 121 presents the declining trend in total analogue usage revenue from 2008 to 2012.

Figure 121: Gross Usage Revenues from Analogue Subscriptions - 2008 to 2012

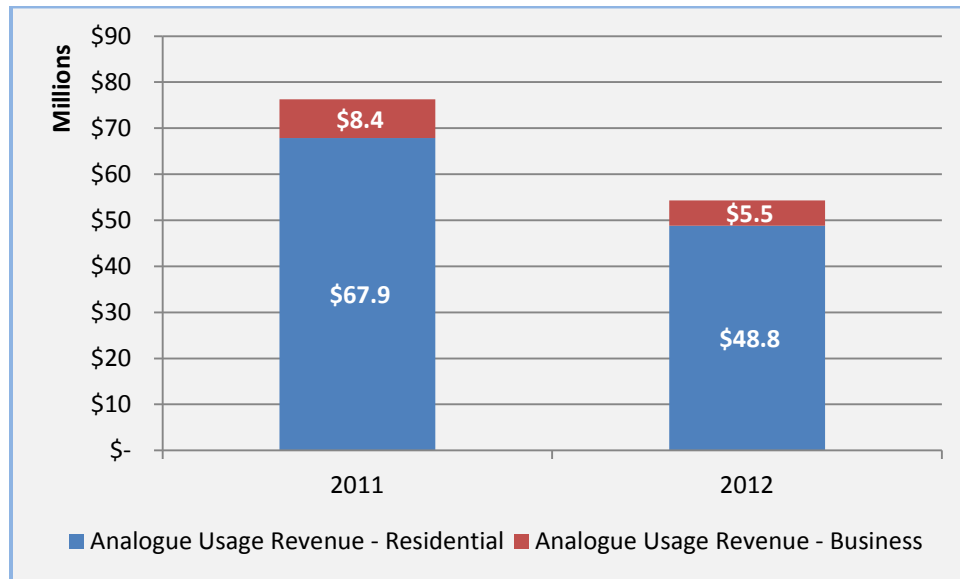


Source: TATT

Gross analogue usage revenues gained the largest proportion of its revenues from residential subscriptions, contributing TT \$48.8 million compared to TT \$5.5 million from business users. Notably, both residential and business analogue revenues decreased in 2012. Figure 122 shows the percentage breakdown of gross usage analogue Subscription TV revenues by category over the past two years.

⁶⁹ Miscellaneous revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.

Figure 122: Breakdown of Gross Usage Revenues from Analogue Subscriptions – 2011 to 2012



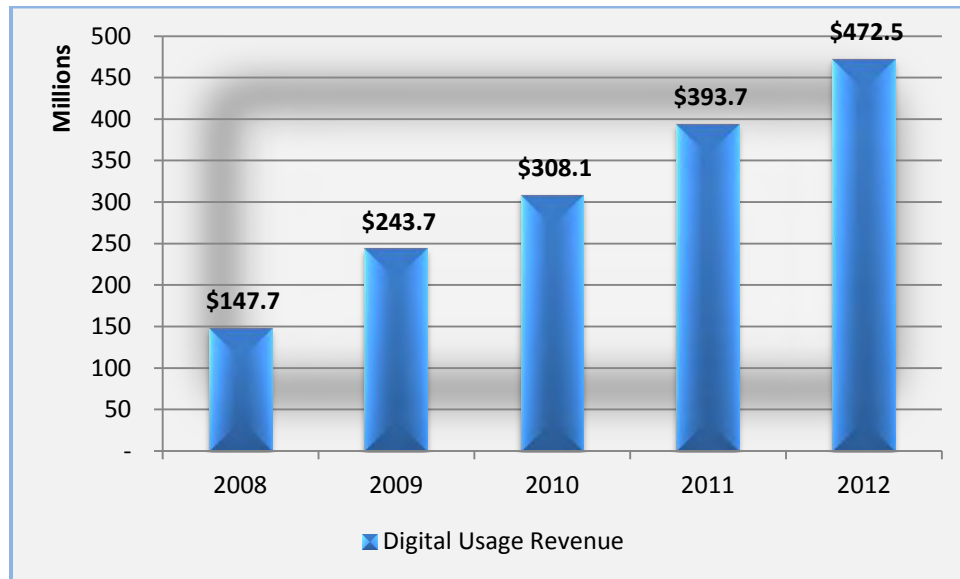
Source: TATT

7.3.6 Revenues from Digital Subscription TV Subscriptions

Total revenues received from digital subscriptions totalled TT \$556.5 million of which TT \$472.5 million represented digital usage revenues whereas miscellaneous⁷⁰ digital revenues accounted for TT \$84.1 million. Consistent with increasing subscriptions to digital packages, Figure 123 presents the increasing trend in total digital usage revenue from 2008 to 2012.

⁷⁰ Miscellaneous revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.

Figure 123: Gross Usage Revenues from Digital Subscriptions - 2008 to 2012



Source: TATT

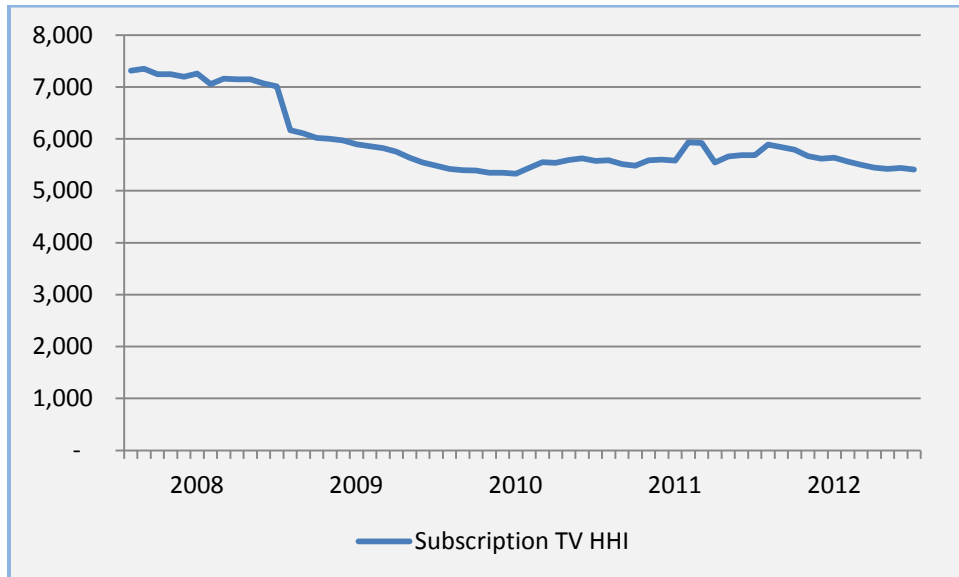
Gross digital usage revenues also gained the largest proportion of its revenues from residential subscriptions, contributing TT \$471.7 million compared to TT \$763.4 thousand from business users.

7.3.7 Subscription Television Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the Subscription TV market⁷¹. The average HHI for this market stood at 5601 in 2012 decreasing by 0.8 per cent from 2011. Overall, the HHI in the Subscription TV market have been generally decreasing over the past five years with slight fluctuations being observed over the period, as shown in Figure 124. During 2012, the level of concentration in the Subscription TV market remained relatively stable, as Figure 125 below illustrates.

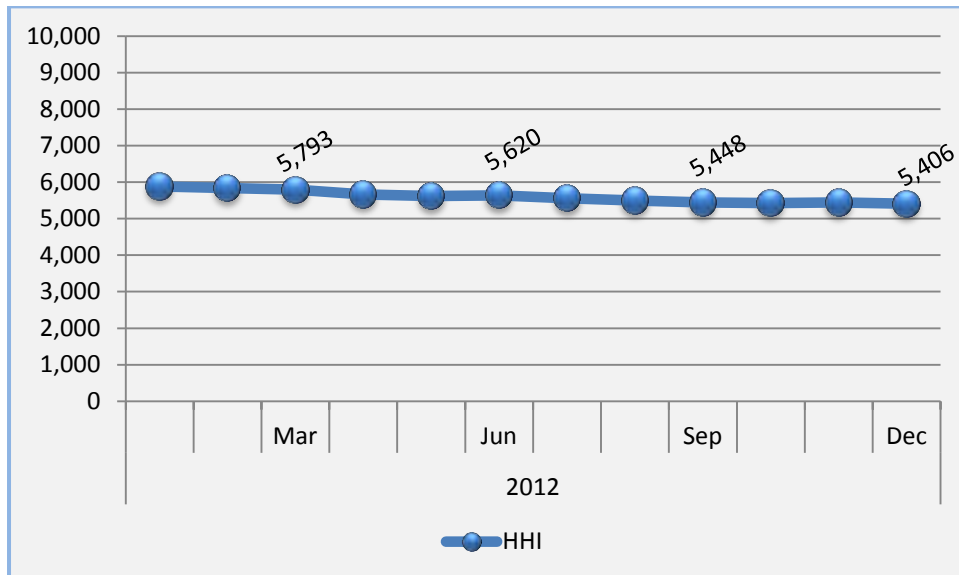
⁷¹ Subscription market share was used in the calculation of the HHI.

Figure 124: HHI for Subscription TV Market 2008-2012



Source: TATT

Figure 125: HHI for Subscription TV Market January – December 2012



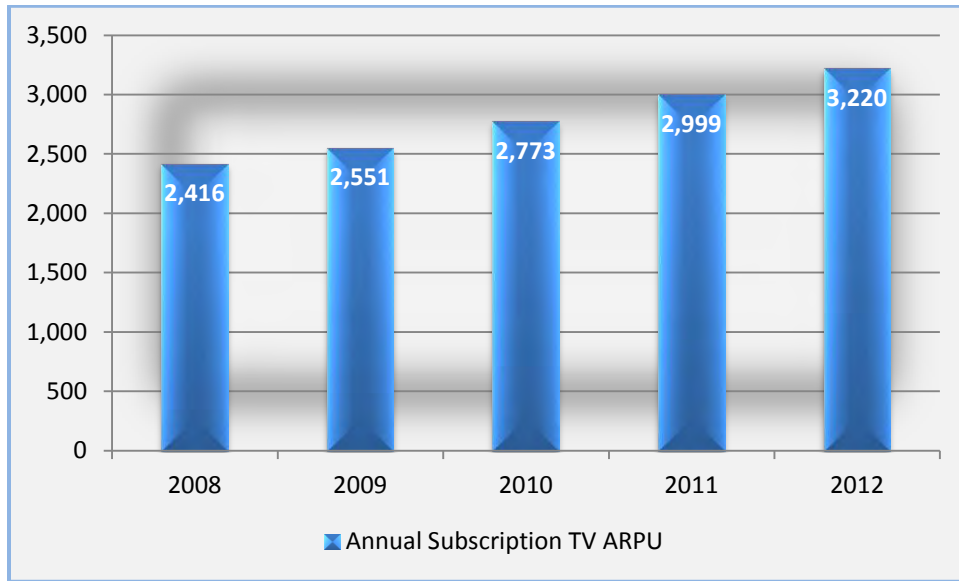
Source: TATT

7.3.8 Annual Average Revenue per User (ARPU)

On average each consumer spent TT \$3,220 in 2012 for Subscription TV services. This represents an increase of TT \$220 or 7.4 per cent in the annual average revenue per user (ARPU)

over the amount recorded for 2011. This increase was supported by a 12.9 per cent growth in revenues which outweighed the 5.8 per cent increase in the number of subscriptions. Figure 126 highlights the changes in ARPU over the last five years.

Figure 126: Subscription TV Average Revenue per User (ARPU) 2008-2012



Source: TATT

8. Appendix I: Domestic Telecommunications Statistics

Table 8: Domestic Telecommunications Statistics

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
General	Population (millions)	1.3	1.3	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 \$) ⁷²	5,950	6,891	7,166	8,246	8,470	11,560	14,576	16,683	21,408	15,067	15,924	17,042	19,018
	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	737.0	834
	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	2117.7	2700
	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	160.7	20.7
	Average revenue per user ⁷³ (ARPU) US \$		659.4	550.4	506.8	420.3	304.3	239.5	286.9	365.6	318.7	322.5	348.0	308.9
Fixed Voice	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	292.0	286.1
	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	22.0	21.6
	Fixed Voice household penetration	-	-	-	-	-	-	77.4	71.5	73.3	70.1	67.5	67.1	55.3
	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	417.3	430.5
	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	-0.6	-1.9
Mobile	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	1,826.2	1,880
	Mobile penetration	10.9	12.3	21.8	28.1	40.6	70.5	115.9	115.3	138.2	141.1	143.8	138.6	142.2
	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	173.5	187.8
	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	-3.6	3.1

⁷² GDP per capita is recorded at current market prices

⁷³ 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	2011	2012	
Internet	Total Internet subscriptions ⁷⁴ ('000s)	26.5	34.8	39.9	44.2	55.2	62.3	73.3	93.3	129.7	238.3	309.9	325.2	342.8	
	Fixed Internet subscriptions ⁷⁵ ('000s)	26.5	34.8	39.9	44.2	55.2	62.3	73.3	82.6	114.1	145.0	171.1	192.0	224.1	
	Mobile Internet subscriptions ⁷⁶ ('000s)	-	-	-	-	-	-	-	10.7	15.6	93.3	138.8	133.2	422.5 ⁷⁷	
	Fixed Broadband subscriptions ⁷⁸ ('000s)	-	-	-	-	-	14.0	21.1	35.5	85.4	130.1	162.9	187.9	221.3	
	Fixed Internet users ⁷⁹ ('000s)	100.0	120.0	138.0	153.0	160.0	184.5	198.4	429.0	456.4	579.8	684.4	768.2	726.3	
	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	24.7	25.9	
	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	14.6	16.9	
	Mobile Internet penetration	-	-	-	-	-	-	-	0.8	1.2	7.1	10.5	10.1	9.0	
	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	58.3	54.8	
	Fixed Internet household penetration	-	-	-	-	-	-	-	4.9	21.4	40.1	49.9	52.8	52.1	
	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	223.9	178.8	
	Average revenue per user (ARPU) US \$ for fixed Internet	-	-	-	-	-	-	-	392.3	552.3	491.8	433.2	409.9	431.9	422.8
	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	21.7	10.7	
Traffic	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	274.5	263.5	
	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	256.2	245.7	
	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	0.93	0.93	

⁷⁴ Total Internet subscriptions is the sum of fixed Internet subscriptions and mobile postpaid Internet subscriptions

⁷⁵ Fixed Internet subscriptions – total number of subscriptions with fixed wired or fixed wireless Internet access

⁷⁶ Mobile Internet subscriptions – postpaid mobile customers who subscribe to monthly Internet airtime and who are billed accordingly

⁷⁷ Mobile Internet Subscriptions for 2012 includes prepaid and postpaid mobile Internet users

⁷⁸ Fixed Broadband subscriptions –the number of Internet subscribers with access to download speeds of 256kbps or above

⁷⁹ Fixed Internet users – the number of persons who regularly use fixed Internet services

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Subscription TV	Subscription TV subscriptions ('000s)		78.9	82.4	92.5	103.4	131.6	139.8	151.2	163.0	179.6	178.9	187.8	198.7
	Subscription TV penetration		6.0	6.3	7.1	7.9	10.1	10.7	11.6	14.2	13.7	13.6	14.1	14.8
	Subscription TV household penetration	-	-	-	27.0	30.1	38.3	40.7	44.0	47.5	52.3	52.1	54.0	48.2
	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	468.6	505.5
	Subscription TV subscription growth (%)			4.5	12.3	11.7	27.3	6.2	8.1	12.5	10.2	-0.4	5.0	5.8

9. Appendix II: List of Concessionaires as at Decemeber 2012

CONCESSIONS GRANTED (JULY 1, 2004 - December 30, 2012)

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
INTERNATIONAL TELECOMMUNICATIONS							
Columbus Communications Trinidad Limited	Public International Telecommunications Services	N/A	Type 4	DATE OF EXPIRY 04.01.2016	21 August 2009	4 January 2016	N/A
Columbus Communications Trinidad Limited formerly Columbus Netw orks International (Trinidad) Limited	Public International Telecommunications Netw ork	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Columbus Communications Trinidad Limited formerly Columbus Netw orks 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	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public International	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public International	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Green Dot Limited	Public International Telecommunications Netw ork	N/A	Type 2	10 Years	1 October 2007	30 September 2017	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	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Laqtel Limited	Public International	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Lisa Communications Limited	Public International	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Lisa Communications Limited	Public International	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Open Telecom Limited	Public International	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Open Telecom Limited	Public International	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Southern Caribbean Fibre Limited	Public International	N/A	Type 1	10 Years	17 August 2006	16 August 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Netw ork	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Three Sixty Communications Limited [Transferred from Illuminat (Trinidad and Tobago) Limited]	Public International Telecommunications Netw ork	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	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Windward Telecom Limited	Public International	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
FREE-TO-AIR RADIO BROADCASTING							
21st Century Arts and Entertainment Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	99.5 FM
British Broadcasting Corporation	Broadcasting Services (Free to Air	National	Type 5	10 Years	15 June 2007	14 June 2017	98.7FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	91.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	99.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air	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	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.5 FM
Citadel Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	95.5 FM
Family Focus Limited	Broadcasting Services (Free to Air	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	National	Type 5	10 Years	23 February 2006	22 February 2016	101.7 FM
*Inner City Broadcasting Company Ltd.	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	107.1 FM
Kaisoca Productions Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	92.7 FM
Kenny Phillips	Broadcasting Services (Free to Air	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.1 FM
Marcel Mahabir	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	107.7 FM
Mohan Jaikaran	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	101.1 FM
Neil "Iwer" George	Broadcasting Services (Free to Air	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	National	Type 5	10 Years	1 March 2007	28 February 2017	105.5 FM
PBCT Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	104.7 FM
*Radio Five Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	93.5 FM
Radio News Network	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	104.1 FM
Radio Vision Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	102.1 FM
*Sidewalk Radio Limited	Broadcasting Services (Free to Air	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	92.3 FM
Superior Infinite Productions Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	94.1 FM
Telemedia Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	97.1 FM
*The Q Corporation Limited	Broadcasting Services (Free to Air	National	Type 5	10 Years	23 February 2006	22 February 2016	96.7 FM

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
FREE-TO-AIR RADIO BROADCASTING							
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)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.1 FM
United Cinemas Limited	Broadcasting Services (Free to Air)	National	Type 5	10 Years	23 February 2006	22 February 2016	103.5 FM
Upward Trend Entertainment Limited	Broadcasting Services (Free to Air)	National	Type 5	10 Years	23 February 2006	22 February 2016	97.5 FM
V.L Communications Limited	Broadcasting Services (Free to Air)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.7 FM
Winfred Aleong Broadcasting Company Limited	Broadcasting Services (Free to Air)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	103.1 FM
*Wonderland Entertainment Limited	Broadcasting Services (Free to Air)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	100.5 FM
Trico Industries	Broadcasting Services (Free to Air)	Minor Territorial	Type 5	10 Years	11 October 2012	10 October 2022	89.5 FM
MOBILE TELECOMMUNICATIONS							
Digicel Trinidad and Tobago Limited	Public Domestic Mobile	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public Domestic Mobile	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
FREE-TO-AIR TELEVISION BROADCASTING							
Advance Community Television Network Limited	Broadcasting Services (Free to Air)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	UHF 25
C.C.N. Television Limited	Broadcasting Services (Free to Air)	National	Type 5	10 Years	1 March 2006	28 February 2016	VHF 6, UHF 18,
Caribbean New Media Group Limited	Broadcasting Services (Free to Air)	National	Type 5	10 Years	23 February 2006	22 February 2016	VHF 9, UHF 13,
Gayelle Limited	Broadcasting Services (Free to Air)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	UHF 23
Government Information Services Limited	Broadcasting Services (Free to Air)	National	Type 5	10 Years	12 January 2010	11 January 2020	VHF 4, UHF 16
Guardian Media Limited [formerly known as 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)	National	Type 5	10 Years	1 March 2006	28 February 2016	VHF 7, UHF 37,
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air)	National	Type 5	10 Years	23 October 2008	22 October 2018	VHF 11, UHF 26,
Synergy Entertainment Network Limited	Broadcasting Services (Free to Air)	Major Territorial	Type 5	10 Years	14 April 2008	13 April 2018	UHF 31, 33

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
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	National	Type 5	10 Years	5 January 2006	4 January 2016	N/A
DirecTV Trinidad Limited	Subscription Broadcasting Service	National	Type 5	10 Years	28 February 2006	27 February 2016	N/A
Green Dot Limited	Subscription Broadcasting Service (over a Public Domestic Fixed	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	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	National	Type 5	10 Years	30 December 2005	29 December 2015	N/A
TRICO Industries Limited	Subscription Broadcasting Service (over a Public Domestic Fixed	Minor Territorial	Type 5	10 Years	1 September 2006	31 August 2016	N/A
Diversified Technologies Limited	Subscription Broadcasting Service (over a Public Domestic Fixed	Niche - Penal and Environs	Type 5	10 Years	11 October 2012	10 October 2022	N/A
TELEVISION BROADCASTING SERVICE VIA CABLE							
IETV Limited	Broadcasting Service (over a Public	National	Type 5				N/A
Central Broadcasting Services Limited	Broadcasting Service (over a Public	National	Type 5	10 Years	18 March 2013	17 March 2023	N/A
IBN Communications Company Limited	Broadcasting Service (over a Public	National	Type 5	10 Years	11 October 2012	10 October 2022	N/A

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
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	National	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Columbus Communications Trinidad Limited	Public Domestic Fixed	National	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed	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
lluminat (Trinidad & Tobago) Limited	Public Domestic Fixed	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
lluminat (Trinidad & Tobago) Limited	Public Domestic Fixed	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Independent Cable Network of Trinidad & Tobago	Public Domestic Fixed	Major Territorial	Type 2	10 Years	1 November 2006	31 October 2016	N/A
Independent Cable Network of Trinidad & Tobago	Public Domestic Fixed	Major Territorial	Type 2	10 Years	1 November 2006	31 October 2016	N/A
Lisa Communications Limited	Public Domestic Fixed	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Lisa Communications Limited	Public Domestic Fixed	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	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Open Telecom Limited	Public Domestic Fixed	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

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
FIXED TELECOMMUNICATIONS							
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	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
Three Sixty Communications Limited	Public Domestic Fixed	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
TRICO Industries Limited	Public Domestic Fixed	Minor Territorial	Type 2	10 Years	1 September 2006	31 August 2016	N/A
TRICO Industries Limited	Public Domestic Fixed	Minor Territorial	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Diversified Technologies Limited	Public Domestic Fixed Telecommunications Network	Niche - Penal and Environs	Type 2	10 Years	11 October 2012	10 October 2022	N/A
Diversified Technologies Limited	Public Domestic Fixed Telecommunications Services	Niche - Penal and Environs	Type 2	10 Years	11 October 2012	10 October 2022	N/A

*Concession obligations of Sidewalk, Citadel, Inner City and Q Corp have been novated to Radio Five as of 7th September 2012

* Concession formerly held by Wonderland Entertainment has been transferred to Guardian Media Limited as of 9th June 2012

10. 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/>
- Greendot: <http://www.gd.tt/>
- Airlink Communications: <http://airlinktt.net/>
- 360 Communications Limited: <http://www.360communications.biz/>
- Illuminat: http://www.illuminatnm.com/tt_index.aspx

11. 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 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.