



Annual Market Report:
Telecommunications and Broadcasting
Sectors

January – December 2011

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1. Overall Market Data

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

The data presented is based primarily on the results of completed questionnaires by operational concessionaires within the telecommunications and broadcasting sectors for the period 1st January to 31st December 2011, 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.

1.1 Total Authorization

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

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

Table 1 provides a list of the number of concessions granted, authorised concessionaires and the number of providers operational in the various markets as at December 2011.

Table 1: Number of Concessions, Concessionaires and Operators as at December 2011

Network Category	Service Provided	Authorised Concessionaires ¹	Operational Concessionaires
International Telecommunications	Facilities only	1	1
	Facilities and/ or Services	10	8
Mobile Telecommunications	Mobile voice and Internet services	2	2
Fixed Telecommunications²	Fixed Telephony	2	2
	Fixed Internet	7	7
Subscription TV (Pay TV)		9	9
Free to Air Radio Broadcasting		37	37
Free to Air Television Broadcasting		9	9
TV Broadcasting via Cable		1	1
Total		78	76

Source: TATT

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

In addition to the concessions, under Section 36 of the Telecommunications Act 2001, the Authority is authorized and responsible for the granting of licences. In accordance with these legislative powers, for the period January to December 2011, the Authority granted a total of 321 licences.

Table 2 lists the categories and the number of licences granted during 2011.

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

² 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 2011

Type of Licence		2011
Spectrum	Cellular Mobile	5
	Land Mobile	115
	Point-to-Point	29
	Point-to-Multipoint	3
	SCADA	4
General Radiocommunications	Satellite Earth Stations	33
	Amateur Stations	125
	Maritime Stations	55
	Aeronautical Stations	56
Broadcasting (Special Events)		4
Total		429

Source: TATT

1.2 Overview of the Telecommunications and Broadcasting Sectors

1.2.1 Market Revenue Contributions to the Industry

As at December 2011, the estimated gross revenues generated by the telecommunications and broadcasting sectors totalled TT \$4.7 billion³ or US \$737.3 million⁴ which, as a percentage of GDP⁵ equates to 3.3 per cent. This represents an increase in total revenues of 5.0 per cent over the last year. Of this amount, mobile services contributed the highest towards total revenues with TT \$2.1 billion, or 44.6 per cent. This was followed by fixed⁶ voice services which contributed approximately TT \$787.9 million or 16.7 per cent. The next highest revenue earner for the industry was Internet services contributing TT \$677.2 million or 14.4 per cent. Following closely behind were subscription television services and International⁷ services whose contributions totalled TT \$545.7 million and TT \$259.2 million respectively, that is 11.6 and 5.5 per cent. Next in line was free to air radio services recording TT \$161.5 million or 3.4 per cent. Free to air television revenues for the industry was estimated to be TT \$109.2 million or 2.3 per cent of gross revenues. The lowest contributors were leased line services and other revenues⁸ with earnings of TT \$51.6 million and TT \$23.4 million respectively, 1.1 and 0.5 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.

³ This Figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services.

⁴ Estimated exchange rate US\$1=TT\$6.3

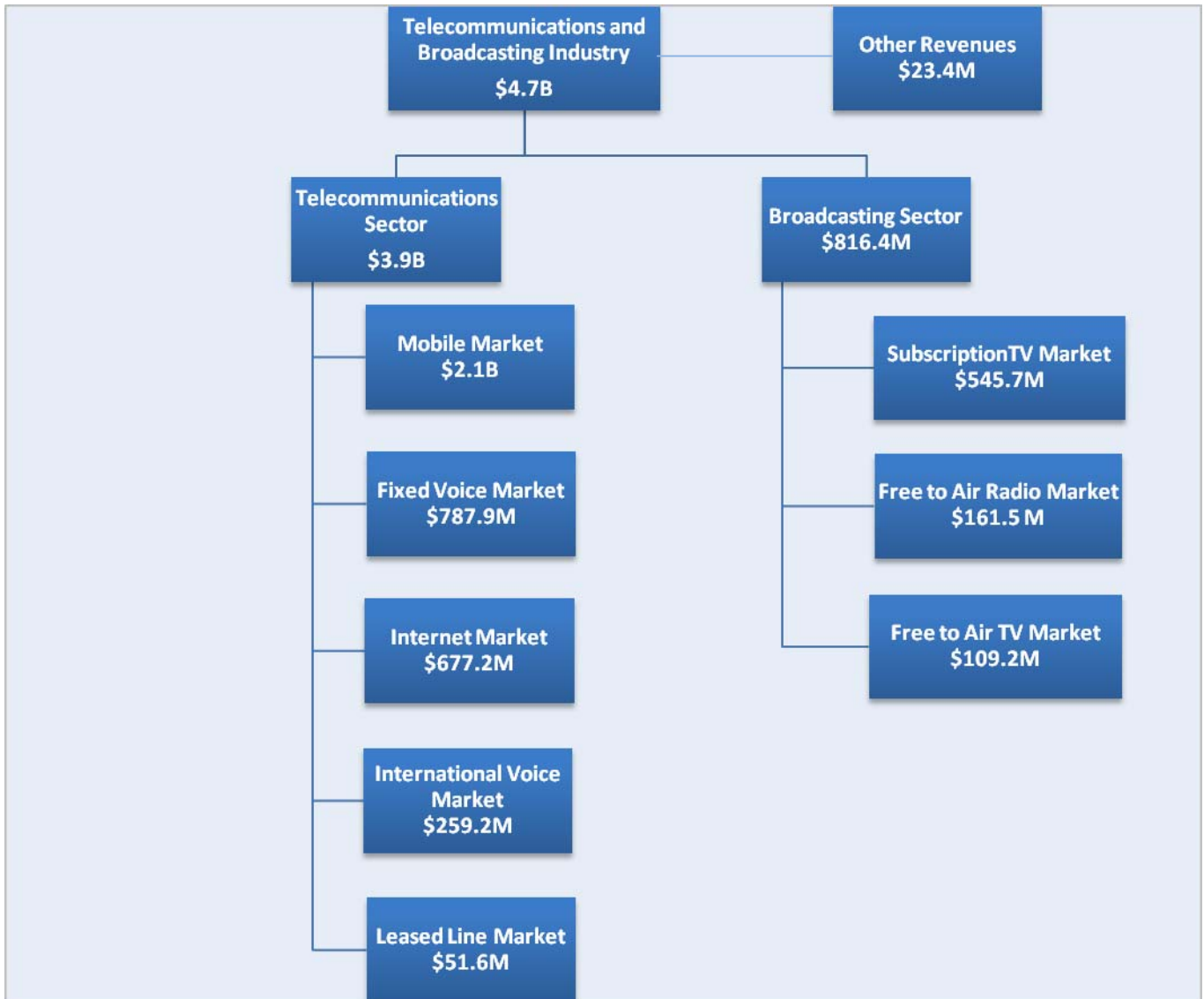
⁵ The Central Bank of Trinidad and Tobago has recorded Gross Domestic Product (GDP) at current market prices for 2011 to be TT\$143.9 billion.

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

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

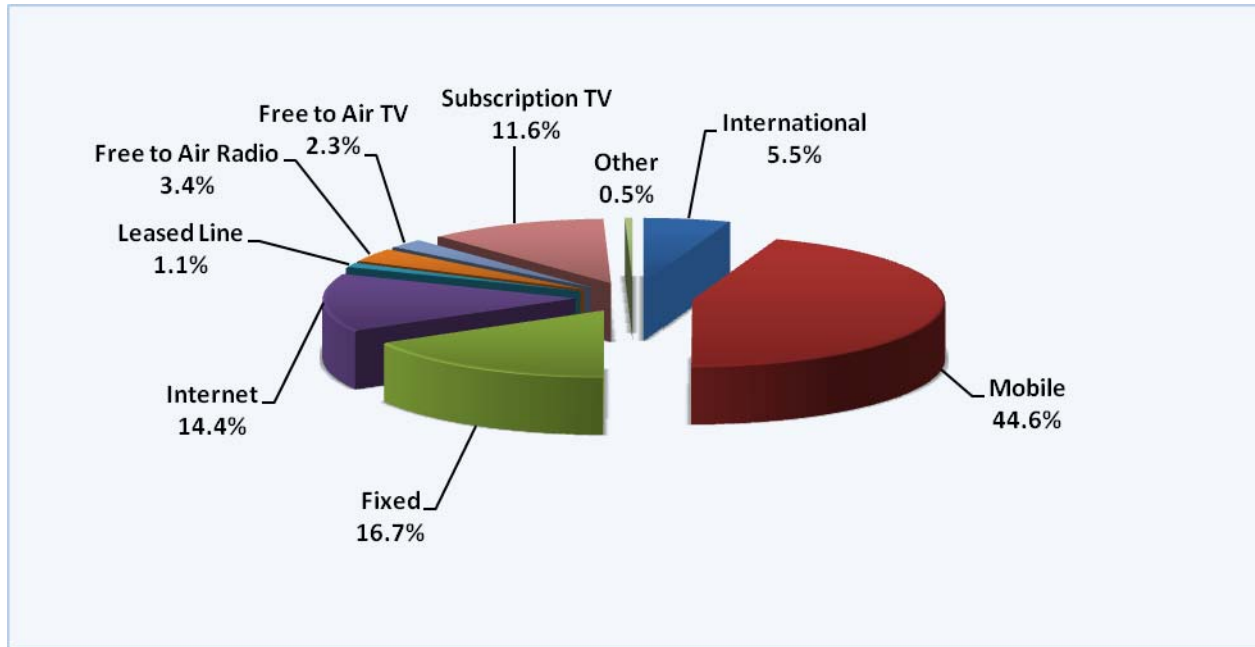
⁸ Other revenues comprise revenues earned from both the telecommunications sector and the broadcasting sector such as revenues received from wholesale services and Production and Air time for local programming on Pay TV See sections 1.2.2 and 1.2.3 for further definitions

Figure 1: Industry, Sectors and Markets Revenues 2011



Source: TATT

Figure 2: Percentage of Gross Revenues contributed by Markets - 2011



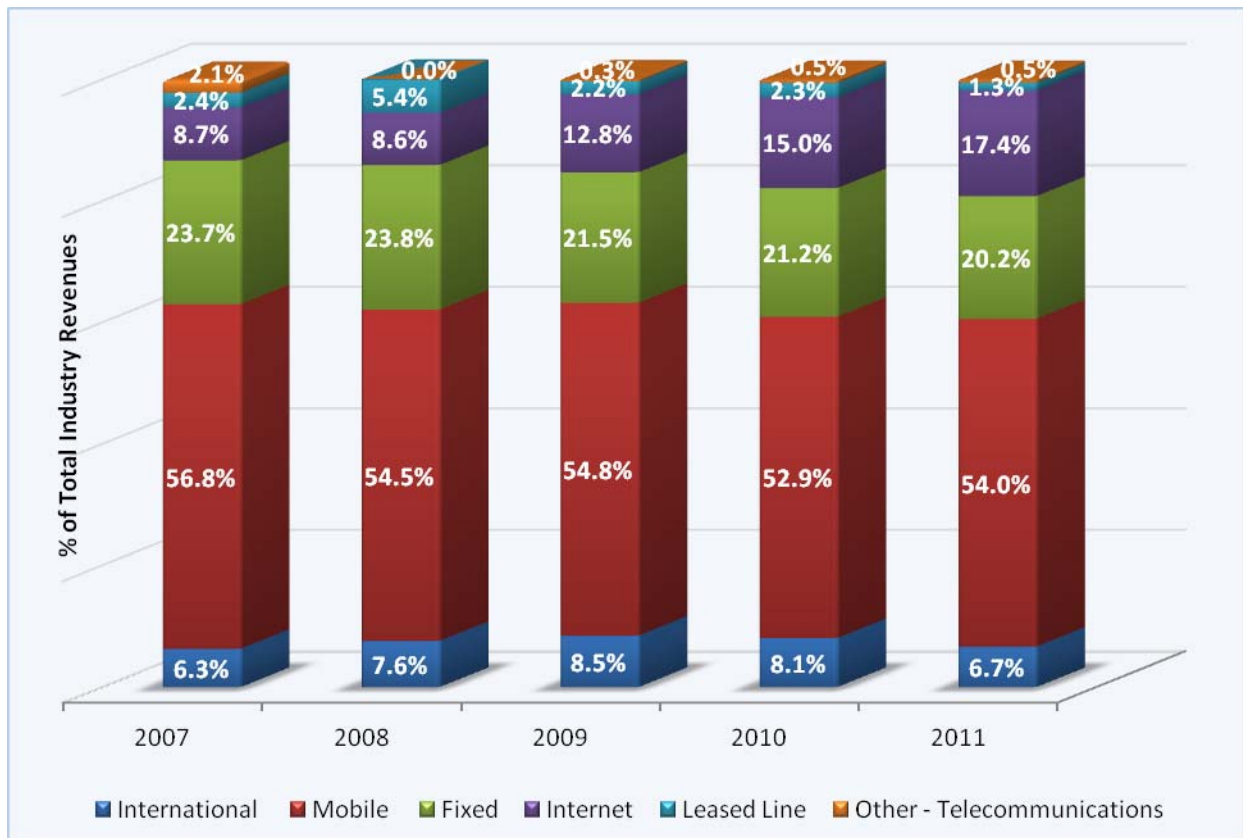
Source: TATT

1.2.2 Trends in Market Revenue Contributions to the Telecommunications Sector

For the 2011 period, TT \$3.9 billion or 82.6 per cent of overall industry revenue was contributed by the telecommunications sector. Of the five main markets within this sector, the mobile market continued to collect the majority of revenues, accounting for 54.0 per cent of total telecommunications revenues. The fixed telephony market generated the second highest revenues with 20.2 per cent, while revenues from the Internet and international markets followed thereafter with 17.4 percent and 6.7 percent respectively. The leased line market earned 1.3 per cent of telecommunications revenues and continued to be the smallest revenue contributor to the sector. ‘Other’ telecommunications revenues⁹ contributed 0.5 per cent to total telecommunications revenues. Figure 3 depicts the revenue contributions of the individual markets towards the telecommunications sector total revenue.

⁹ 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 towards Sector Revenues 2007 - 2011



Source: TATT

Figure 3 reveals that the Mobile and Internet markets showed the most significant growth in telecommunications revenue contributions. The Mobile market increased its contribution to total telecommunications revenues from 52.9 per cent in 2010 to 54 per cent in 2011 whereas the Internet market increased from 15 per cent in 2010 to 17.4 per cent in 2011.

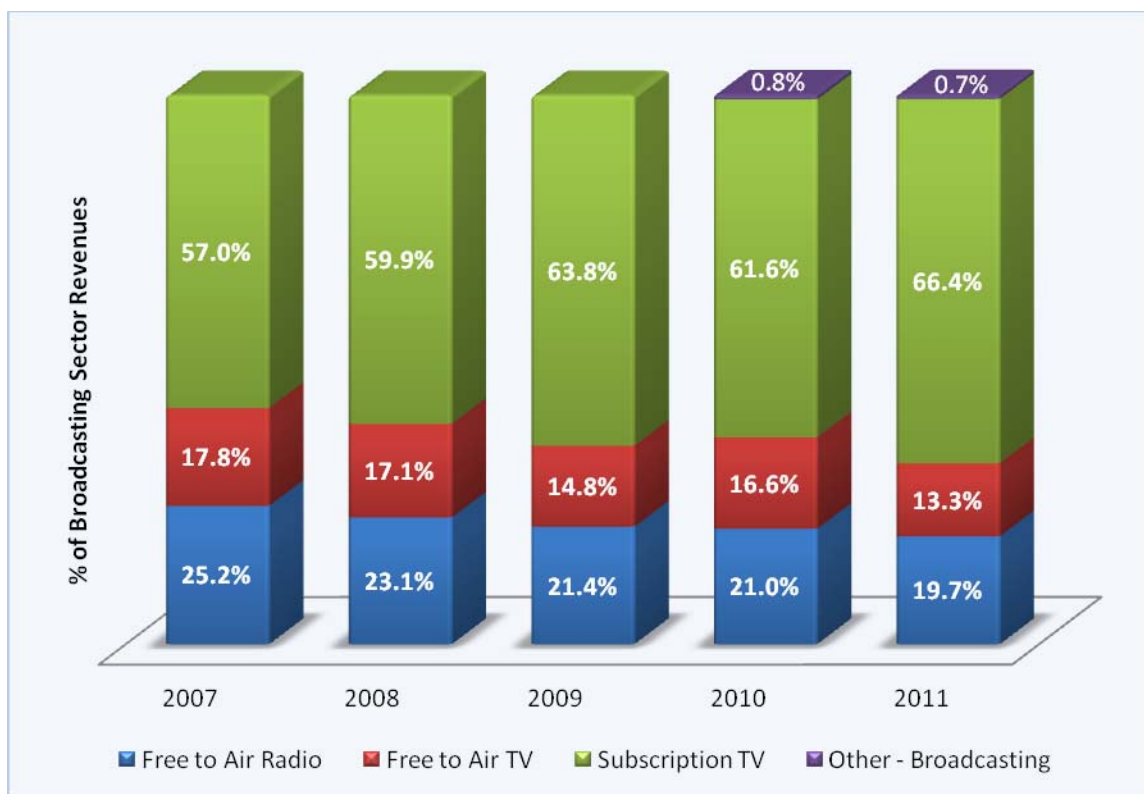
1.2.3 Trends in Market Revenue Contributions to the Broadcasting Sector

For the review period, the broadcasting sector contributed TT \$821.7 million, or 17.4 per cent towards overall industry revenue. The broadcasting sector is divided into three main markets: subscription television¹⁰, free to air television and free to air radio. Similar to the trends

¹⁰ Also known as Pay TV

experienced over the last five years, the subscription television market continued to earn the majority of revenues in the broadcasting sector, making up 66.4 per cent of broadcasting revenues for 2011. Trailing significantly behind were the free to air radio and free to air television markets earning 19.7 per cent and 13.3 per cent of broadcasting revenues respectively. ‘Other’ broadcasting revenues¹¹ contributed 0.7 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 towards Sector Revenues 2007 - 2011



Source: TATT

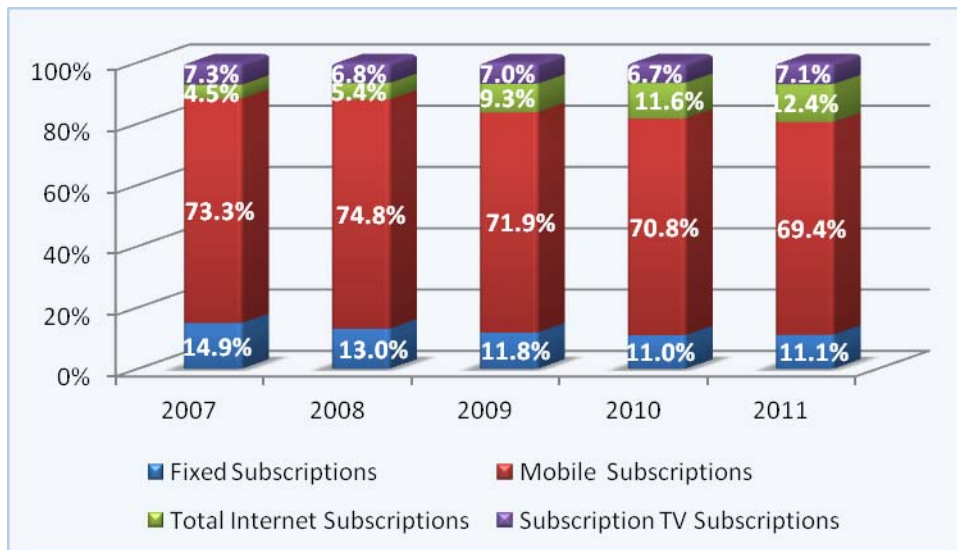
When compared to revenues generated in 2010, Subscription television was the only broadcasting market showing any percentage growth for the 2011 period. The free to air radio and free to air television markets experienced marginal declines in their revenue contributions towards the broadcasting sector.

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

1.2.4 Telecommunications and Broadcasting Subscriptions

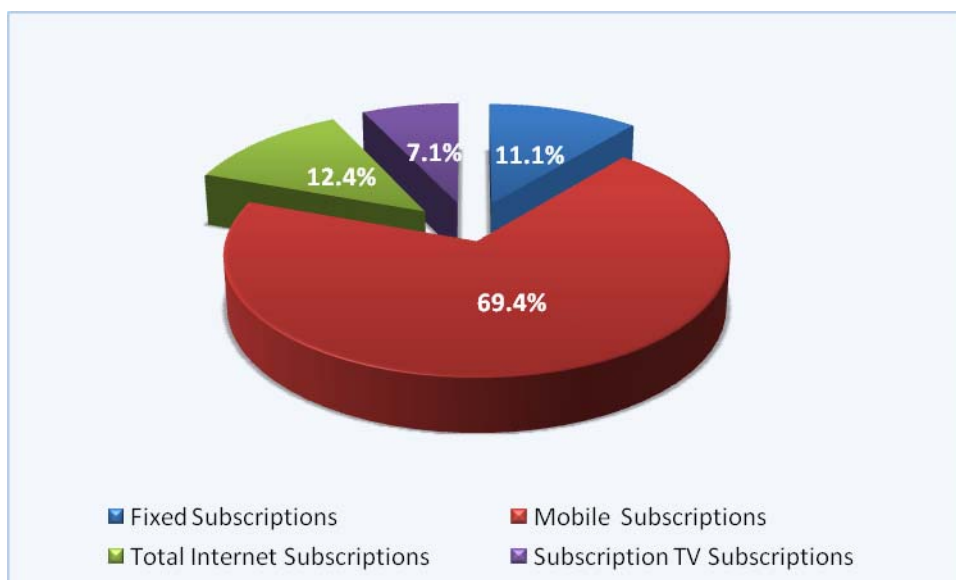
For the year ending December 2011, the number of subscriptions within the fixed, mobile, Internet and subscription television market segments totalled approximately 2.9 million. This represents a decrease of 1.7 per cent or 45.6 thousand less subscriptions than 2010. The fixed voice market contributed 291.5 thousand subscriptions representing 11.1 per cent towards total subscriptions whereas the mobile market contributed 1.8 million subscriptions representing 69.4 per cent. Total Internet subscriptions stood at 325.2 million as at December 2011 contributing 12.4 per cent to total subscriptions whereas Subscription television services contributed 7.1 per cent with 187.7 million subscriptions. To graphically summarise, Figure 5 compares total industry subscriptions for the period 2007-2011 while contributions by the various market segments towards total industry subscriptions are shown in Figure 6.

Figure 5: Market Share of Total Subscriptions by Service for 2007-2011



Source: TATT

Figure 6: Market Shares of Total Industry Subscriptions by Service as at December 2011



Source: TATT

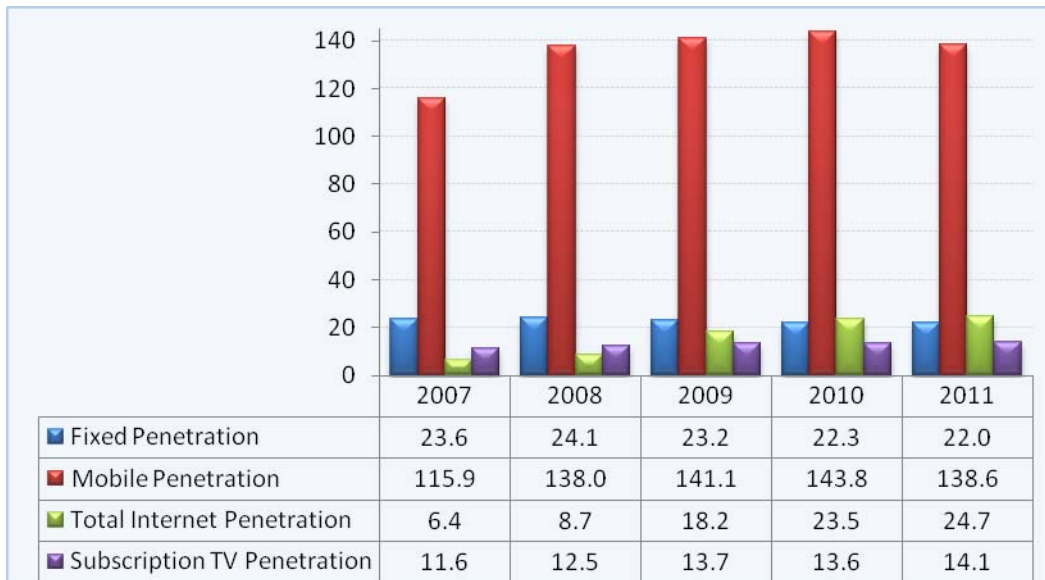
1.2.5 Subscription Penetration Rate

The penetration rate is defined as the number of subscriptions per 100 inhabitants. As seen in Figure 7, the penetration rates¹² for the Internet and subscription TV markets increased while the penetration rates for fixed voice and mobile decreased for the 2011 period. Mobile services, with a rate of 138.6, continued to record the highest penetration rate. Internet was the second highest with a penetration rate of 24.7 whilst fixed telephony and Subscription television¹³ service followed with penetration rates of 22.0 and 14.1 respectively.

¹² Internet penetration includes both fixed and postpaid mobile Internet penetration

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

Figure 7: Penetration Rate of Subscriptions 2007-2011



Source: TATT

Box 1: Summary Review of Domestic Economy

As the global economy struggled along its path to recovery, the economy of Trinidad and Tobago remained sluggish as it experienced its third consecutive year of negative growth. This contraction in economic activity fuelled growing concerns that the economy might be on its way to experiencing a recession.

Trinidad and Tobago's economy is estimated to have contracted by 1.4% in 2011, following negative growth rates of 3.3% and 0.02% in 2009 and 2010 respectively. The fall in real GDP occurred due to a decline in both the energy and non-energy sectors. Despite this contraction, marginal improvements in the labour market were observed as the latest unemployment data shows a rate of 5.2% in 2011, compared to 5.9% for the analogous period in 2010. There was also an improvement in the rate of inflation as the economy moved away from the double digit 13.4% in 2010 to 5.3% at year end 2011, hitting a record breaking low (since October 1969) of 0.6% in August. This was attributable to both lower than usual food inflation and conservative consumer demand. Table 1 below summarizes some key macroeconomic indicators for Trinidad and Tobago in 2011.

Table 1: Summary of Key Macro-Economic Indicators

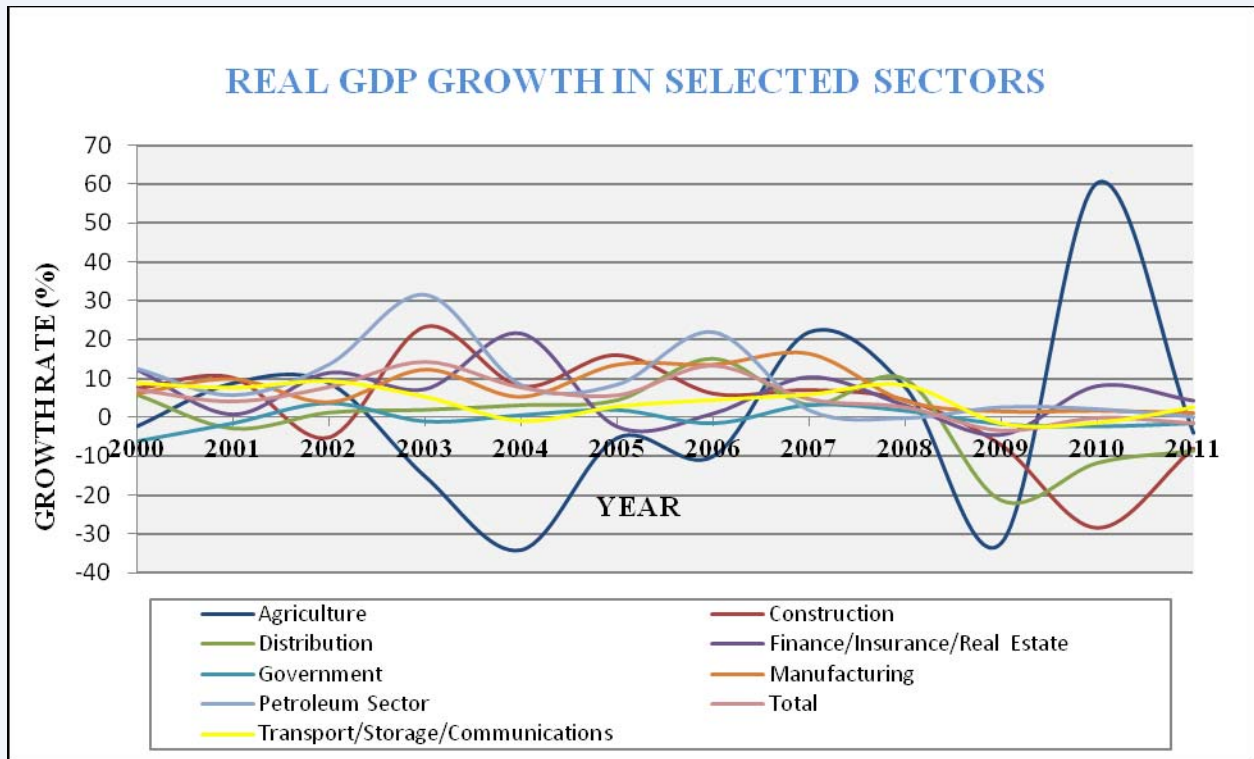
Economic Indicator	Annual Percentage Changes				
	2007	2008	2009	2010	2011
Real GDP Growth (2000=100)	4.8	2.7	-3.3	0.0	-1.4
Energy Sector	1.7	-0.3	2.5	2.0	0.0
Non-energy Sector	7.6	4.9	-6.7	-3.8	-1.0
Inflation Rate (%)	7.9	12.0	7.2	10.5	5.3
Unemployment Rate	5.5	4.6	5.3	5.9	5.2
(as a percentage of GDP)					
Exports	66.7	46.5	53.5	52.5	58.0
Imports	34.3	35.3	31.1	30.7	37.8
Current Account Balance	30.3	8.1	19.8	18.4	18.2
Standard and Poor's Credit Rating	A-	A	A	A	A
Exchange Rate (USD)	6.30	6.26	6.30	6.34	6.37
Population ('000's)	1,303	1,308	1,310	1,317	1,325
GDP (Current Prices -\$Mn-TT)	136,952	175,287	124,358	132,960	143,880
GDP per capita ¹⁴ (Current Prices -TT)	105,105	134,011	94,923	100,957	108,556
GDP per capita (Current Prices -US)	16,683	21,408	15,067	15,924	17,042

¹⁴ GDP per capita calculated as total GDP in current prices divided by total population

Sources: Central Bank of Trinidad and Tobago (CBTT) Annual Economic Survey Report; Central Statistical Office (CSO)

In 2011, the energy sector, typically the driving force behind the country’s economic success, experienced near zero growth rate. This came as a result of low domestic crude production caused by maturing fields and disruptive maintenance and improvement operations. As in previous years the non-energy sector continued its downward trend declining by a further 1% in 2011, being adversely affected by a reduction in working hours in the context of the August – November State of Emergency curfew. Notably affected were the Construction and Distribution industries which both remained subdued. On the other hand the Manufacture industry showed some progress being driven primarily by increases in the Food, Beverage and Tobacco Sector. Figure 1 below shows the Real GDP Growth rates of selected sectors.

Figure 1: Real GDP Growth in Selected Sectors

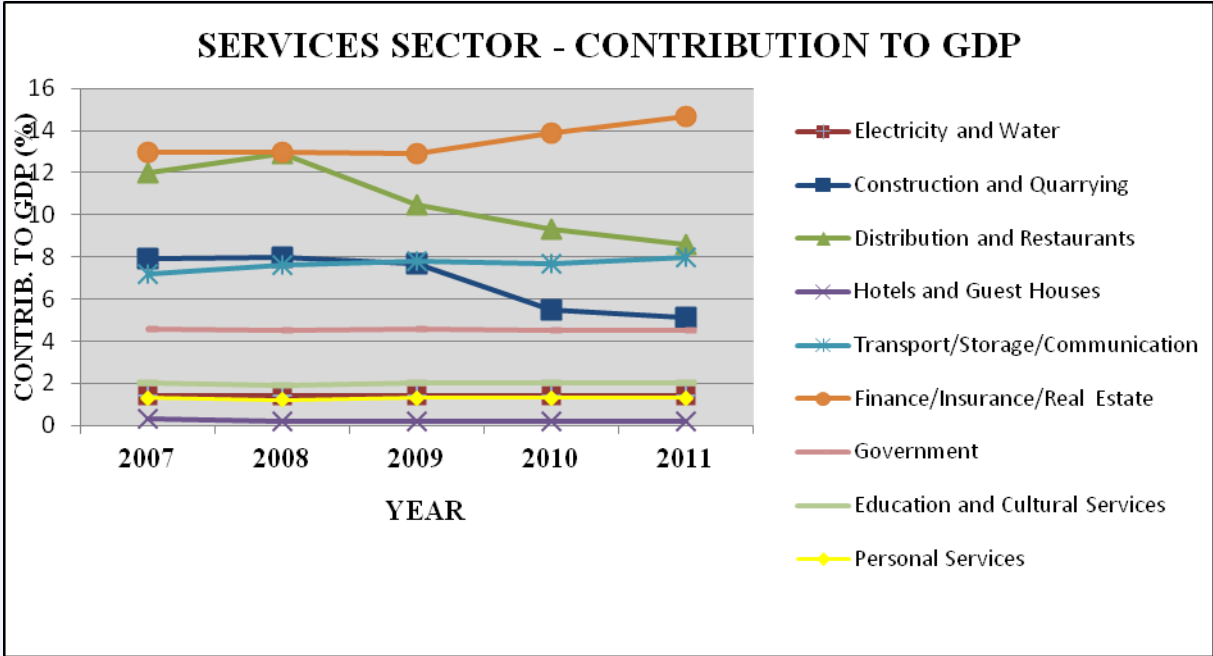


Source: Central Bank of Trinidad and Tobago Data Centre

Second only to the Finance, Insurance and Real Estate Sector, the Transport, Storage and Communication Sector showed the most robust growth in Real GDP. The Transport, Storage and Communication Sector, which includes the Telecommunication and Broadcasting Industry, was estimated to have experienced a Real GDP growth rate of 2.7%, following two consecutive years of negative growth rates. There was also an observed increase in respect to its contribution to

GDP, from 7.7% to 8%, making this sector the third largest contributor in the Services Sector to GDP. Figure 2 shows the contribution to GDP of the 9 components of the Services Sector.

Figure 2: Services Sector Contribution to GDP (current prices)



Source: Central Statistical Office of Trinidad and Tobago

The Telecommunications and Broadcasting industry continued along its past trend of sustained growth in 2011. With an increase in total revenues of 5% when compared to the period of 2010, the industry continues to demonstrate the potential of being a great impetus in driving economic success. This has become even more evident as its role is further fortified by continued investment, stronger competition and the strengthening of regulatory framework governing the industry.

Key Market trends and Observations in the Fixed Telephony Market

- **A new player enters the market**
- **Downward trend in Fixed Line Subscriptions continues**
- **Moderate decrease in Gross Subscription Revenue**

2. Fixed Telephony Market Data

As at December 2011, there were seven (7) operators authorized to provide fixed domestic telecommunications services to the public over wired or wireless facilities as listed below.

Table 3: Operators Authorized to Provide Public Fixed Domestic Telecommunications Services as at 2011

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 authorized by the Authority to provide fixed telecommunications services, only three operators offered domestic fixed voice services in 2011. TSTT offered fixed voice services through their Public Switched Telephone Network and FLOW

via their Hybrid Fibre Coax network. 360 Communications entered the market in 2011 providing fixed voice services through its Gigabit Passive Optic Network (GPON).

2.1 Fixed Voice Subscriptions

2.1.1 Annual Fixed Voice Subscriptions

Subscriptions for the fixed voice market continued its downward trend over the last five years as illustrated in Figure 8. In 2011, total subscriptions recorded approximately 291.5 thousand subscriptions compared to 293.3 thousand in 2010. This represented an overall 0.6 per cent or 1.3 thousand fall in subscriptions from the last period. It has been observed that the decline in fixed voice subscription decreased at a slower rate in 2011 as opposed to 2010 which recorded a reduction of 3.3 per cent.

Figure 8: Fixed Voice Subscriptions 2007-2011



Source: TATT

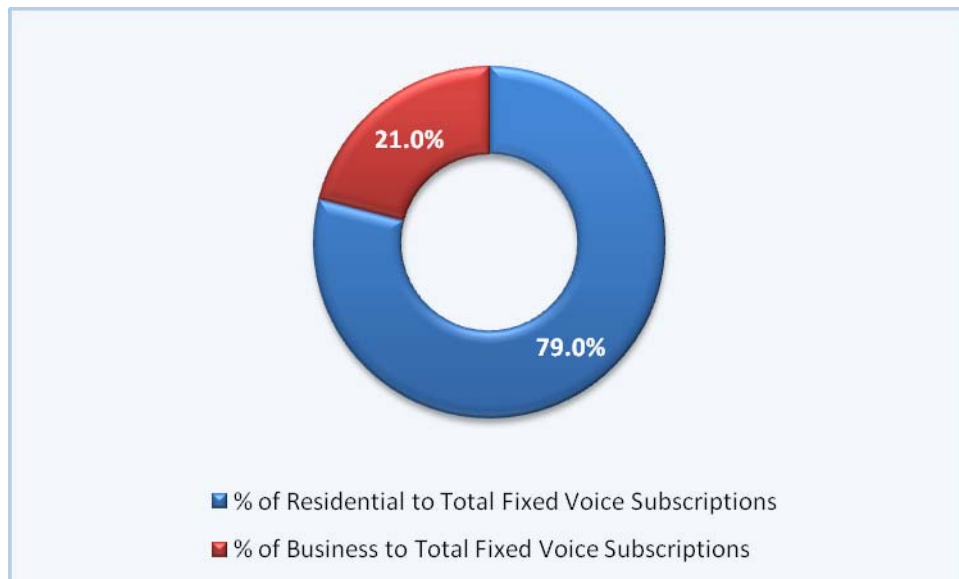
In general there has been a downward trend in the number of fixed voice subscriptions with the exception of 2008 which showed a slight increase as a new player, FLOW entered the market in 2007. The downward trend observed in the fixed voice market in recent years has been consistent with global trends due to the increased popularity of mobile phones. Similar to the United

States¹⁵, the 2 major fixed line providers have prevented the number of fixed line subscriptions from falling rapidly by the introduction of bundled services. Both, TSTT and Flow offer fixed voice services individually and also as part of a package with broadband and Subscription TV.

2.1.2 Annual Residential and Business Fixed Voice Subscriptions

The fixed voice market in Trinidad and Tobago can be grouped into two categories - residential subscriptions and business subscriptions (inclusive of companies subscribing to systems services, e.g. PBX trunks). As at December 2011, out of the recorded 291.5 fixed voice subscriptions, 230.3 thousand or 79.0 per cent were residential, and 61.2 thousand or 21.0 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 2011



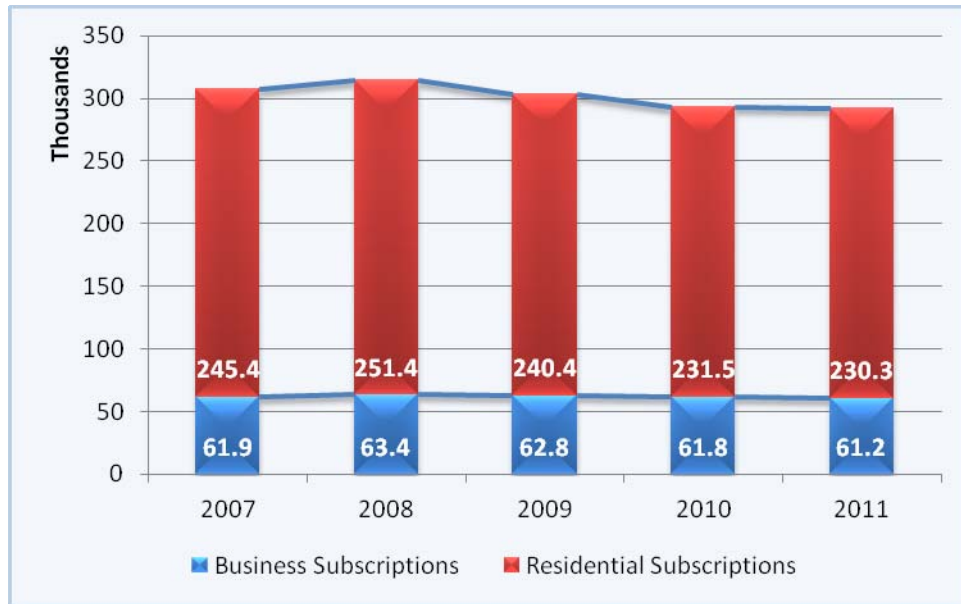
Source: TATT

Overall, the number of residential and business fixed voice subscriptions has declined moderately. While a marked reduction from 2008 to 2010 was observed, residential fixed voice subscriptions declined by just over 1000 subscriptions, representing a 0.5 per cent decrease in

¹⁵ See Business Monitor article: Market Data Analysis – Fixed Line Q3 2012.

2011. The business market for fixed voice subscriptions continues its steady, albeit minimal, decline over the past five (5) years. In 2011, business fixed voice subscriptions fell by approximately 600 subscriptions or 1 per cent.

Figure 10: Residential and Business Fixed Voice Subscriptions 2007-2011

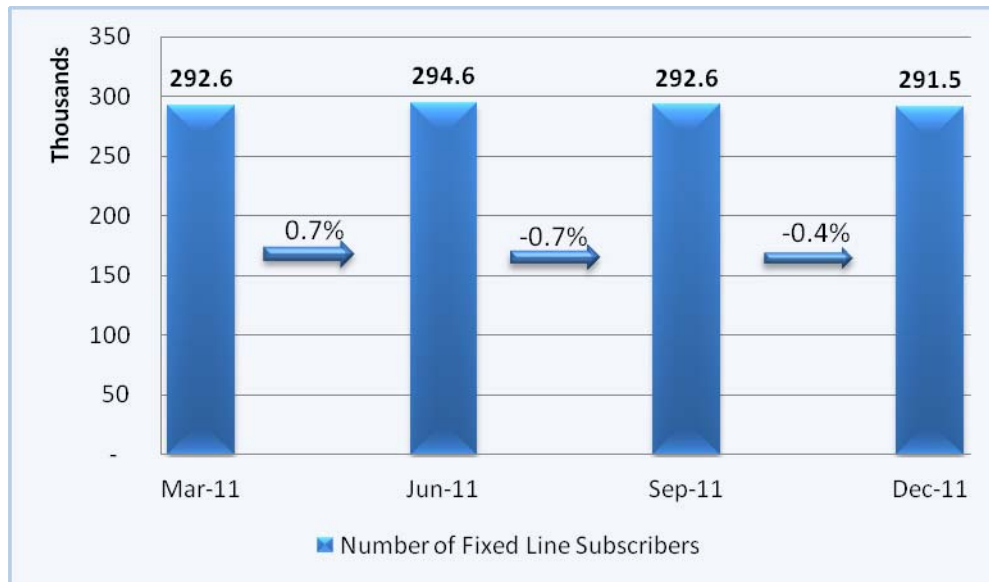


Source: TATT

2.1.3 Quarterly Fixed Voice Subscriptions

Figure 11 shows the quarterly trend in fixed voice subscriptions during 2011. Despite an 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 2011.

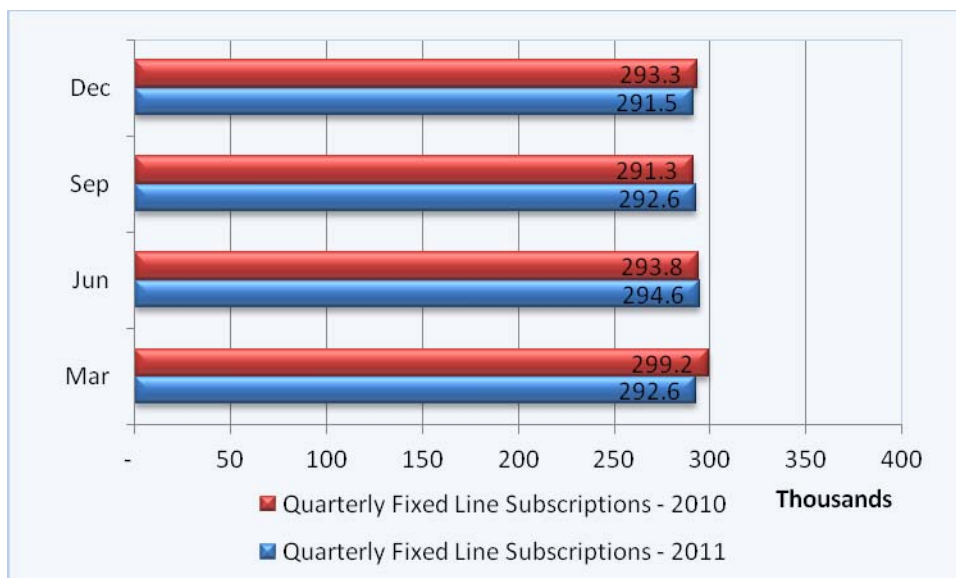
Figure 11: Quarterly Fixed Voice Subscriptions 2011



Source: TATT

As seen in Figure 12 below, fixed voice subscriptions generally declined over both periods, decreasing by 2.7 per cent from 2010 to 2011.

Figure 12: Comparison of Quarters 2010 and 2011

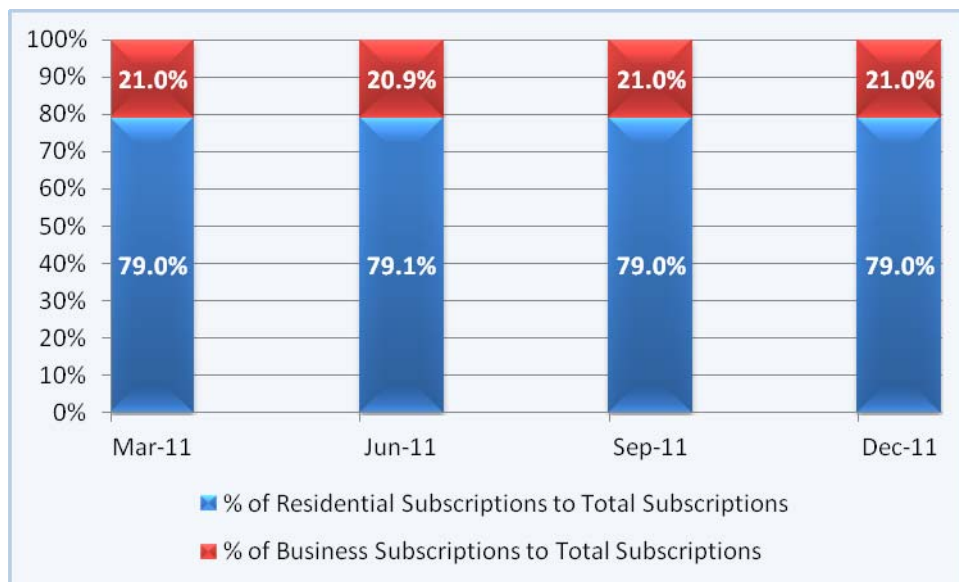


Source: TATT

2.1.4 Quarterly Residential and Business Fixed Voice Subscriptions

Figure 13 below shows a breakdown of residential and business fixed voice subscriptions as at the end of each quarter for 2011. With just over 230 thousand subscriptions, residential fixed voice subscriptions captured 79.0 per cent of the market, as at the end of quarter one in 2011. Business fixed voice subscriptions captured 21.0 per cent of the market with just over 61 thousand subscriptions. This result remained relatively stable throughout the quarters of 2011 as residential subscriptions consistently constituted the majority of the fixed voice market.

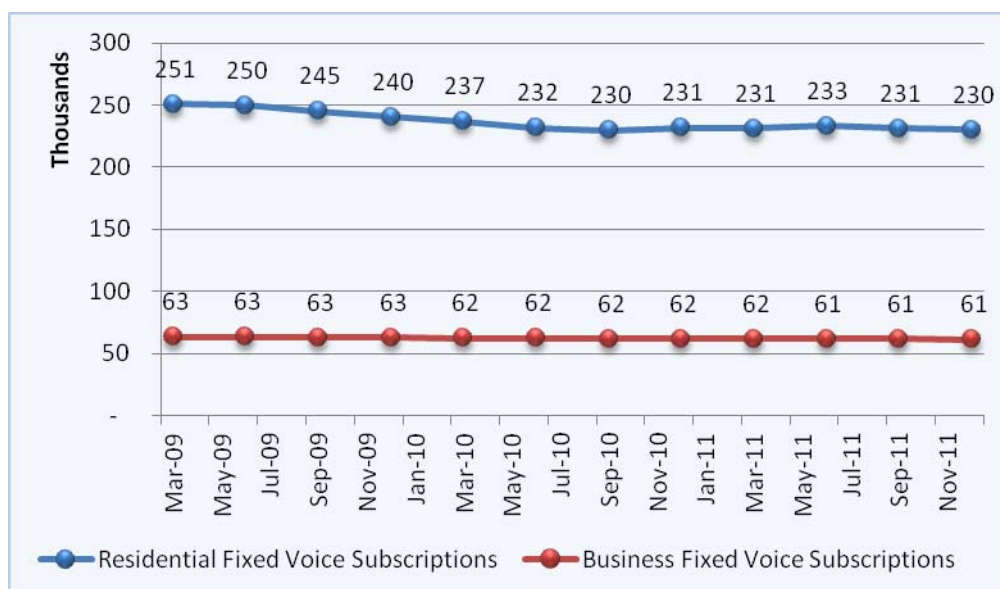
Figure 13: Percentage Breakdown of Quarterly Residential and Business Fixed Voice Subscriptions 2011



Source: TATT

Over the past three years, the number of subscriptions to Fixed Voice services continued to decline. As seen in Figure 14, the fixed voice market has experienced steady declines in subscribership with a greater effect being observed in the residential category. Residential subscriptions declined by approximately 8.4 per cent while business subscriptions declined 3.2 per cent from 2009 to 2011.

Figure 14: Comparison of Residential Subscriptions between Quarters 2009 to 2011



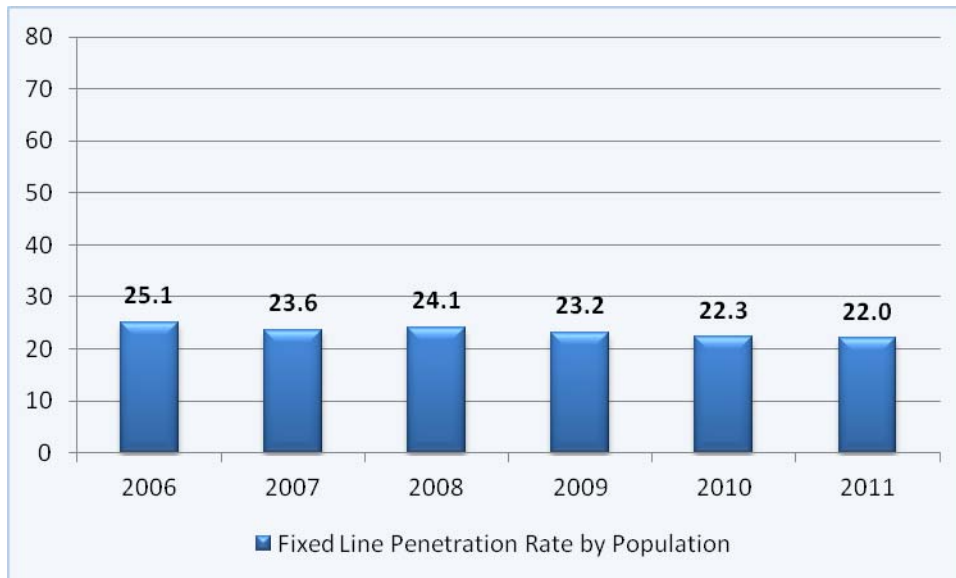
Source: TATT

2.2 Fixed Line Penetration

As the standard metric recognised internationally to measure the adoption of fixed voice services, fixed line penetration¹⁶ is calculated based on the number of fixed voice subscriptions per 100 of the population. As at December 2011 fixed line penetration decreased minimally from 22.3 in 2010 to 22.0 in 2011, representing a 1.4 per cent fall. This means that in 2011 there were approximately 22 fixed lines available to every 100 persons in Trinidad and Tobago. This result is a reflection of the steady reduction in fixed line subscriptions over the last two years. An illustration of the fixed line penetration trend from 2006 to 2011 is given in Figure 15.

¹⁶ Fixed line penetration = (number of residential fixed voice subscriptions / total population) *100

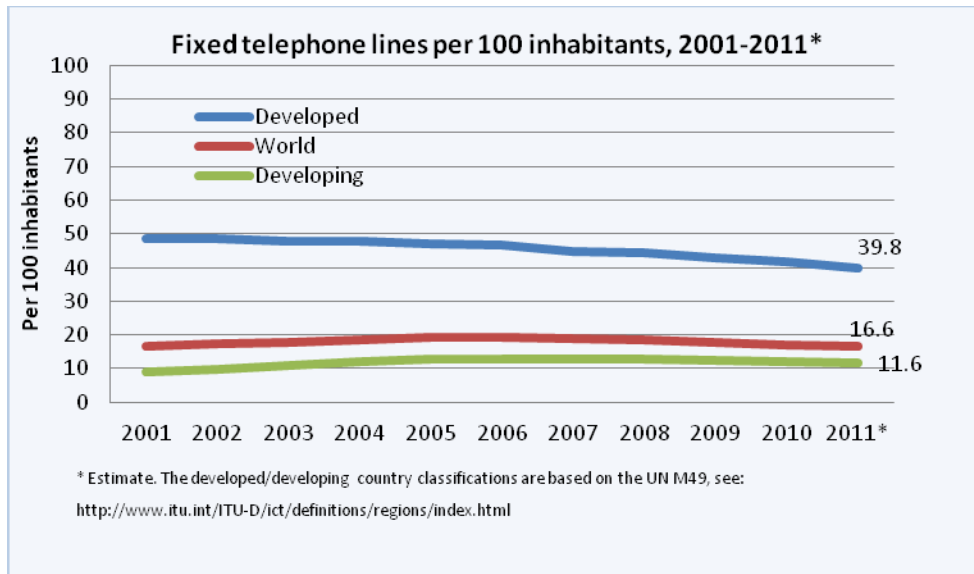
Figure 15: Fixed Line Penetration 2006-2011



Source: TATT

Global trends for fixed telephone lines per 100 inhabitants over the past decade have also been declining. As seen in Figure 16 below, with a fixed line penetration of 22.0 in 2011, Trinidad and Tobago falls considerably below the average fixed line penetration of countries in the developed world with an average of 39.8 fixed lines available for every 100 inhabitants. However, in 2011 the Trinidad and Tobago fixed voice market performed moderately better than the developing countries' average penetration rate of 11.6 and the world average penetration rate of 16.6.

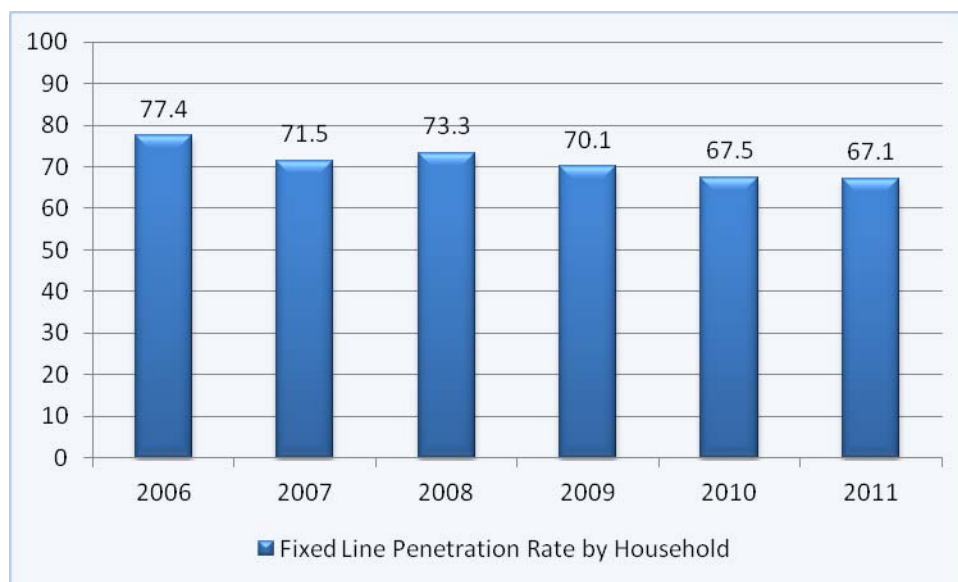
Figure 16: Global Comparison of Fixed Line Penetration 2006-2011



Source: ITU World Telecommunication /ICT Indicators database 2011

Fixed line household penetration¹⁷ also decreased minimally from 67.5 in 2010 to 67.1 in 2011, signifying that approximately 67 out of every 100 households had access to fixed voice services as at the end of 2011. Fixed line household penetration dropped by approximately 0.6 per cent from 2010 to 2011. Figure 17 shows the trend in fixed line household penetration for the past six years.

Figure 17: Fixed Line Household Penetration 2006-2011



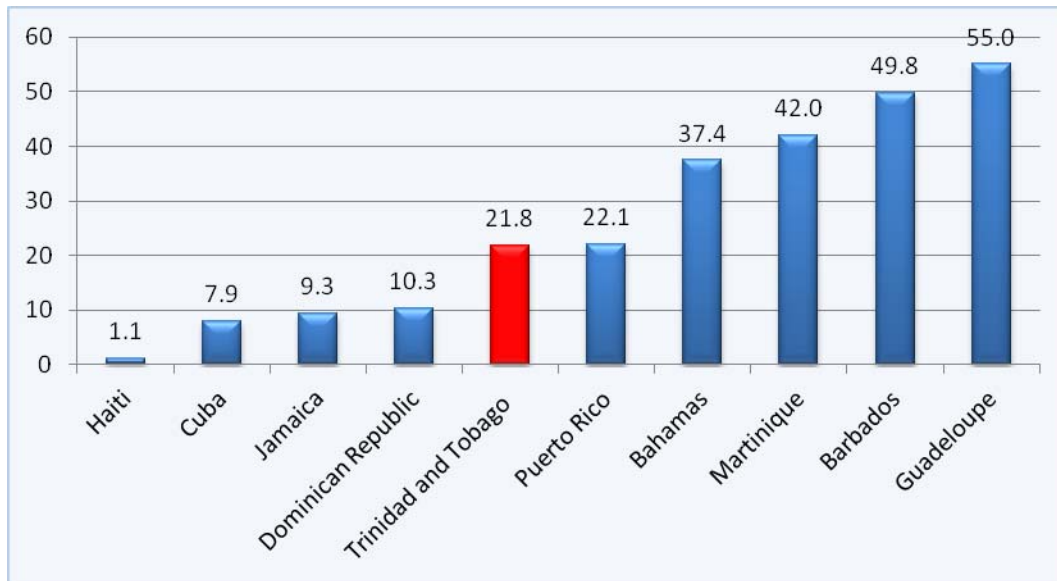
¹⁷ Fixed line household penetration = (number of residential fixed voice subscriptions / total number of households) *100. Number of households based on the 2000 Census.

2.2.1 Fixed Penetration Rates among Selected Caribbean Countries

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

¹⁸ BMI Caribbean Telecommunications Report Q1 2011

Figure 18: 2011 Fixed Line Penetration among selected Countries

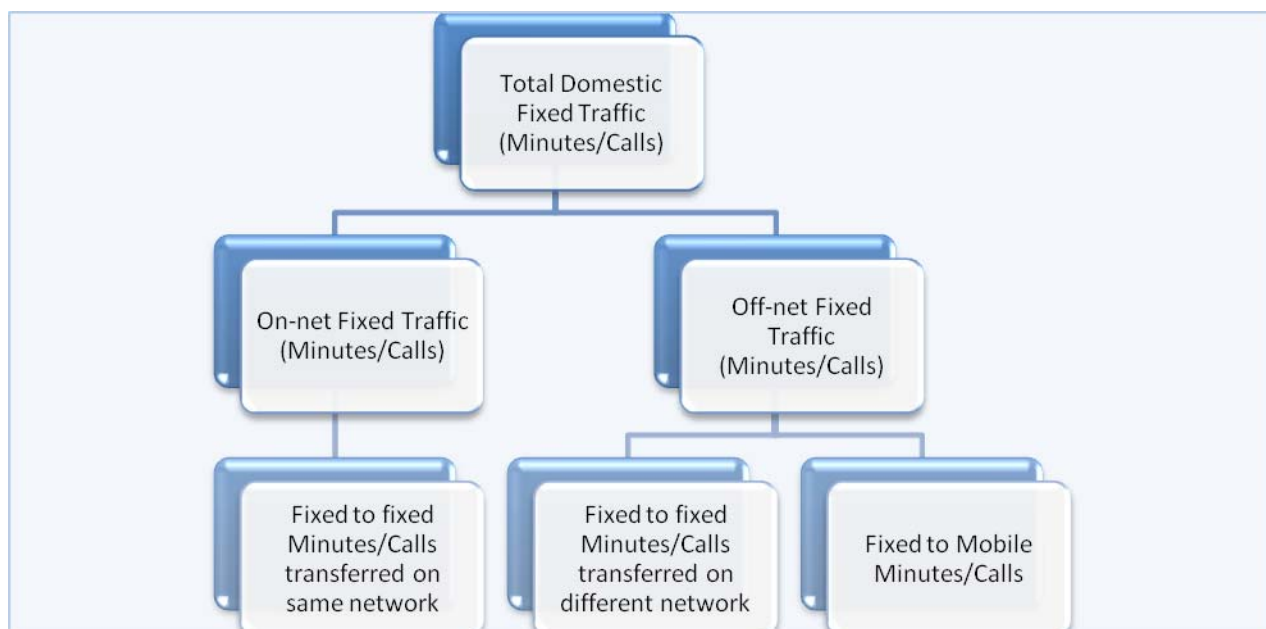


Source: BMI Caribbean Telecommunications Report Q2 2012 and TATT

2.3 Domestic Fixed Voice Traffic

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

Figure 19: Classification of Domestic Fixed Traffic



Source: TATT

2.3.1 Annual Domestic Fixed Voice Traffic in Minutes

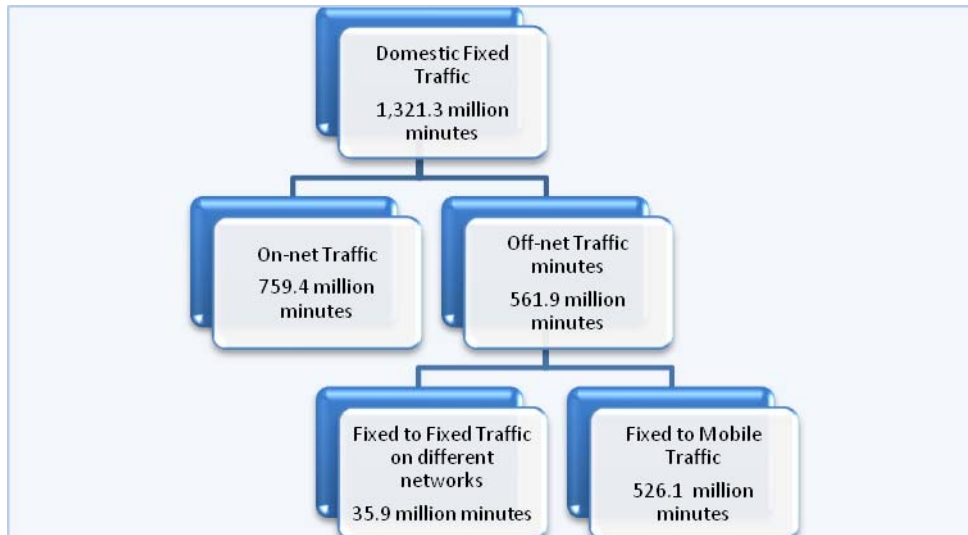
When compared to 2010, fixed voice traffic minutes dipped by 5.2 per cent in 2011 with a total of 1,321.3 million fixed voice minutes. Despite the overall decline in fixed voice minutes, fixed to fixed minutes transferred on different networks continued to climb significantly. However, given that fixed to fixed minutes transferred on different networks represent a small percentage of total minutes; this significant increase was insufficient to outweigh the overall decrease in fixed voice minutes. Figure 20 shows a breakdown of fixed voice minutes by traffic-types for 2011. Of the 1,321.3 million minutes of domestic fixed traffic, on-net¹⁹ traffic totalled 759.4 million minutes, a 6.0 per cent reduction in minutes compared to the last period. Similarly, off-net²⁰ traffic fell by 4.1 per cent, recording 561.9 million minutes in traffic. Fixed to fixed off-net

¹⁹ On-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on the same fixed network.

²⁰ 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 totalled 35.9 million, an 87.2 per cent growth over the 2010 period whilst fixed to mobile minutes decreased by 7.2 per cent to 526.1 million minutes.

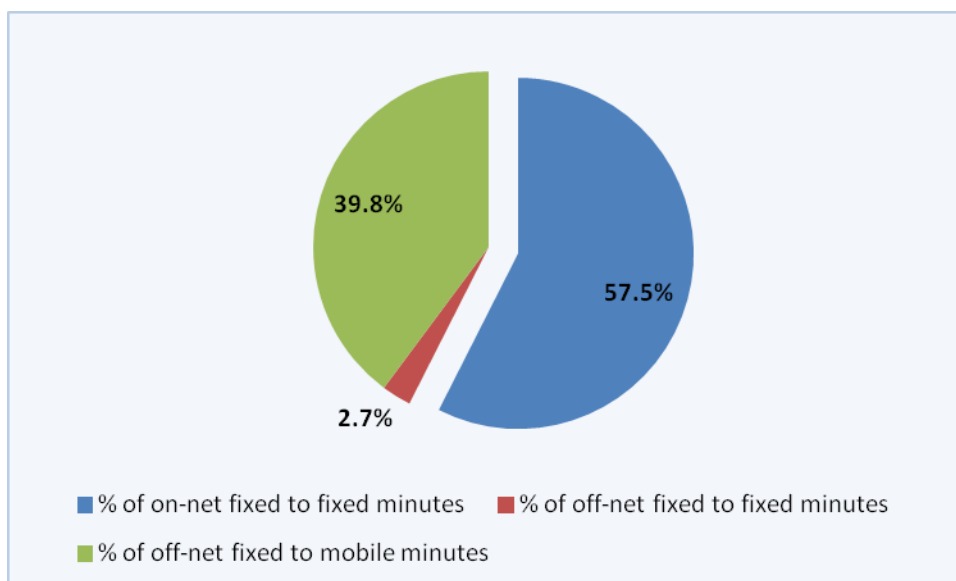
Figure 20: Breakdown of fixed domestic traffic minutes 2011



Source: TATT

The proportion of on-net traffic minutes to total off-net traffic minutes remained relatively stable as compared to 2010 with 759.4 million or 57.5 per cent of minutes being on-net traffic and 561.9 million or 42.5 per cent being off-net traffic. Furthermore, off-net fixed to mobile minutes comprised the majority of total off-net minutes (compared to off-net fixed to fixed) with 526.1 million minutes contributing 39.8 per cent to total fixed voice traffic minutes. Alternatively, off-net fixed to fixed minutes comprised the minority with 35.9 million minutes contributing to 2.7 per cent to total fixed voice traffic minutes. This percentage breakdown of minutes by traffic-types is shown in Figure 21 below:

Figure 21: Percentage Breakdown of Total domestic fixed traffic minutes by traffic-types 2011



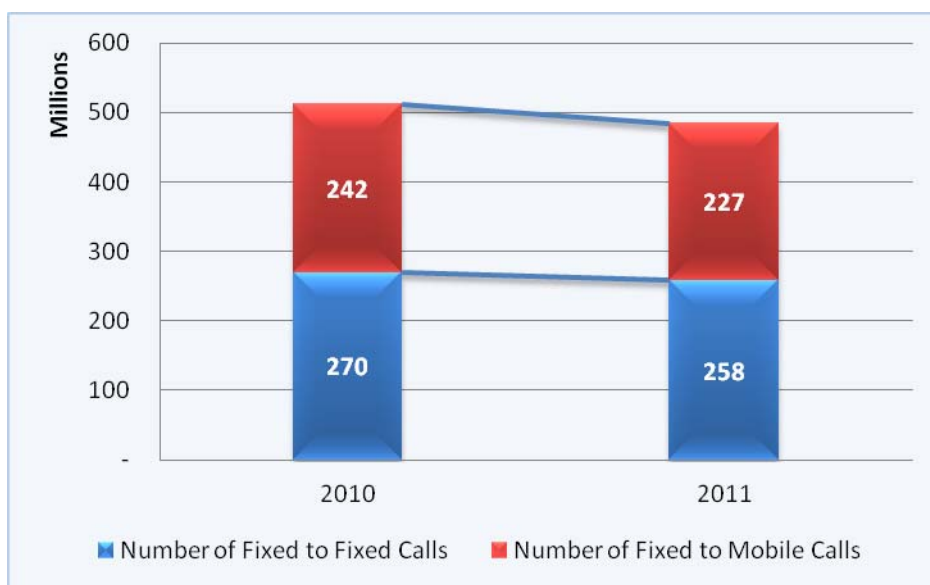
Source: TATT

2.3.2 Annual Domestic Fixed Voice Call Volumes

The number of domestic fixed voice calls totalled 484.9 million during the 2011 period. This represents a 5.3 per cent dip when compared to the 2010 period. Similar to fixed voice minutes, call volumes can be broken down into traffic-types, as outlined in Figure 19 above. Fixed to fixed calls accounted for 258 million²¹ or 53.2 per cent of total fixed voice calls. Fixed to mobile calls accounted for 226.9 million calls or 46.8 per cent of total fixed voice calls. When compared to 2010, total fixed to mobile calls decreased by 6.3 percent while fixed to fixed calls experienced a smaller decrease of 4.4 per cent. Figure 22 below provides a breakdown of domestic fixed line calls 2011.

²¹ This Figure includes both fixed to fixed on-net and off-net minutes.

Figure 22: Comparison of Domestic Call Volume Traffic Type 2010-2011

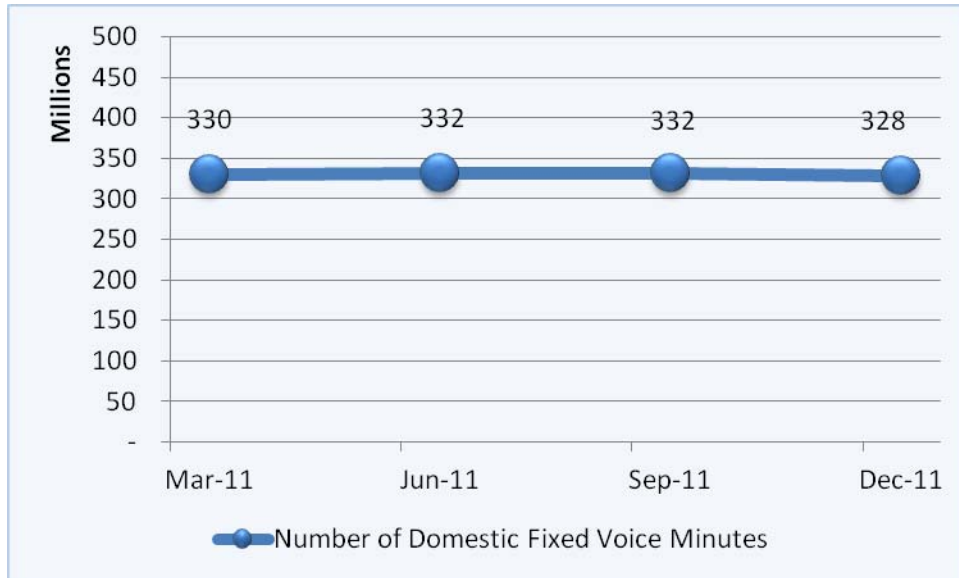


Source: TATT

2.3.3 Quarterly Domestic Fixed Voice Traffic

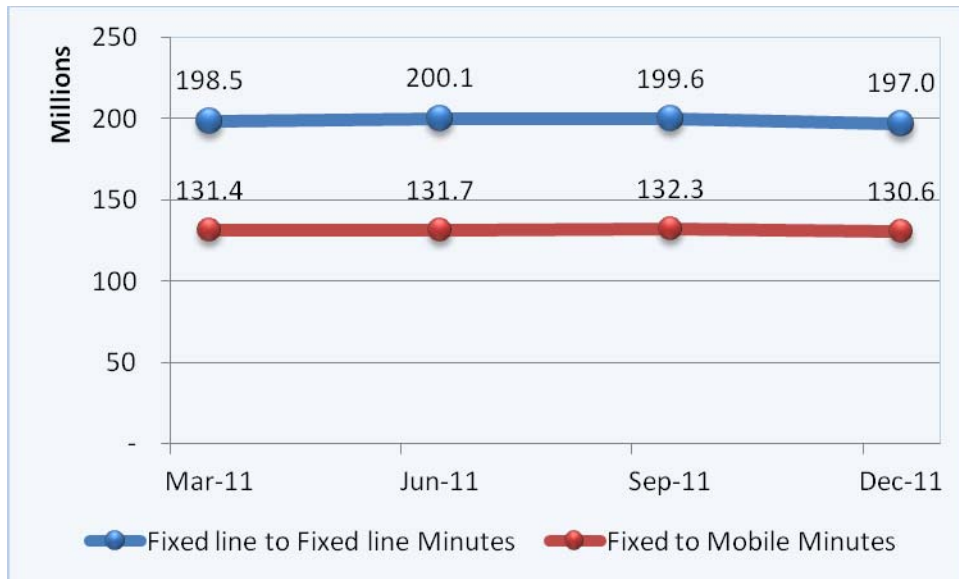
Despite the overall decline, fixed voice minutes remained relatively steady between Q1 2011 and Q4 2011. Total domestic fixed voice traffic dipped by 2.4 million minutes between Q1 and Q4 from 330 million minutes to 327.6 million minutes, a 0.7 per cent decline between periods. Additionally, the proportion of fixed-to-fixed traffic minutes to fixed-to-mobile traffic minutes also remained relatively stable during 2011. For the first quarter of 2011, fixed-to-fixed traffic minutes totalled 198.5 million minutes or 60.2 per cent of total domestic fixed voice traffic minutes. This share gradually decreased to 197 million minutes, or 60.1 per cent of total domestic traffic minutes by the fourth quarter of 2011. Synonymous with this decrease in the share of fixed-to-fixed traffic minutes is the increase in the share of fixed traffic minutes to mobile networks. The trend in the quarterly fixed voice traffic minutes for 2011 is shown in Figure 23 while the quarterly trend by traffic-type is depicted in Figure 24.

Figure 23: Quarterly Fixed Voice Traffic 2011



Source: TATT

Figure 24: Quarterly Fixed Voice Traffic Minutes by Type 2011



Source: TATT

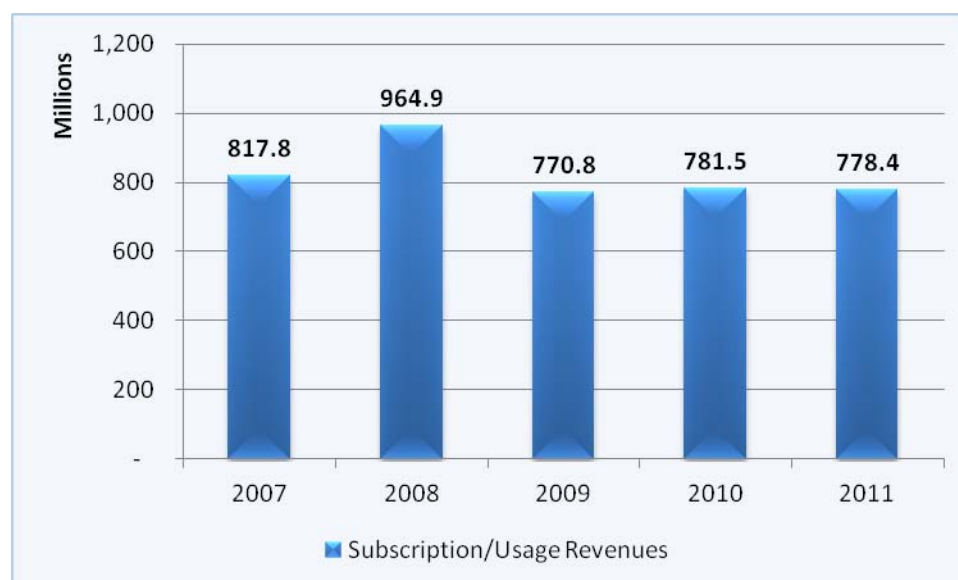
2.4 Fixed Telephony Revenues

2.4.1 Annual Fixed Voice Revenues

Gross revenues received from all fixed voice services²² totalled TT \$786.0 million in 2011 as compared to TT \$783.4 million in 2010, a 0.3 per cent increase. However, gross revenues received from fixed voice subscriptions for 2011 amounted to TT \$778.4 million as compared to TT \$781.5 million for 2010 resulting in a decrease of TT \$23.8 million or 0.4 per cent. The TT \$9.5 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 2007 to 2011 is illustrated in Figure 25.

Figure 25: Fixed Voice Subscription Revenues 2007-2011



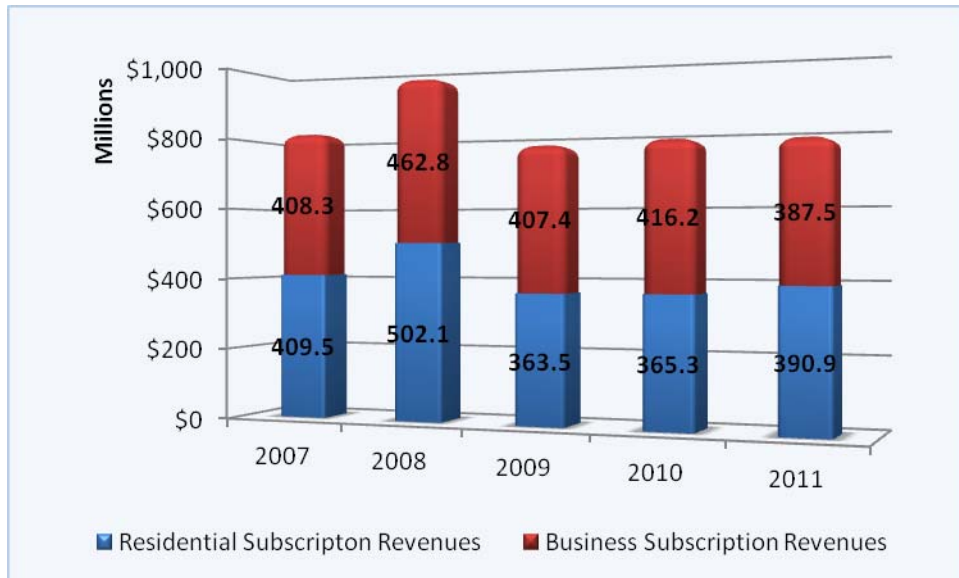
Source: TATT

Within the subscription categories, residential subscriptions contributed TT \$390.9 million or 50.2 per cent of total fixed voice subscription revenues, a 7.0 per cent increase from 2010.

²² Fixed voice services include revenues from voice subscriptions, payphones, calling cards, and miscellaneous services.

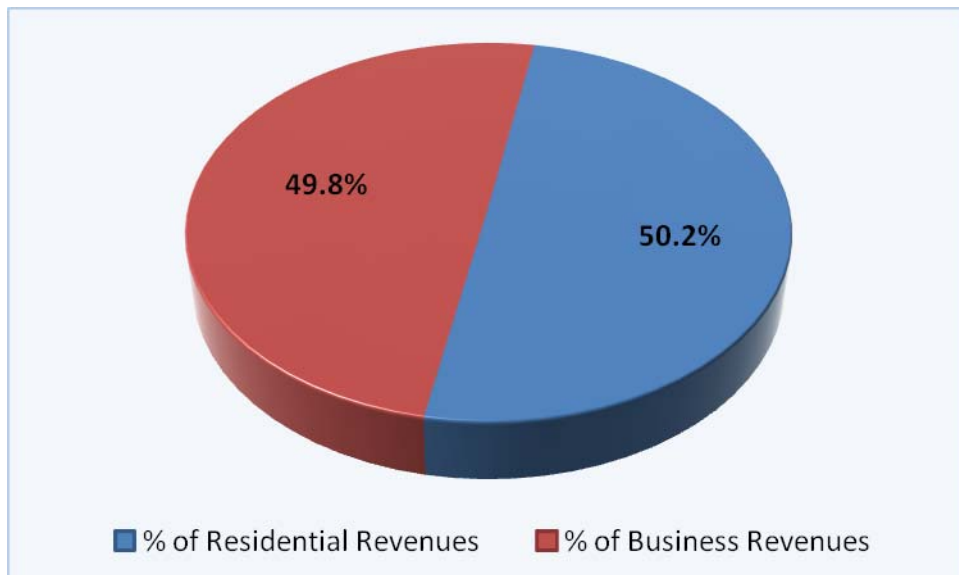
Business subscriptions accounted for TT \$387.5 million or 49.8 per cent of total fixed voice subscription revenues, a decrease of 6.9 per cent from 2010. Figure 26 shows the separation of annual revenues according to residential and business categories over the past 5 years while Figure 27 illustrates the percentage of revenue contribution for the 2011 period.

Figure 26: Residential and Business Fixed Voice Subscription Revenues 2007-2011



Source: TATT

Figure 27: Percentage breakdown of Residential and Business Revenues 2011

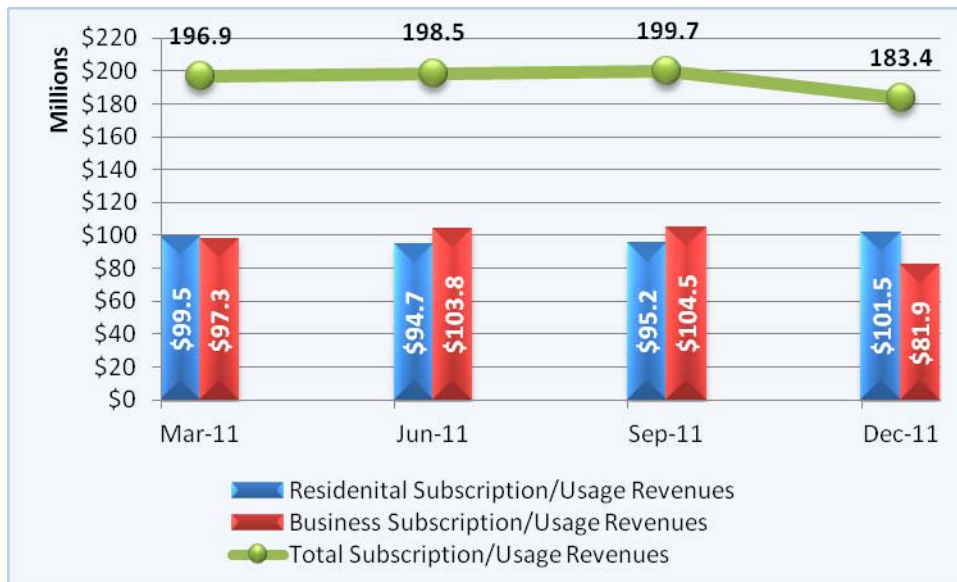


Source: TATT

2.4.2 Quarterly Fixed Voice Subscription Revenues

During 2011 quarterly fixed voice revenues fluctuated during the period, decreasing by 6.9 per cent from the first quarter to the fourth quarter. Notably, total subscription/usage revenues increased in the second and third quarters and dipped in the fourth quarter of 2011. Residential revenues peaked in the fourth quarter while business revenues peaked in the third quarter. The quarterly residential and business revenues for 2011 are depicted in Figure 28 below.

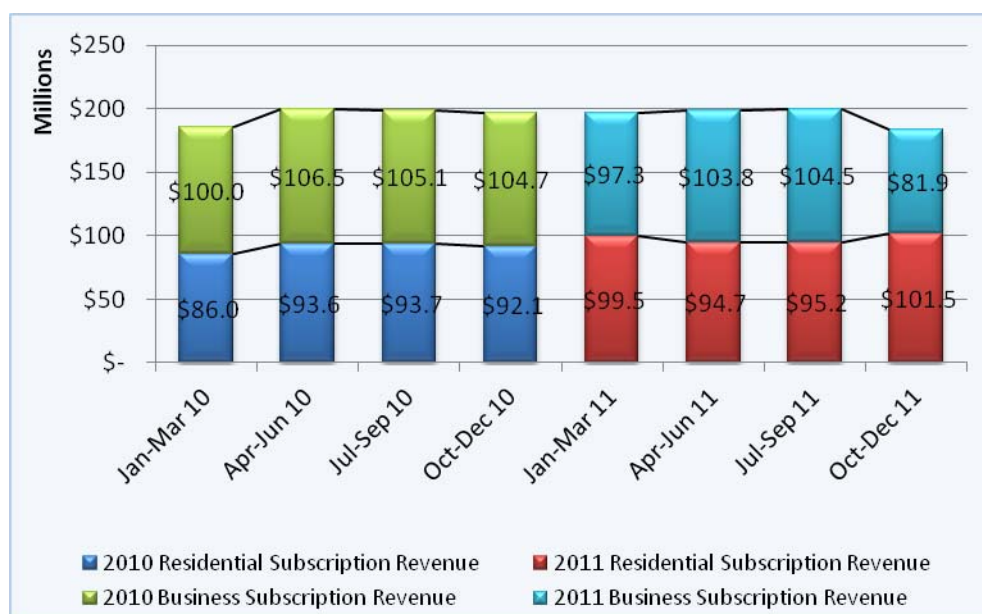
Figure 28: 2011 Quarterly Residential and Business Voice Subscription Revenues



Source: TATT

Residential fixed voice revenues increased by 8.0 per cent between the fourth quarter of 2010 and the first quarter 2011. Residential revenues subsequently decreased in the second quarter while increasing slightly during the second half of 2011. Alternatively, business fixed voice revenues started and ended the year with negative movements. Although increases were observed during the second and third quarters, business revenues decreased in the first quarter by 7.0 per cent and more significantly in the fourth quarter by 21.6 per cent. Figure 29 illustrates.

Figure 29: Comparison of 2010 and 2011 Quarterly Residential and Business Voice Subscription Revenues



Source: TATT

2.5 Fixed Market Concentration

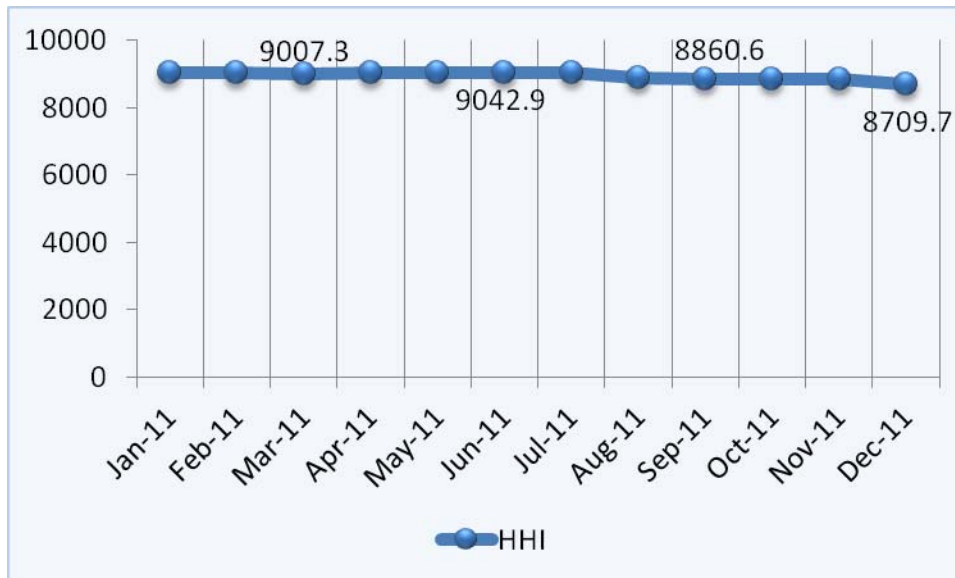
Consistent with the Authority’s Price Regulation Framework, the Hirschman-Herfindahl Index (HHI)²³ has been adopted to measure the level of market concentration and the state of competitiveness in the market.

At December 2011, the HHI calculated for the fixed voice market was 8,710²⁴ compared to 8,972 as at December 2010. While these figures indicate that the market remains lowly contested and concentrated, there has been a slight decrease in the level of concentration. This decrease in level of concentration implies a minor shift in the proportion of subscriptions between the players in the fixed voice market as well as the introduction of a new player in the fixed voice market. As graphically illustrated in Figure 30, the HHI has remained relatively stable during 2011.

²³ HHI is a useful tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market shares of all firms in the market. The guidelines used for market concentration are: HHI < 1,000 – **Unconcentrated**, 1,000 < HHI < 1,800 – **Moderately Concentrated** and HHI > 1,800 **Concentrated**. In addition, according to the Authority’s Price Regulation Framework (www.tatt.org.tt), the Authority defines competitiveness as follows: HHI ≤ 1,800 – **Competitive**, HHI > 1,800 – **Contested**, HHI = 10,000 – **Uncontested**.

²⁴ Based on subscription market share

Figure 30: HHI for the Fixed Voice Market 2010-2011



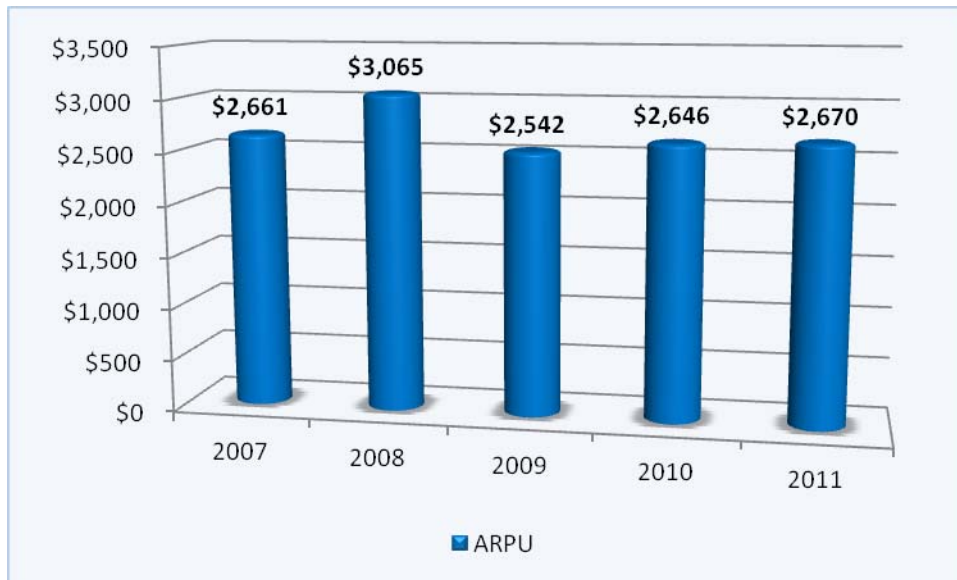
Source: TATT

2.6 Average Revenue per User (ARPU)

On average, each consumer spent TT \$2,670 in 2011 for fixed voice services. This represents an increase of TT \$24 or 0.9 per cent in the average revenue per user (ARPU)²⁵ over the amount recorded for 2010. The changes in ARPU for the last five years are highlighted in Figure 31.

²⁵ ARPU measures the average revenue generated by one subscriber. It is calculated = (Total revenues for fixed voice subscriptions / Total number of fixed subscriptions)

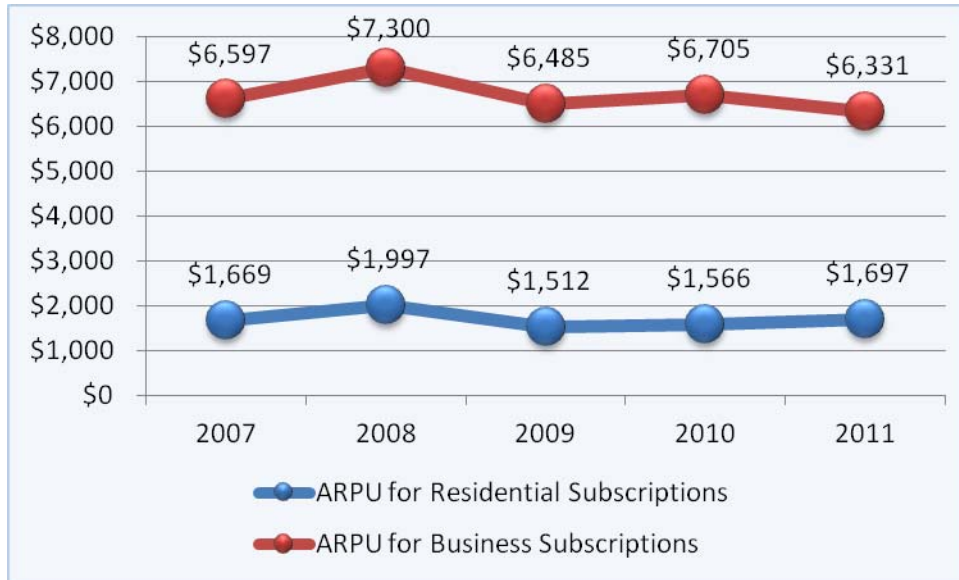
Figure 31: ARPU Fixed Voice Services 2007 – 2011



Source: TATT

The overall increase in fixed voice ARPU is attributed to a greater increase in residential ARPU offsetting a smaller decrease in business ARPU. Residential consumers spent an average of TT \$1,697 on fixed voice subscription services, an increase of 8.4 per cent over 2010. On the other hand, business consumers spent an average of TT \$6,331 on fixed voice subscription services, sliding by 5.6 per cent. The overall increase in ARPU is consistent with a greater decrease in total subscriptions offsetting a smaller decrease in total revenues observed in 2011. The trend in ARPU for residential and business consumers is illustrated in Figure 32.

Figure 32: ARPU for Fixed Residential and Business Voice Services 2007-2011



Source: TATT

Key Market trends and Observations in the Mobile Voice Market

- Marginal decrease in mobile voice subscriptions
- Postpaid subscriptions increase while prepaid subscriptions decrease
- Higher prepaid-to-postpaid migration
- Increase in gross revenues from mobile voice services

3. Mobile Voice Market Data²⁶

During 2011, there were two mobile service providers authorized to provide public domestic mobile telecommunications services on a national basis in Trinidad and Tobago. They were:

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

The mobile market data compiled below is representative of these two operators for the period January to December 2011.

3.1 Mobile Voice Subscriptions²⁷

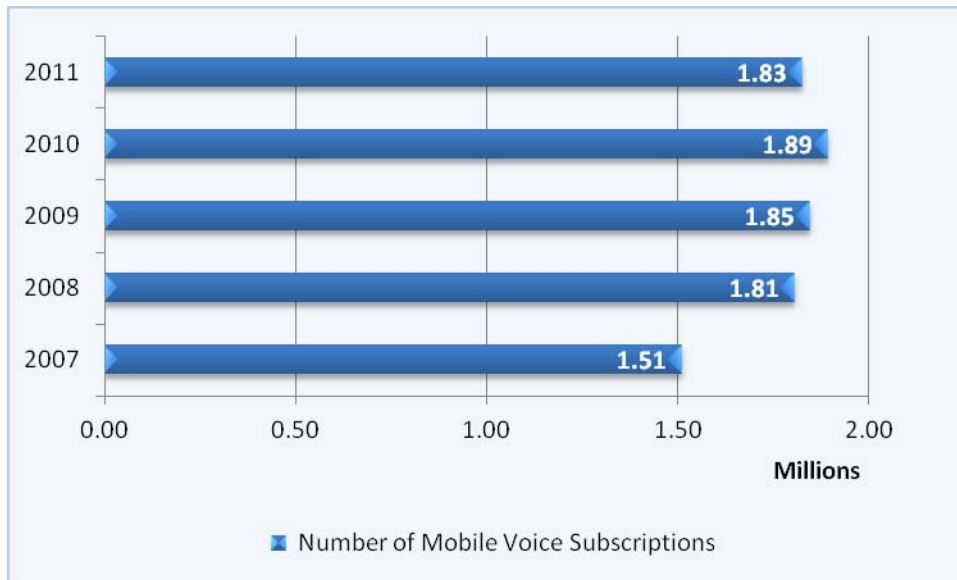
3.1.1 Annual Mobile Subscriptions

As at December 2011, the mobile market recorded a total of 1.83 million subscriptions of which 1.61 million were prepaid subscriptions and 219.8 thousand were post paid. This total represents a decrease of 68 thousand or 3.6 per cent over the 1.89 million subscriptions recorded in 2011. Following three years of stable growth, the mobile voice market has dipped slightly in 2011 as Figure 33 below highlights.

²⁶ A mobile voice subscriptions includes SMS services

²⁷ A mobile voice subscription refers to an activated (pre-paid or post-paid) SIM card that enables the user to make and/or receive a call.

Figure 33: Mobile Subscriptions 2007 - 2011

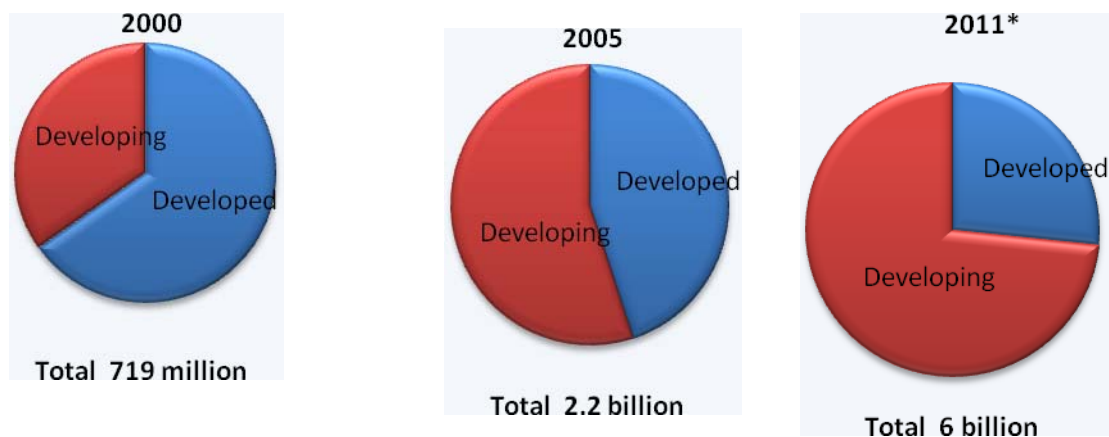


Source: TATT

According to the ITU “total mobile-cellular subscriptions reached almost 6 billion by end

2011...”, and that this “growth was driven by developing countries, which accounted for more than 80% of the 660 million new mobile-cellular subscriptions added in 2011”. This observation has been supported by ITU’s data as seen in Figure 34 below. Mobile subscriptions in the developing world have increased sharply; more than doubling over the past decade with, approximately 73 per cent of mobile subscriptions belonging to the developing world in 2011.

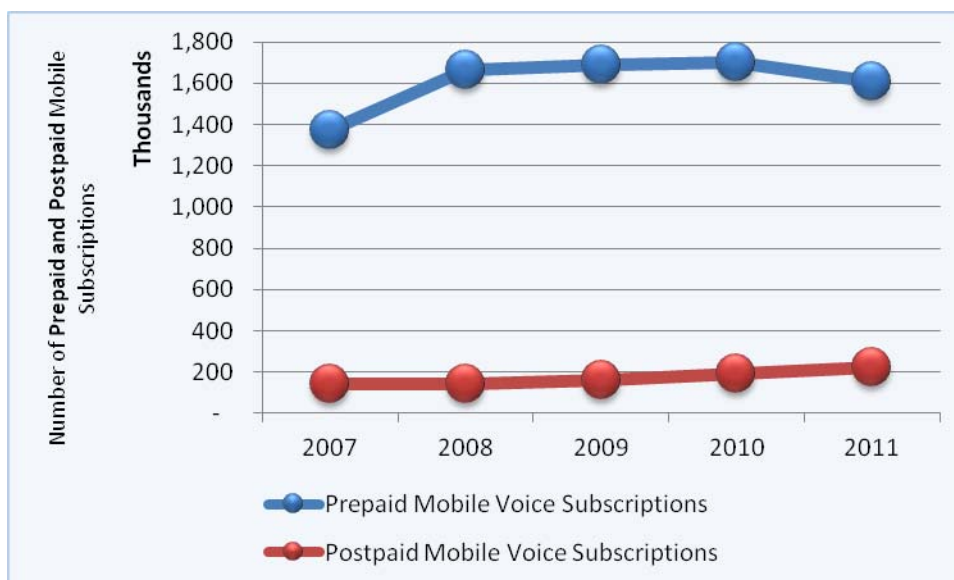
Figure 34: Global Mobile cellular subscriptions, by level of Development



* Estimate.
The developed/developing country classifications are based on the UN II.149, see
<http://www.itu.int/ITU-C/ict/definitions/regions/index.html>
Source: ITU World Telecommunication ICT Indicators database

Over the years, prepaid mobile voice services have certainly proven to be the more popular choice among local consumers, given the large gap that exists between the number of prepaid and postpaid subscriptions. However, recent data indicates that this gap is slowly becoming narrower as the growth in prepaid subscriptions have slowed and the number of postpaid subscriptions have increased in 2011. As Figure 35 highlights, the number of prepaid subscriptions experienced its first decline in 2011, recording 1.6 million subscriptions as at December 2011, a 5.6 decrease over the 2010 period. On the other hand, the postpaid market continued to soar with 219.8 thousand subscriptions being recorded as at December 2011, a 14.2 percent increase over the 2010 period. This market evidence suggests that service providers have, in 2011, engaged in more aggressive marketing strategies towards the uptake of postpaid mobile subscriptions as opposed to the previous year.

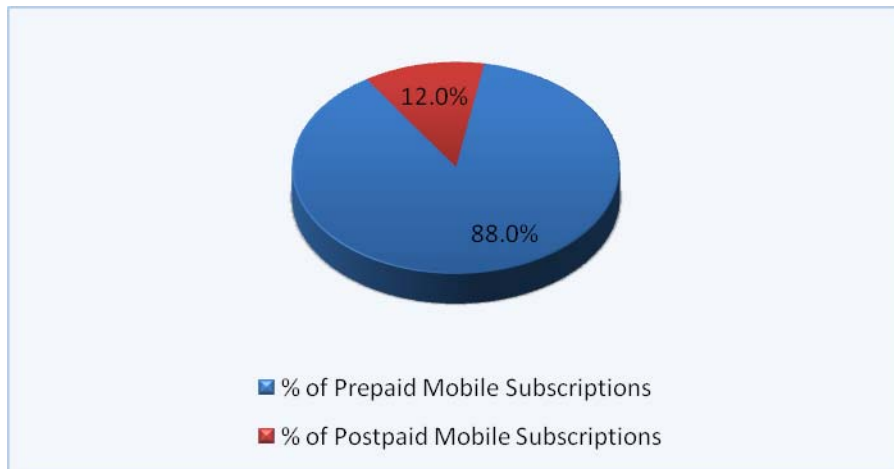
Figure 35: Mobile Prepaid and Postpaid subscriptions 2007-2011



Source: TATT

Globally, surveys have suggested that subscribers prefer prepaid packages to postpaid packages as there are no contractual commitments and it gives consumers, especially those within the lower income bracket, the flexibility to use mobile services only when they can afford it. Even though there appears to be a slight narrowing of the gap between prepaid and postpaid locally, prepaid subscriptions continue to account for the majority of the mobile market with approximately 88 per cent market share as at December 2011. Postpaid subscriptions accounted for the remaining 12 per cent share of the market. Figure 36 illustrates the percentage breakdown of mobile subscriptions.

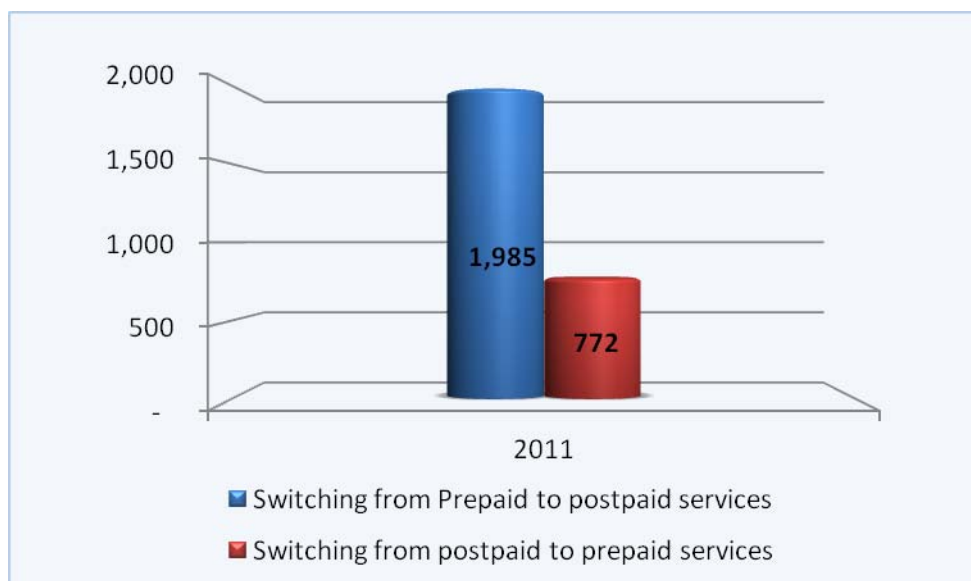
Figure 36: Percentage of Prepaid and Postpaid Subscriptions in 2011



Source: TATT

Furthermore, the data supports the minimal contraction in the prepaid-postpaid gap with a higher prepaid-to-postpaid migration being observed in 2011 compared to postpaid-to-prepaid migration in the same time period. During 2011 there were approximately 2000 subscriptions migrating from prepaid services to postpaid services in contrast to just under 800 subscriptions migrating from postpaid to prepaid services. Figure 37 illustrates.

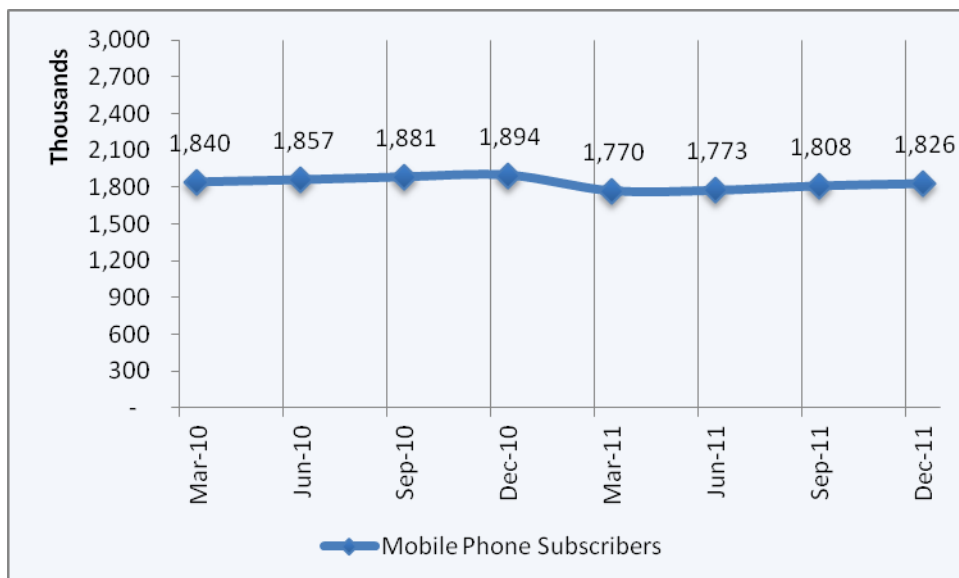
Figure 37: Prepaid-to-Postpaid Migration in 2011



3.1.2 Quarterly Mobile Subscriptions

While the quarterly trends in mobile voice subscriptions show a steady quarter on quarter increase in subscriptions during 2011, these were not adequate to compensate for the fall in subscriptions experienced in the first quarter. Mobile voice subscriptions fell from 1.89 million subscriptions in Q4 2010 to 1.77 million in Q1 2011. Minimal quarter on quarter growth during 2011 was observed with subscriptions growing an average of 1 per cent each quarter. Mobile voice subscriptions increased by 1.0 per cent from the first quarter to the second quarter, by 1.2 percent from the second to the third quarter and by only 0.7 per cent from the third quarter to the fourth quarter. Figure 38 below illustrates the quarterly trend for 2010 and 2011.

Figure 38: Quarterly Number of Subscriptions 2010 - 2011

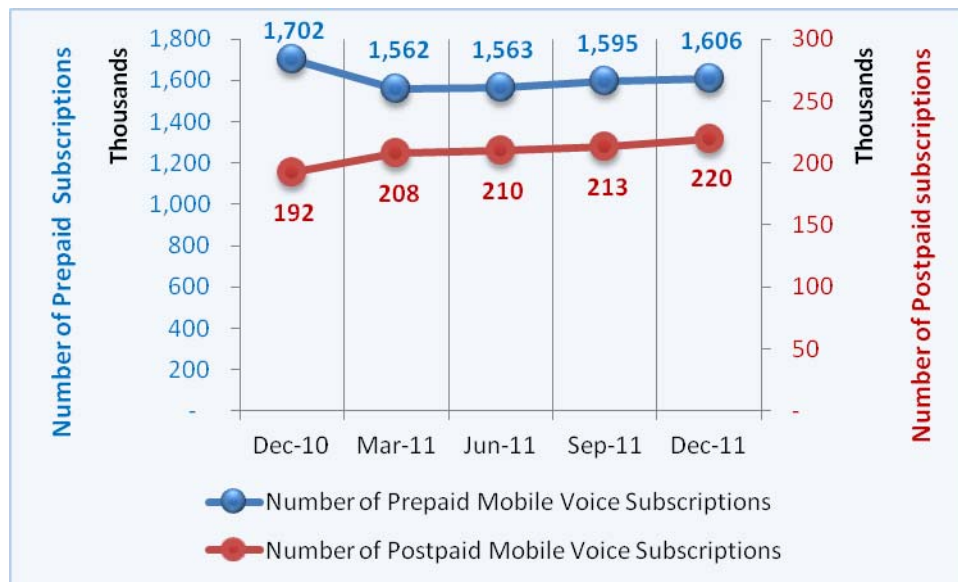


Source: TATT

Figure 39 below shows the quarterly trend for both prepaid and postpaid subscriptions during the 2011 period. While gradual quarter on quarter growth was observed, prepaid subscriptions dipped in the first quarter decreasing from 1.7 million subscriptions in the fourth quarter 2010 to 1.6 million in the first quarter 2011. Prepaid subscriptions experienced its highest growth in subscribership from the second quarter to the third quarter increasing by 1.7 per cent. Postpaid subscription increased steadily during 2011 following an initial jump from 198 thousand

subscriptions in the fourth quarter 2010 to approximately 208 thousand in the first quarter 2011. Postpaid subscriptions experienced significant growth in the first half of 2011, increasing by 7.5 per cent in the first quarter then by 6.5 per cent in the second quarter.

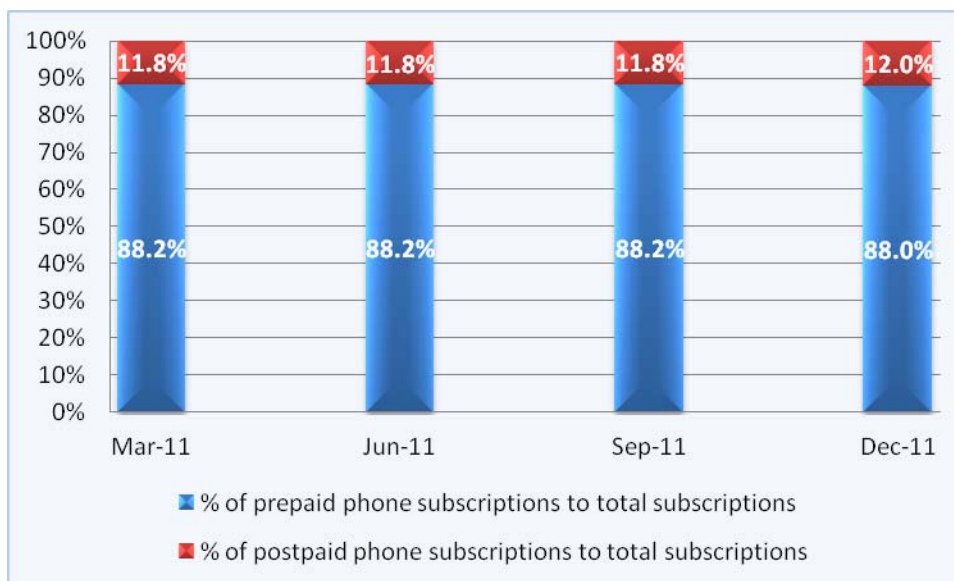
Figure 39: Quarterly Prepaid and Postpaid Subscriptions - 2011



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 2011 as it continued to comprise the majority of the mobile market voice subscriptions. The proportion of prepaid to postpaid subscriptions remained stable for the first three quarters of 2011, then experienced a minor decrease in the share of prepaid subscriptions and a corresponding increase in the share of postpaid subscriptions. Figure 40 illustrates.

Figure 40: Percentage of prepaid and postpaid subscribers on Quarterly Basis 2011



Source: TATT

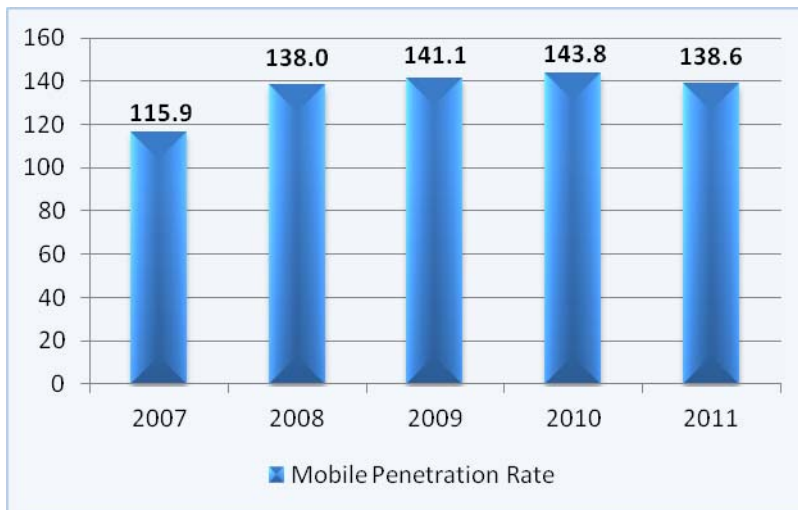
3.2 Mobile Penetration

3.2.1 Mobile Penetration Rate in the Domestic Market

Although the rate of mobile penetration²⁸ has seen positive growth over the last four years, the decrease in mobile subscriptions experienced in 2011 resulted in a similar decrease in mobile voice penetration. As at December 2011, mobile penetration stood at 138.6, a decrease of 3.6 per cent from 2010. Figure 41 shows the varying levels of penetration rates from 2007 to 2011.

²⁸ Mobile Penetration is calculated by the number of mobile subscriptions divided by total population times 100. Population based on the Central Statistical Office midyear estimate for 2011.

Figure 41: Mobile Penetration Level per 100 Inhabitants for Trinidad and Tobago 2007-2011

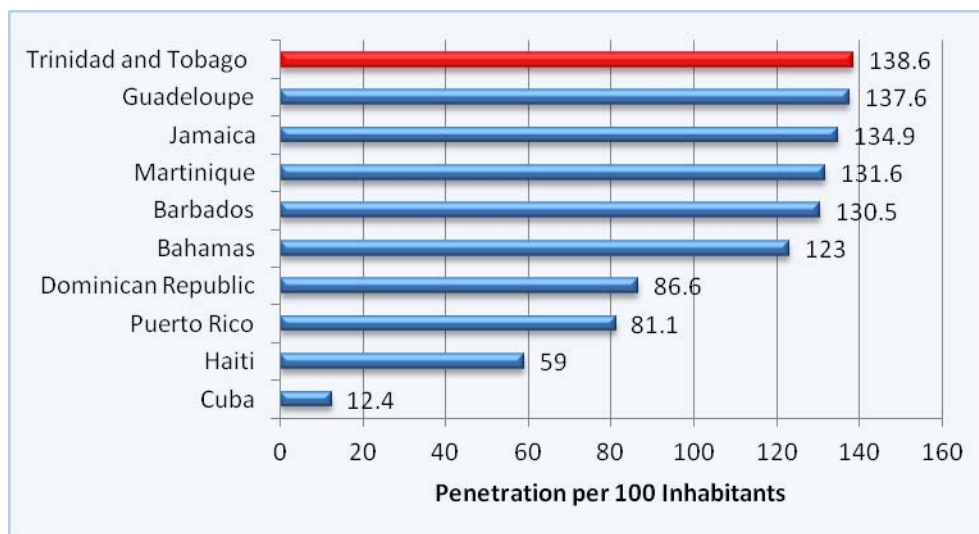


Source: TATT

3.2.2 Regional Mobile Penetration Rates

Figure 42 compares the mobile penetration rates for selected Caribbean countries where Trinidad and Tobago recorded the highest mobile penetration rate of 138.6 for the 2011 period. Second was Guadeloupe with 137.6 and third was Jamaica with 134.9.

Figure 42: Mobile Penetration Rates among Selected Caribbean Countries - 2011

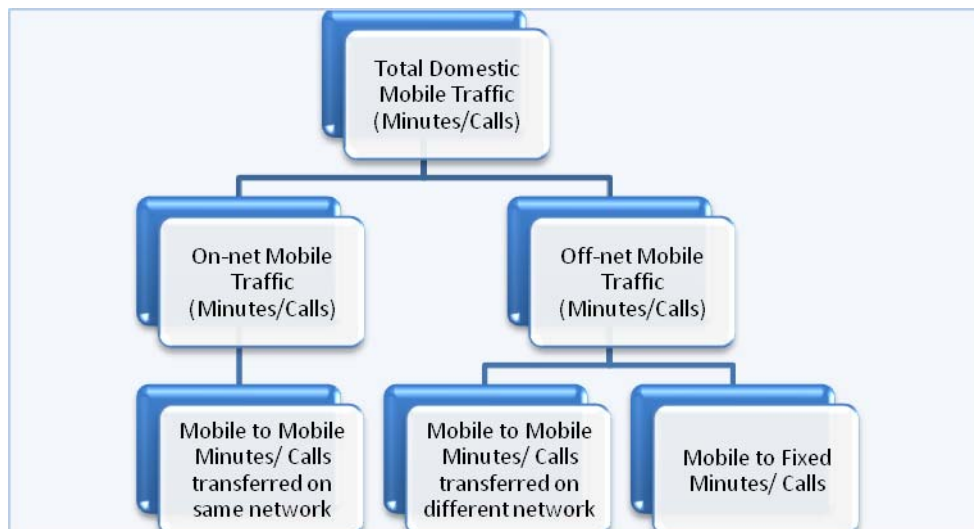


Source: BMI Caribbean Telecommunications Report Q2 2012 and TATT

3.3 Domestic Mobile Voice Traffic

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

Figure 43: Classification of Domestic Mobile Traffic



Source: TATT

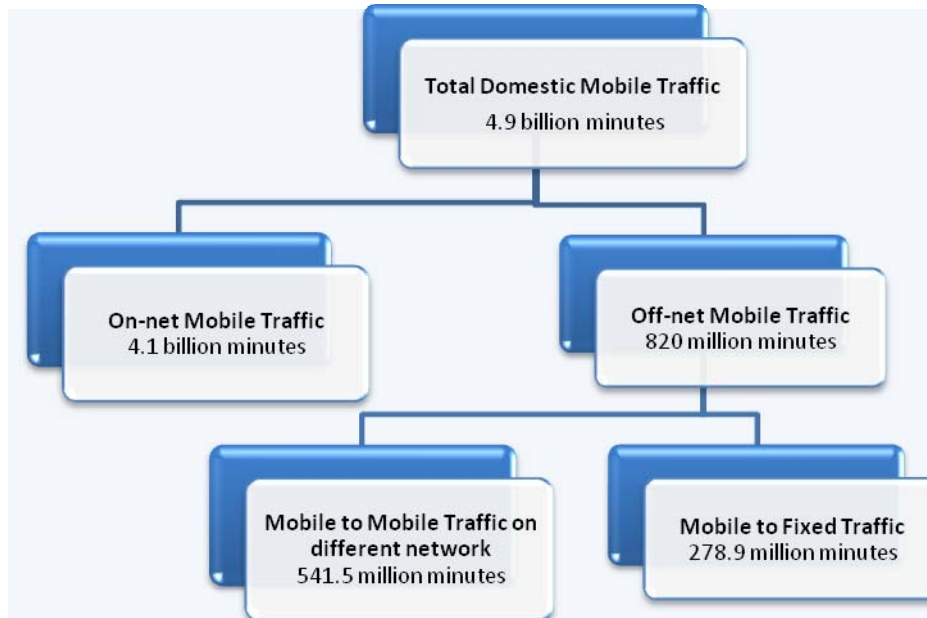
3.3.1 Annual Domestic Mobile Voice Traffic in Minutes

As illustrated in Figure 44 below, domestic mobile voice traffic totalled 4.9 billion minutes for the 2011 period, a 4.4 per cent decrease from 2010. Of the 4.9 billion minutes of domestic mobile traffic, on-net²⁹ traffic totalled 4.1 billion minutes while off-net³⁰ traffic recorded 820.5 million minutes. Off-net mobile to mobile minutes totalled 541.6 million, while off-net mobile to fixed minutes totalled 278.9 million minutes. The marginal decrease in mobile voice traffic minutes is attributable mainly to the decreases in mobile to fixed minutes as mobile consumers reduce the time spent on fixed calls. A breakdown of the subcategories of mobile traffic minutes for 2011 is shown below.

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

³⁰ Off-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on another network (intra and inter service provider). For example, a call originating on Digicel's network and terminating on bmobile, Flow or TSTT's fixed network will be included in these minutes.

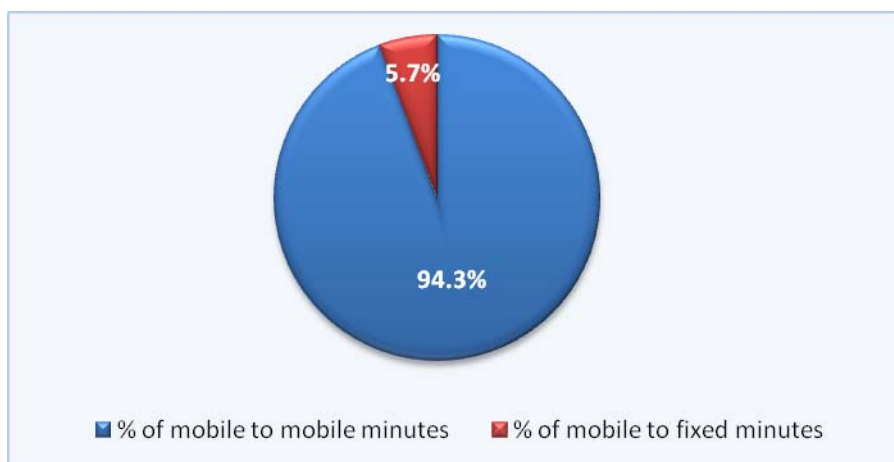
Figure 44: Breakdown of Domestic Mobile Traffic Minutes 2011



Source: TATT

Furthermore, the percentage of total mobile minutes terminating on a domestic mobile network was estimated to be 94.3 per cent, while 5.7 per cent represented the number of mobile minutes terminating on a domestic fixed network. Figure 45 gives a representation of the percentage contribution.

Figure 45: Percentage Breakdown of Fixed and Mobile Contribution to Total Mobile Voice Minutes 2011

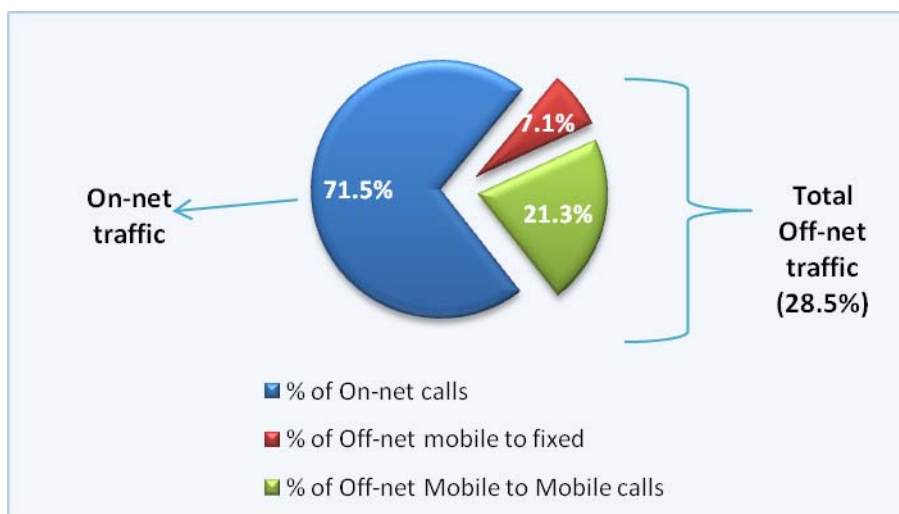


Source: TATT

3.3.2 Annual Domestic Mobile Voice Call Volumes

Domestic mobile voice calls totalled 2.9 billion for the 2011 period. Of the 2.9 billion calls, on-net traffic totalled 2.1 billion calls or 71.5 per cent of total mobile calls, whilst off-net traffic recorded 819.2 million calls or 28.5 per cent of total mobile calls. Further divided, off-net traffic comprised 205.6 million mobile to fixed calls or 7.1 per cent of total mobile calls, with the remaining 613.6 million calls representing mobile to mobile off-net traffic, 21.3 per cent of total mobile calls. A breakdown of the subcategories of traffic is shown in Figure 46 below.

Figure 46: Breakdown of domestic Mobile Traffic Calls - 2011

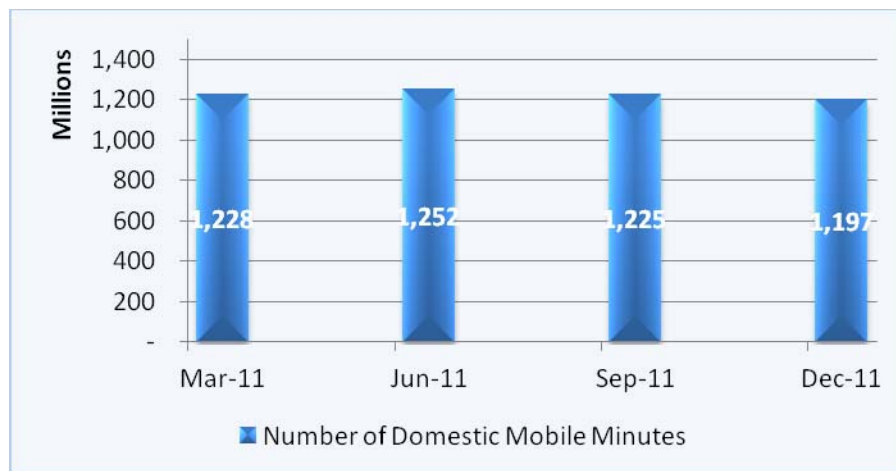


Source: TATT

3.3.3 Quarterly Domestic Mobile Voice Traffic

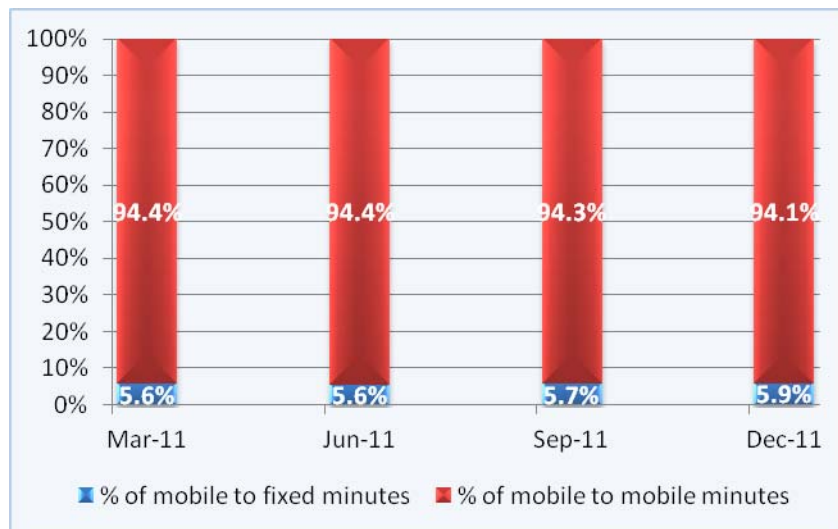
As shown in Figure 47, total domestic mobile voice traffic decreased slightly between the first quarter and the fourth quarter from 1,228 million minutes to 1,197 million minutes, a 2.5 per cent decrease between periods. Notably, mobile voice minutes peaked in the second quarter with a total of 1,252 minutes. As seen in the graph, the percentage of mobile-to-fixed traffic and mobile-to-mobile traffic was relatively stable during 2011.

Figure 47: Quarterly Mobile Voice Traffic 2011



Source: TATT

Figure 48: Quarterly Mobile Voice Traffic by Type 2011

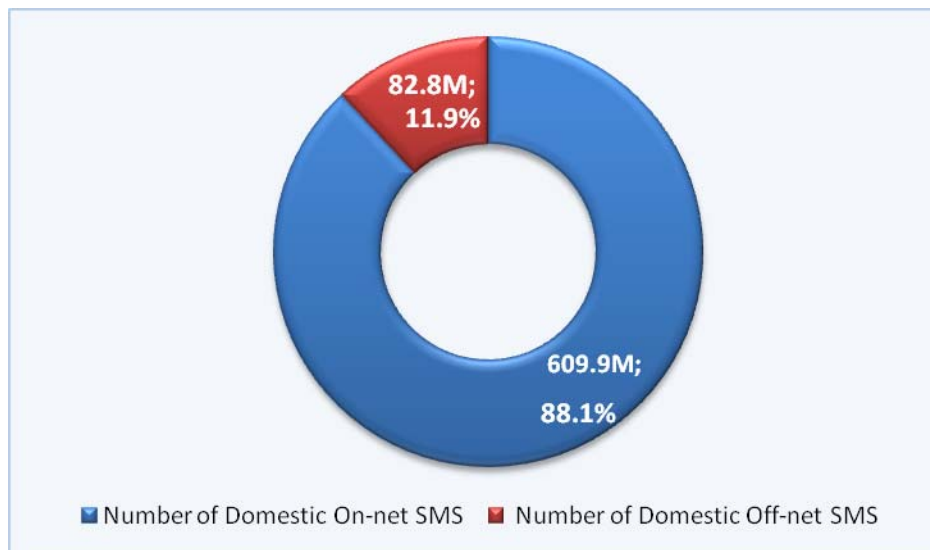


Source: TATT

3.4 Domestic Mobile Short Messaging Service (SMS)

The total number of domestic SMS sent by mobile subscribers in 2011 was 692.6 million with 609.9 million being sent on-net and 82.8 million being sent off-net. Similar to on-net traffic, the data show that SMS traffic tends to be concentrated among on-net users. Figure 49 shows the percentage of on-net and off-net SMS sent in 2011.

Figure 49: Number and Percentage of on-net and off-net SMS sent in 2011



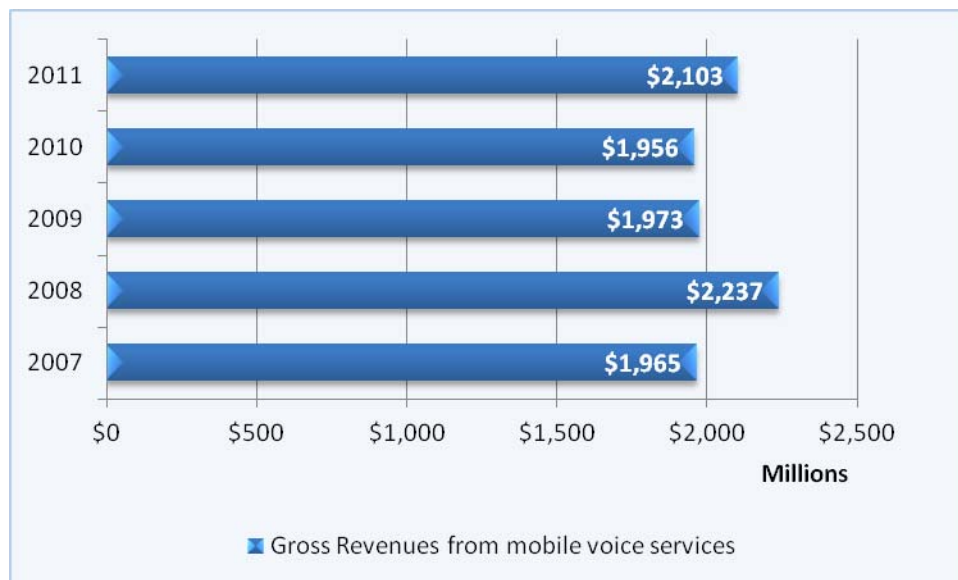
Source: TATT

3.5 Mobile Voice³¹ Revenues

3.5.1 Annual Revenues from Mobile Voice Services³²

For 2011, total annual revenues from mobile voice services totalled TT \$2,103 million increasing by 7.5 per cent when compared to 2010. The annual revenue trend from 2007 to 2011 is illustrated in Figure 50.

Figure 50: Annual revenues from Mobile Voice Services 2007 – 2011



Source: TATT

Of the TT \$2,103 million generated from the mobile voice market, prepaid revenues accounted for 68.1 per cent of the revenues with a contribution of TT \$1,432 million. This represents a decrease of 0.9 per cent of the revenues generated by prepaid subscriptions. Postpaid revenues contributed TT \$575.4 million representing 27.4 per cent of the total mobile earnings. This represents an increase of 13.9 per cent from 2010. The difference of TT \$95 million, classified as other, was generated from equipment sales, SIM card sales and administrative charges. Figure 51 illustrates the percentage breakdown of revenues from mobile voice services while Figure 52

³¹ Mobile voice revenues includes revenues from SMS services

³² These revenues exclude mobile Internet revenue which is reported within the Internet section of this report.

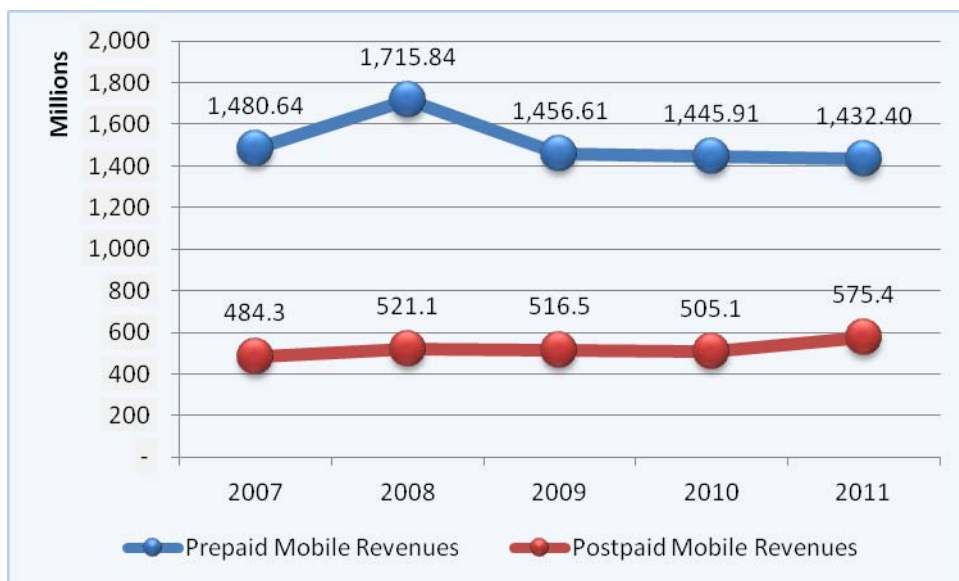
show the 5 year trend in prepaid and postpaid revenues. Increases in revenues from postpaid subscriptions is supported with similar increases in the number of prepaid subscriptions being switched to postpaid as explained in section 3.1.1 and illustrated in Figure 37.

Figure 51: Percentage of Prepaid and Postpaid Contributions to Revenues from Mobile Voice Services for 2011



Source: TATT

Figure 52: Revenues from Mobile Voice Services-Prepaid and Postpaid 2007 – 2011

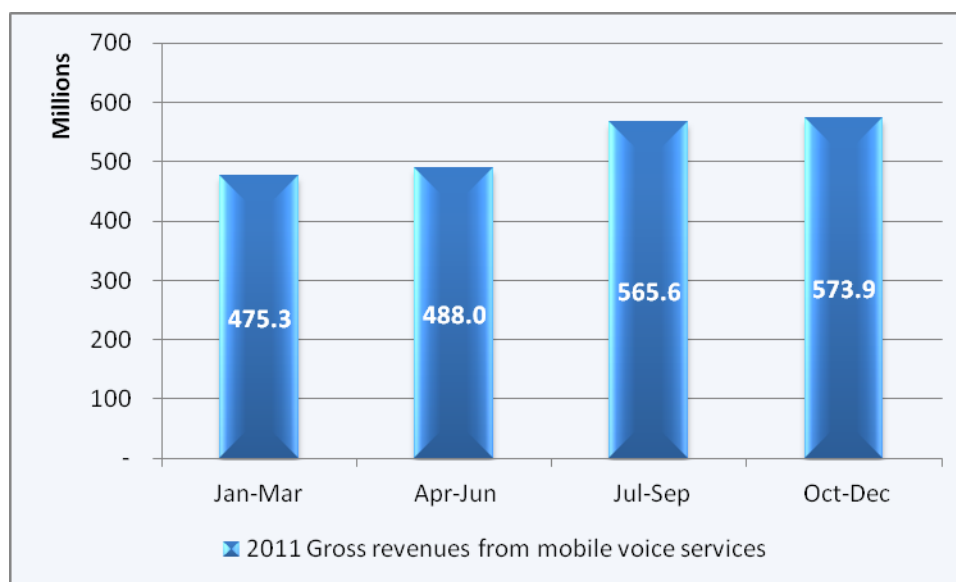


Source: TATT

3.5.2 Quarterly Revenues from Mobile Voice Services

The mobile voice market experienced consistent growth during 2011 as evidenced by the continuous growth in revenues each quarter. As expected the mobile voice market performed significantly better during the second half of the year due to seasonal fluctuations from the school vacation period and the Christmas season. In the first quarter TT \$475.3 million in revenues were recorded. In the second quarter, TT \$488.0 million in revenues were generated, increasing by 2.7 per cent as compared to the first quarter. This was followed by a huge jump being observed in the third quarter with revenues increasing by 15.9 per cent and a contribution of TT \$565.6 million. This level of revenue was sustained in the fourth quarter increasing minimally by 1.5 per cent and contributing TT \$ 573.9 million. Figure 53 illustrates.

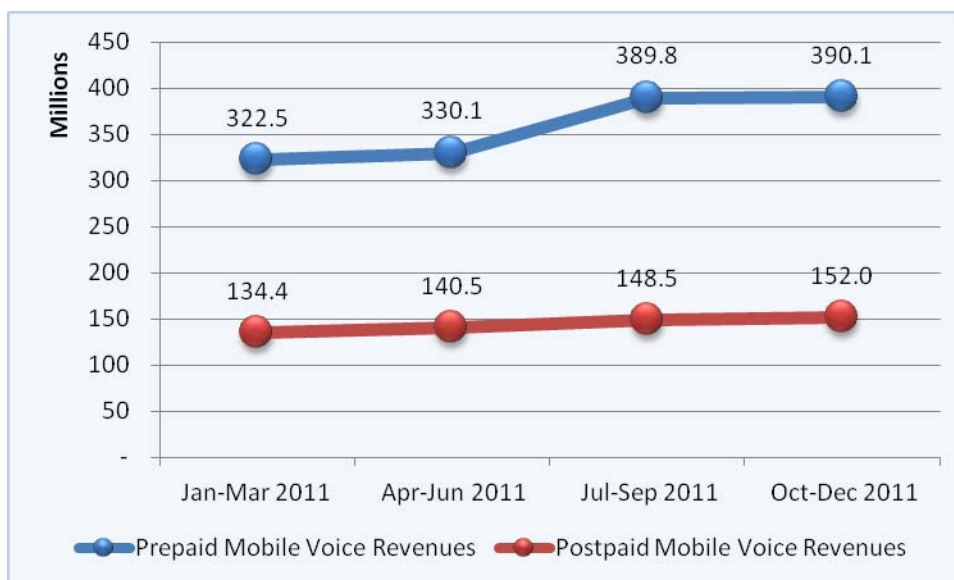
Figure 53: Quarterly revenues from mobile voice services 2011



Source: TATT

Consistent with the growth in gross revenues from mobile voice services, prepaid and postpaid mobile voice revenues also grew continuously during 2011. Prepaid revenues experienced a sharp increase in the third quarter by approximately 18 per cent while postpaid revenues experienced a steady growth throughout the year. Figure 54 illustrates.

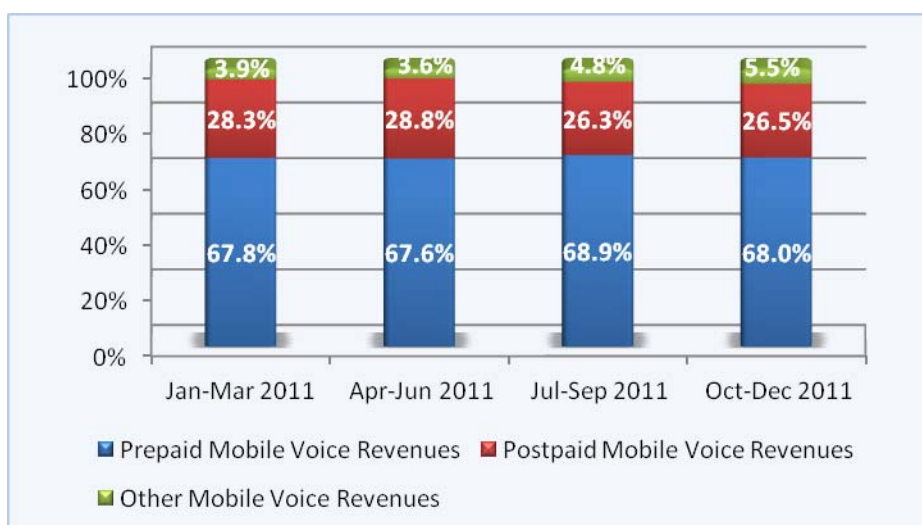
Figure 54: 2011 Quarterly Prepaid and Postpaid Mobile Voice Revenues



Source: TATT

From a market share position, prepaid subscriptions contributed the majority of mobile market voice revenues with a quarterly average of 68.1 per cent market share while postpaid subscriptions contributed an average of 27.5 per cent. As Figure 55 illustrates the proportion of prepaid to postpaid revenues fluctuated during each quarter of 2011. Other mobile voice revenues contributed an average of 4.5 per cent of gross revenues during the 2011 period.

Figure 55: Percentage of Revenues Contributed by Prepaid and Postpaid Mobile Voice Subscriptions

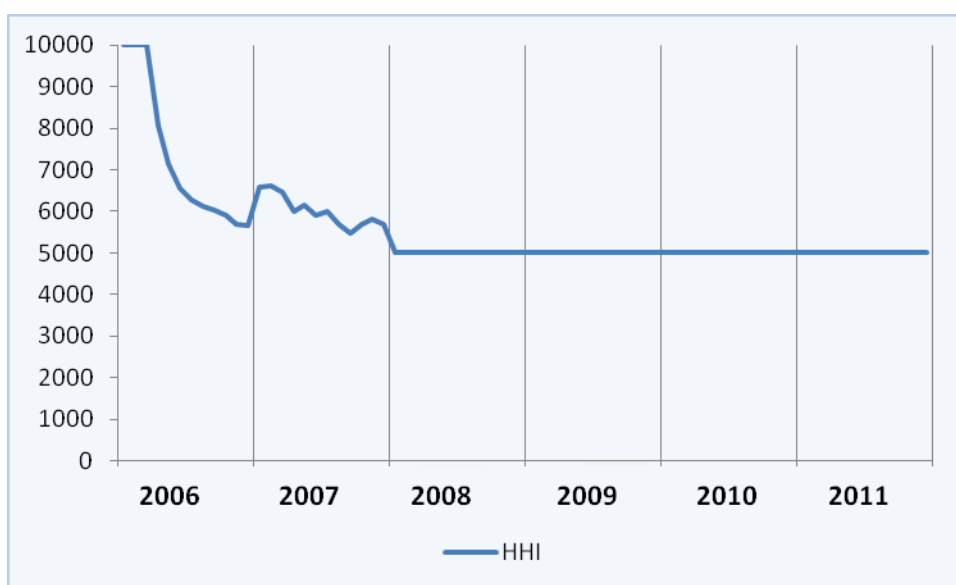


Source: TATT

3.6 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 2011. ‘Number of subscriptions’ was used to determine market share for the service providers. On comparing the last five years, Figure 56 shows the effects of market competition reducing the HHI in the mobile market from a monopoly of 10,000 in 2006 to 5,002 in 2011. However the results also indicate that there is a duopolistic position held by both mobile service providers in the market.

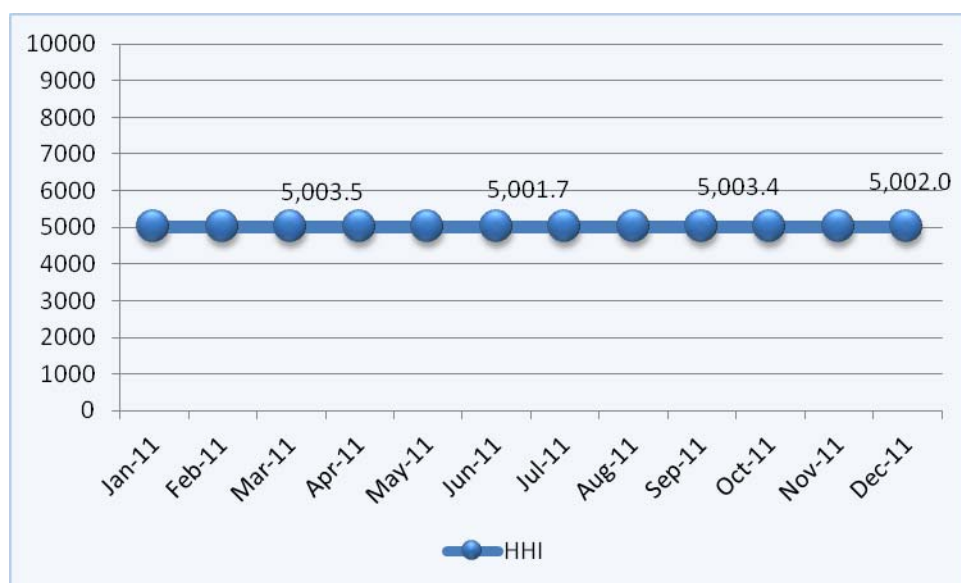
Figure 56: Hirschman-Herfindahl Index for the Mobile Voice Market January–December 2011



Source: TATT

As at December 2011 an HHI of approximately 5,002 was calculated, representing an insignificant decrease of 0.02 per cent over the figure reported for December 2010. Figure 57 illustrates the HHI trend for 2011.

Figure 57: Hirschman-Herfindahl Index for the Mobile Voice Market - 2011



Source: TATT

3.7 Average Revenue per User

During 2011, customers of mobile subscriptions spent an average of TT \$1,110 for mobile services³³. This represents an increase of TT \$77 or 7.5 per cent in the average revenue per user (ARPU) over the amount recorded for 2010. The ARPU generated for prepaid mobile subscriptions stood at TT \$892, an increase of TT \$42 or 4.9 per cent when compared to 2010, while the ARPU generated for postpaid subscriptions was TT \$2,617, a decrease of TT \$7 or 0.3 per cent. Figure 58 highlights total ARPU for mobile voice services while Figure 59 compares the ARPU earned for prepaid and postpaid subscriptions over the past five years.

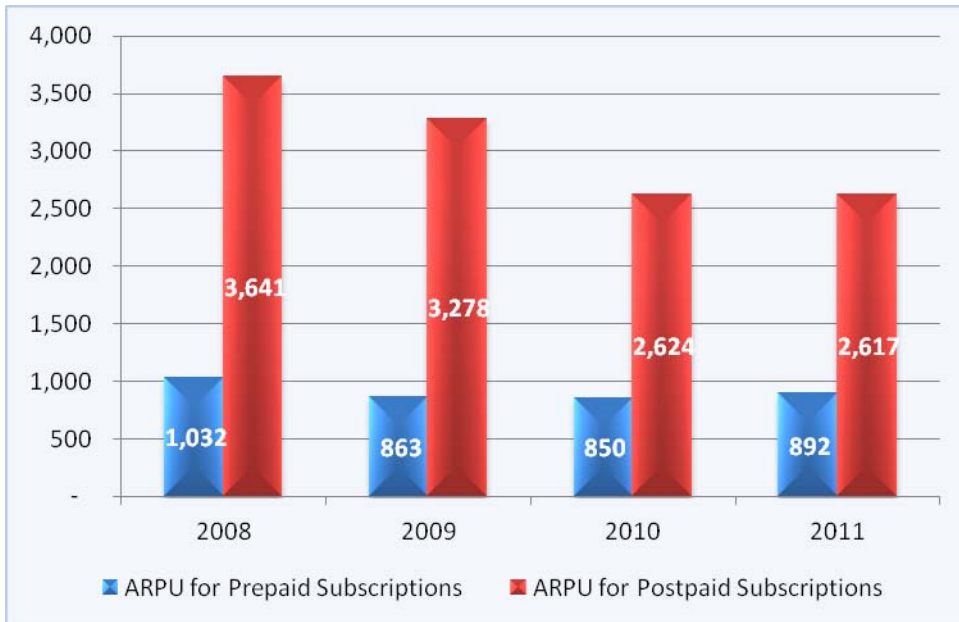
³³ ARPU from mobile voice services excludes Mobile Internet services.

Figure 58: ARPU for Mobile Voice Services 2007-2011



Source: TATT

Figure 59: ARPU for Prepaid and Postpaid Mobile Voice Subscriptions -2011



Key Market trends and Observations in the Internet Market

- **Internet subscriptions continue to rise**
- **Significant uptake of broadband Internet services**
- **More than half the population estimated to regularly use the Internet**

4. Internet Market Data

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

In 2011, there were seven (7) operators authorized to provide fixed domestic telecommunications services which included the provision of Internet services. All of the concessionaires as listed below currently provide fixed Internet services:

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

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

- Telecommunications Services of Trinidad and Tobago (bmobile)³⁴, and
- Digicel Trinidad Limited

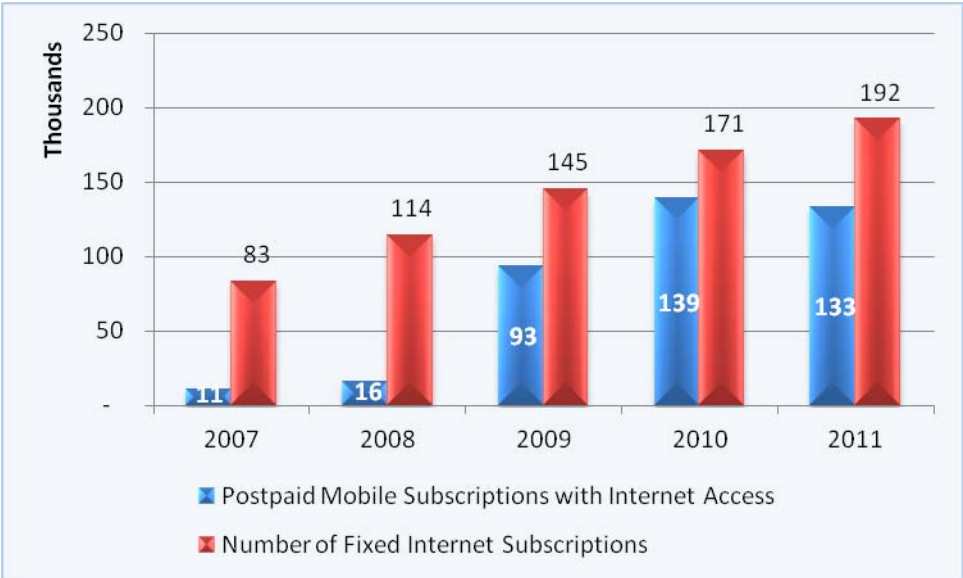
³⁴ bmobile is the mobile services division of TSTT, therefore their Internet services are recorded as one concessionaire.

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 as well as a mix of Fibre to the Curb (FTTC), Fibre to the Business (FTTB) or Home (FTTH) topologies while fixed wireless Broadband Internet operators employ WiMAX and CDMA2000 EvDO technologies to support the need for services demanding ever higher speeds on the access network.

4.1 Internet Subscriptions

The market for Internet services experienced significant growth in 2011 as a result of the increased accessibility of mobile Internet services and continued take-up of fixed Internet services. Fixed Internet subscriptions for 2011 totalled 192 thousand whereas mobile postpaid³⁵ Internet totalled 133.2 thousand. Figure 60 illustrates the trend for Internet subscriptions from 2007 to 2011. While Fixed Internet subscriptions have continued on its increasing trend, mobile postpaid Internet dipped slightly in 2011.

Figure 60: Total Number of fixed and mobile postpaid Internet Subscriptions 2007 - 2011



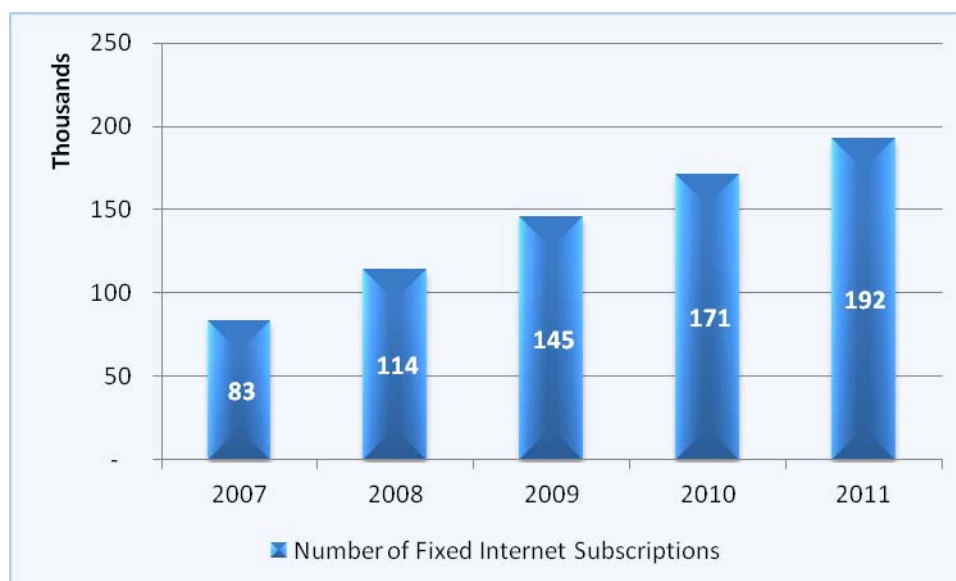
³⁵ Only mobile postpaid subscriptions were included in the calculations for the take-up of mobile Internet subscriptions. The reason for using postpaid mobile internet only in the calculation for the take-up of mobile Internet subscriptions is explained in Section 1.1.2

Source: TATT

4.1.1 Fixed (Wired and Wireless) Internet Subscriptions

As at December 2011, the number of fixed Internet subscriptions grew by 12.2 per cent from December 2010 totalling just over 192 thousand subscriptions. This increase of 20.1 thousand subscriptions over the last year may be attributed to the increased level of competitive tactics among providers in the market to attract new customers. During 2011 several promotional activities were targeted at both attracting new customers as well as configuring packages to better suit the changing needs of Internet customers. The yearly trend of fixed Internet subscriptions from 2007 to 2011 is shown in Figure 61.

Figure 61: Fixed Internet Subscriptions 2007-2011



Source: TATT

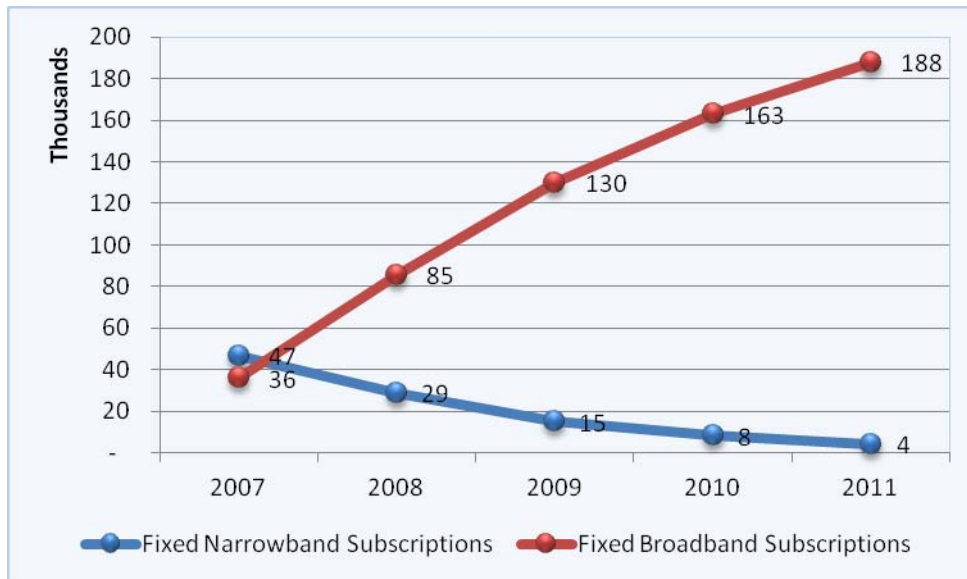
Fixed broadband³⁶ Internet subscriptions accounted for 187.9 thousand or 97.8 per cent of total fixed Internet subscriptions while fixed narrowband³⁷ Internet subscriptions accounted for 4.2 thousand or 2.2 per cent. Over the last four years fixed broadband subscriptions have significantly outnumbered fixed narrowband subscriptions as illustrated in Figure 62 and further

³⁶ Broadband can be defined as speeds > 256 kbits per second

³⁷ Narrowband can be defined as speeds ≤ 256 kbits per second

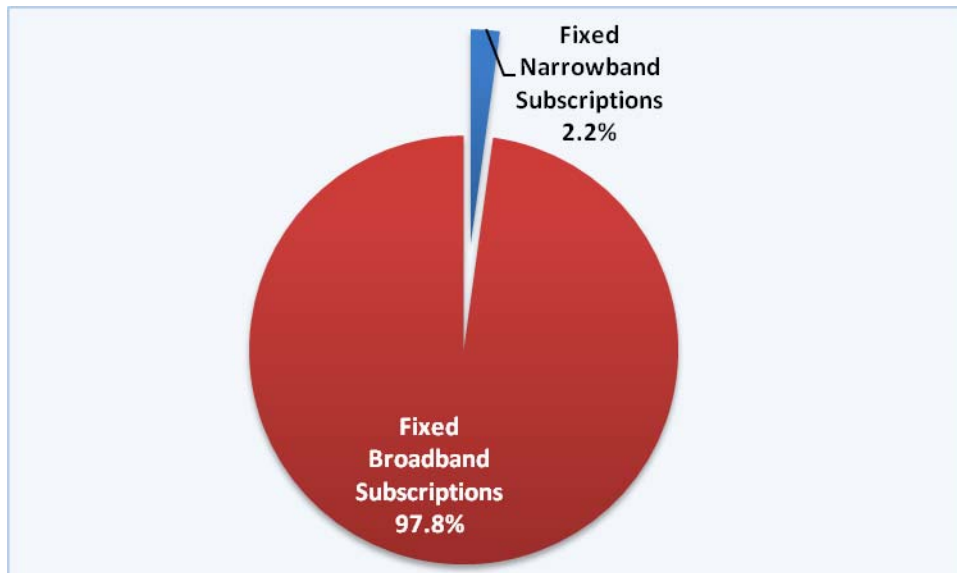
highlighted in Figure 63 below, which depicts the percentage of broadband and narrowband subscriptions to total fixed Internet subscriptions at the end of 2011.

Figure 62: Fixed Narrowband and Broadband Subscriptions 2007- 2011



Source: TATT

Figure 63: Percentage of Broadband and Narrowband Fixed Internet Subscriptions 2011



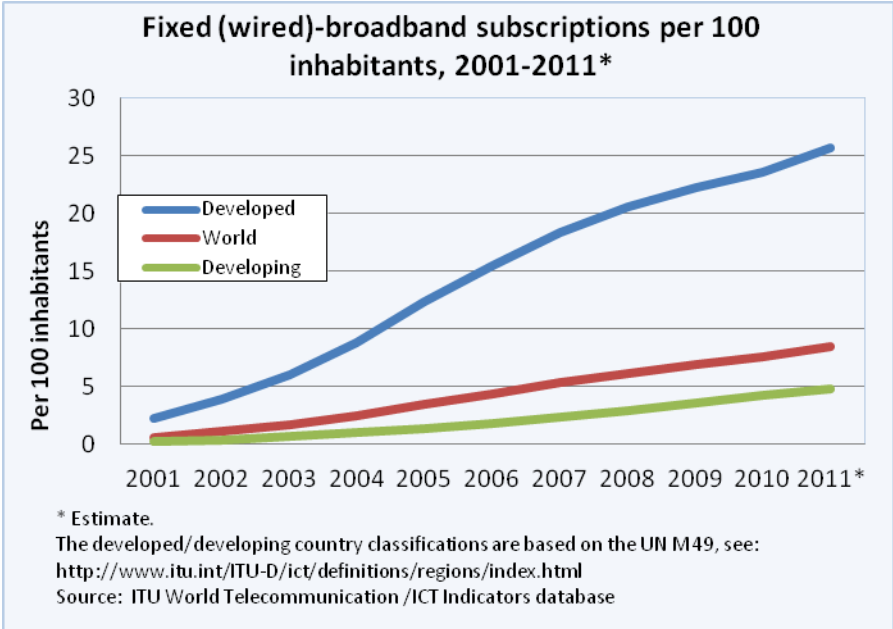
Source: TATT

In comparison to 2010, broadband subscriptions increased by 15 per cent or an estimated 25 thousand subscriptions, whereas narrowband subscriptions decreased by 49 per cent or 4.1

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 recent expansion of broadband Internet infrastructure in Trinidad and Tobago to geographic areas not previously equipped for broadband Internet services.

The continued growth in the up-take in broadband Internet services is consistent with global trends. The International Telecommunications Union (ITU) has indicated that over the last decade, the uptake of broadband Internet has grown significantly over the years. Figure 64, sourced from the ITU, illustrates.

Figure 64: Global Trend in Broadband Subscriptions

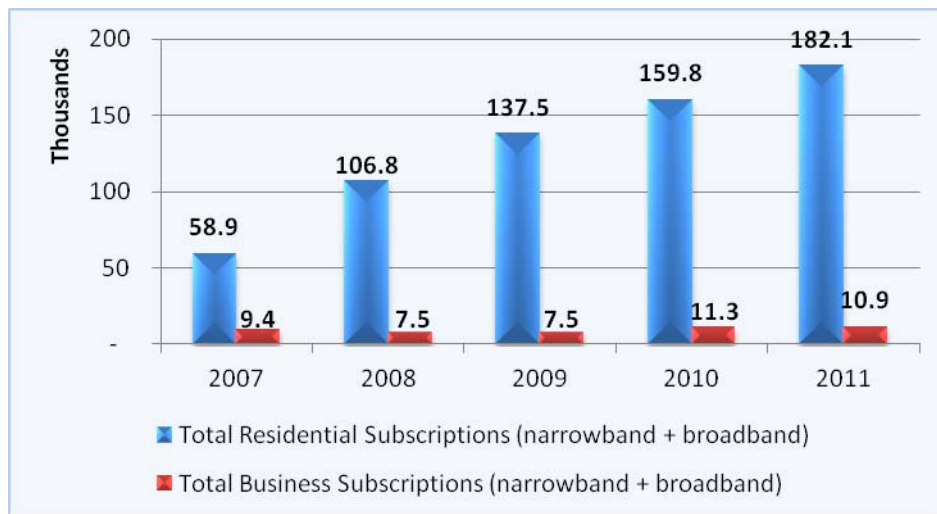


The number of fixed Internet subscriptions can be further subdivided into residential and business categories. Of the 4.2 thousand narrowband subscriptions, 3.5 thousand were residential while 0.6 thousand were business subscriptions. It was observed that, compared to 2010, residential and business narrowband subscriptions decreased by 48 per cent and 54 per cent respectively. Of the 187.9 thousand broadband subscriptions 177.6 thousand were residential

while 10.3 thousand were business subscriptions. It was also observed that, compared to 2010, residential and business broadband subscriptions increased by 16 per cent and 4 per cent respectively.

Total residential subscriptions amounted to approximately 181.1 thousand, growing by 13.9 per cent or 22.2 thousand subscriptions from 2010. Total business subscriptions measured roughly 10.9 thousand, decreasing slightly from 2010 by 3.2 per cent or just over 300 subscriptions. Figure 65 illustrates the trend of residential and business fixed Internet subscriptions for 2007 to 2011.

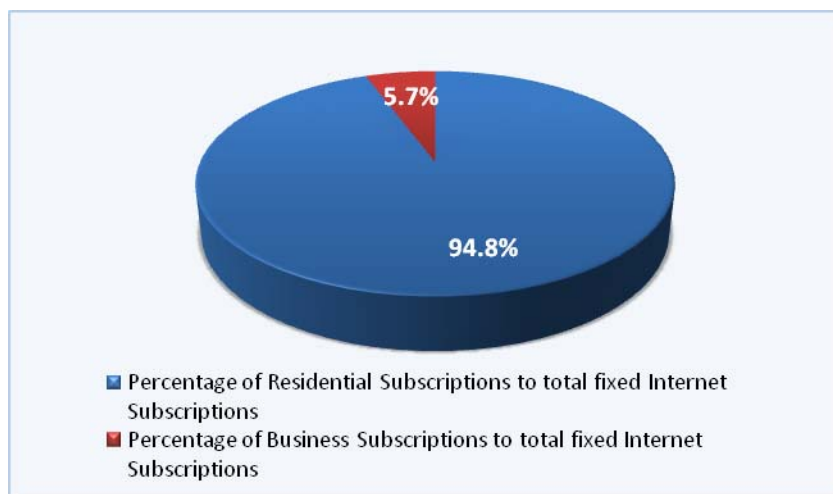
Figure 65: Residential and Business Fixed Internet Subscriptions 2007-2011



Source: TATT

Figure 66 represents the percentage distribution of fixed Internet subscriptions between residential and business categories in 2011.

Figure 66: Percentage of Residential and Business Fixed Internet Subscriptions 2011

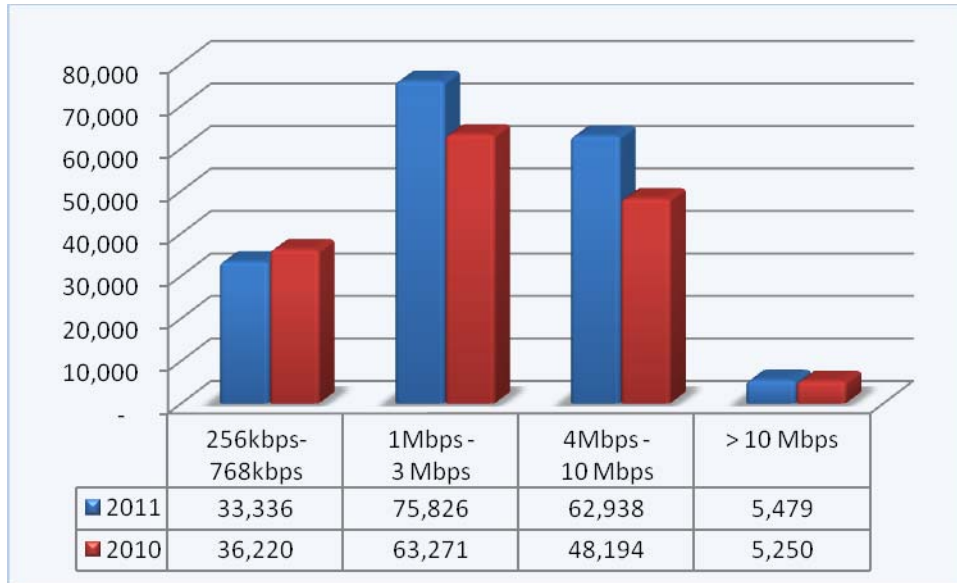


Source: TATT

The data for the broadband market also showed that the majority of residential customers subscribed to packages offering download speeds between 1MB to 3MB and 4MB to 10MB, whereas Internet speeds greater than 10MB are more popular among business customers. It can be noted that reductions in the demand for lower broadband Internet speeds was observed along with increased demand for higher speeds. For residential subscriptions in the 256K – 768K download speed category, subscriptions decreased by approximately 2.9 thousand or 8 per cent. Alternatively, residential subscriptions in the 1MB - 3MB download speed category increased 19.8 per cent while subscriptions in the 4MB - 10MB download speed also category increased by 30.6 per cent. Figure 67 illustrates.

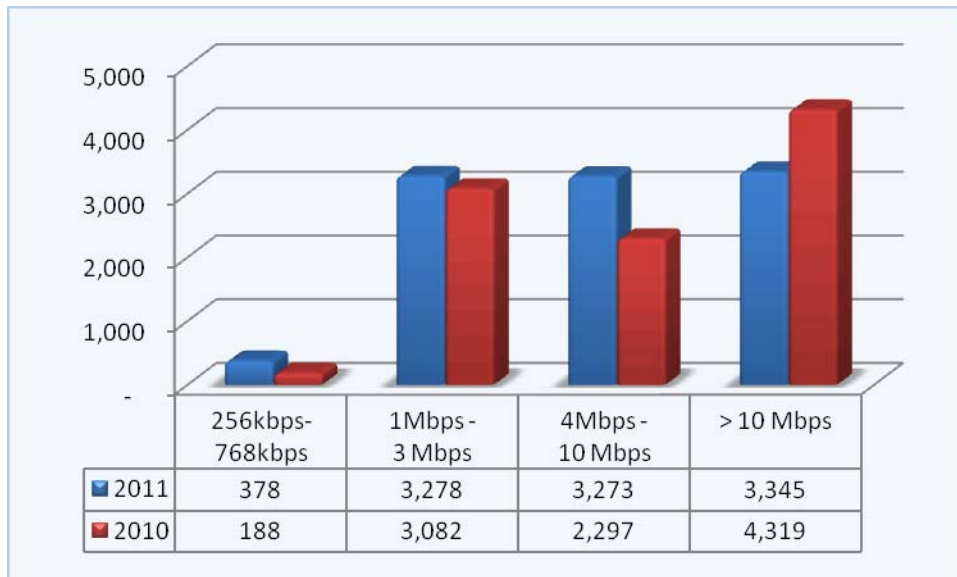
Business subscriptions to packages offering download speeds greater than 10MB slipped back by 22.6 per cent as subscriptions to lower Internet Broadband speeds grew. Significant growth in business subscriptions was observed in the 256K – 768K and the 4MB - 10MB Internet speed categories. Figure 68 illustrates.

Figure 67: Number of Broadband Residential Subscriptions by Download Speed 2010 - 2011



Source: TATT

Figure 68: Number of Broadband Business Subscriptions by Download Speed 2010 – 2011

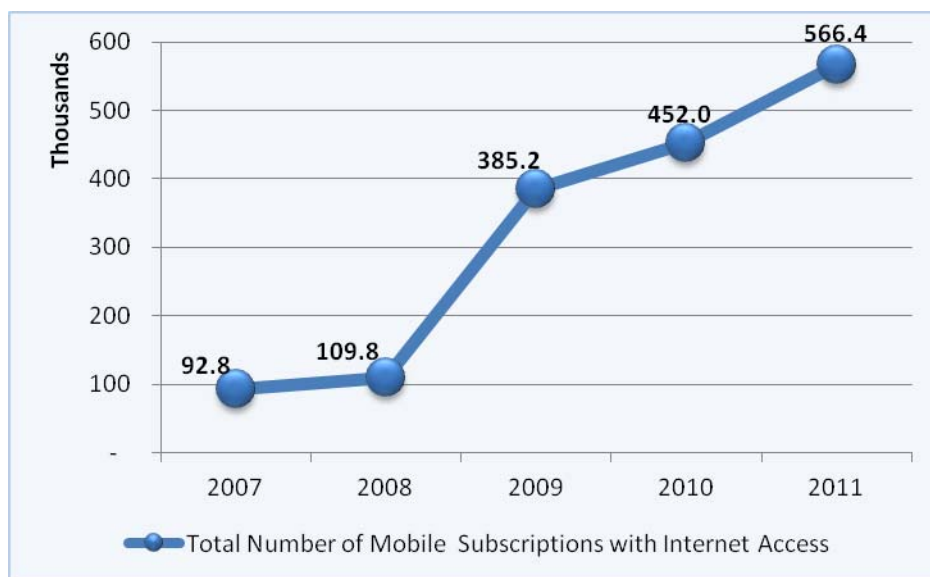


Source: TATT

4.1.2 Mobile Subscriptions with Internet Access

The number of mobile subscriptions with Internet access³⁸ continued to grow strongly in 2011 with a total of 566.4 thousand subscriptions, a 25.3 per cent increase over the 2010 period. With the number of mobile voice subscriptions recorded for 2011 just under 2 million, it is estimated that 30.9 per cent³⁹ of the mobile population can access the Internet using their phones. Figure 69 compares the number of mobile subscriptions with Internet access trend from 2007-2011. It is noted that the steep increase in mobile Internet experienced between 2008 to 2009 was largely attributed to the redefinition of the term in 2009 to ‘mobile subscriptions with Internet access’ which was broadened to measure the level of mobile Internet accessibility available to subscribers rather than only usage of the service.

Figure 69: Number of Mobile Subscriptions with Internet Access 2007-2011



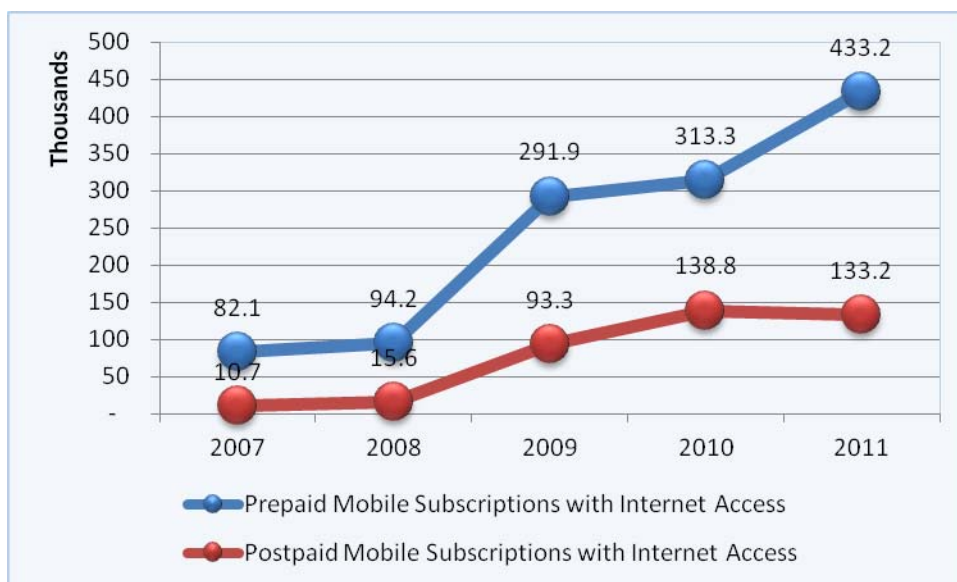
Source: TATT

³⁸ The definition used in the collection of data from service providers is as follows: *Number of mobile users with Internet access refers to (prepaid and postpaid) subscribers of the mobile cellular network who can access the Internet via a mobile phone.* This definition differs from mobile Internet subscriptions which specifically refer to mobile postpaid Internet subscriptions.

³⁹ This estimate was derived using the formula: number of mobile subscriptions with Internet access / number of mobile subscriptions.

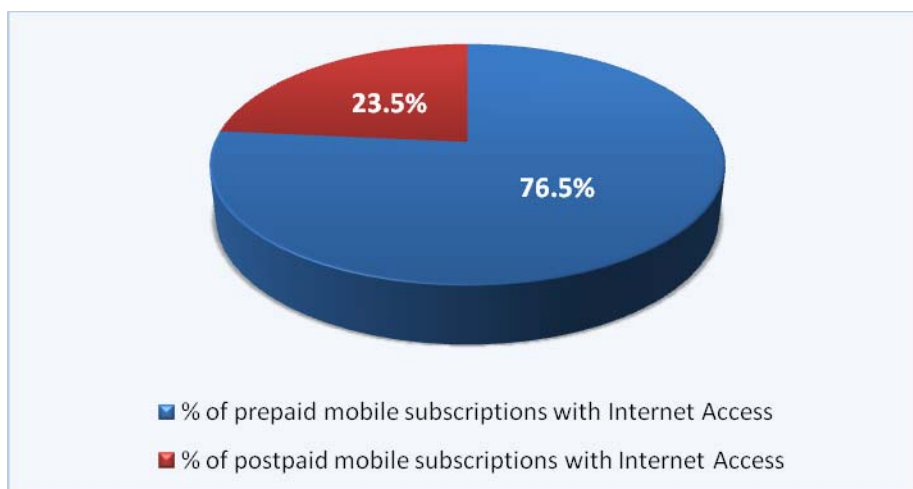
As shown in Figure 70 below, 433.2 thousand were estimated to be prepaid mobile subscriptions with Internet access, which is an increase from 2010 of 119.9 thousand subscriptions or 38.3 per cent. Additionally, 133.2 thousand were counted as postpaid mobile subscriptions, a 5.6 thousand decrease in subscriptions or 4 per cent decline from the last period. Prepaid subscriptions continue to account for the larger proportion of total mobile subscriptions with Internet access with 76.5 per cent; postpaid subscription accounted for 23.5 per cent. This percentage distribution is shown in Figure 71.

Figure 70: Number of Prepaid and Postpaid mobile subscriptions with Internet Access for 2007-2011



Source: TATT

Figure 71: Percentage of Prepaid and Postpaid Mobile Subscriptions with Internet Access 2011



Source: TATT

4.2 Internet Penetration

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

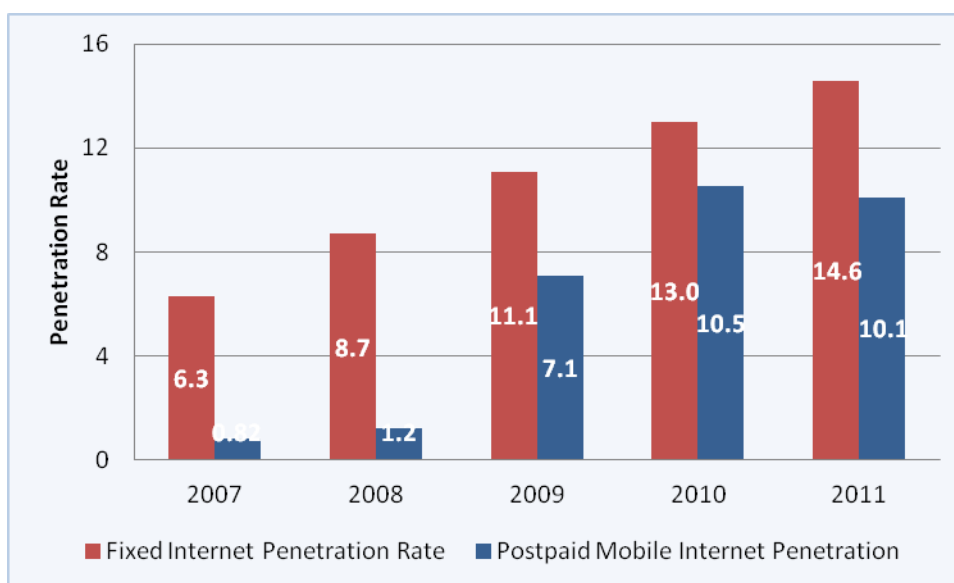
For this reason, at this time the calculation of mobile Internet penetration only considers actual mobile Internet users as postpaid mobile subscriptions with Internet access. The Authority is currently working with service providers to obtain data on mobile Internet utilization amongst prepaid mobile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

For 2011, Trinidad and Tobago recorded a fixed Internet penetration⁴⁰ of 14.6 increasing by 12 per cent when compared to 2010. On the other hand, mobile Internet penetration⁴¹ decreased minimally by 4 per cent measuring 10.1 per cent in 2011. This suggests a consolidated Internet penetration rate of 24.7 was achieved, an increase of 5.0 per cent when compared to 2010. Figure 72 below looks at the Internet penetration trend from 2007 to 2011.

⁴⁰ Fixed Internet penetration is calculated: (total number of Fixed Internet Subscriptions / Total Population) * 100

⁴¹ Mobile Internet penetration is calculated: (total number of Postpaid Mobile Internet Subscriptions / Total Population number) * 100. It must be noted that mobile Internet penetration is calculated using only postpaid mobile subscriptions as these are considered ‘true’ mobile Internet subscriptions. Reference can be made to section 4.1.2.

Figure 72: Internet Penetration 2007-2011

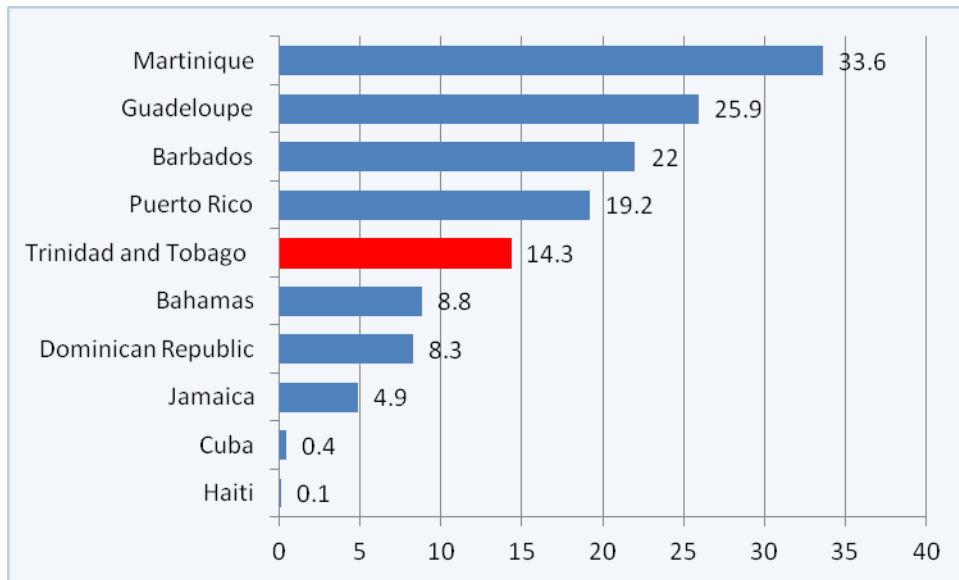


Source: TATT

One of the ITU's main objectives contributing towards the Millennium Development Goals is to facilitate the building of an inclusive Information society. The Broadband Commission⁴² has specifically highlighted the importance of Broadband Internet by describing it as '*a revolution in how services are delivered, industrial processes are managed and research is carried out*'. The Broadband Commission also states it is '*essential that countries and communities everywhere are enabled to take advantage of this revolution. If they are not, they will lose the opportunity to reap the economic and social benefits that broadband brings*'. For Trinidad and Tobago in 2011, fixed broadband Internet penetration stood at 14.3 increasing by 15.4 per cent when compared to 2010. Compared regionally among Caribbean countries, Trinidad and Tobago ranks fifth in terms of broadband Internet penetration as highlighted in Figure 73 below.

⁴² Broadband: A Platform for Progress. A Report by the Broadband Commission for digital development

Figure 73: Fixed Broadband Internet Penetration among Caricom Countries 2011

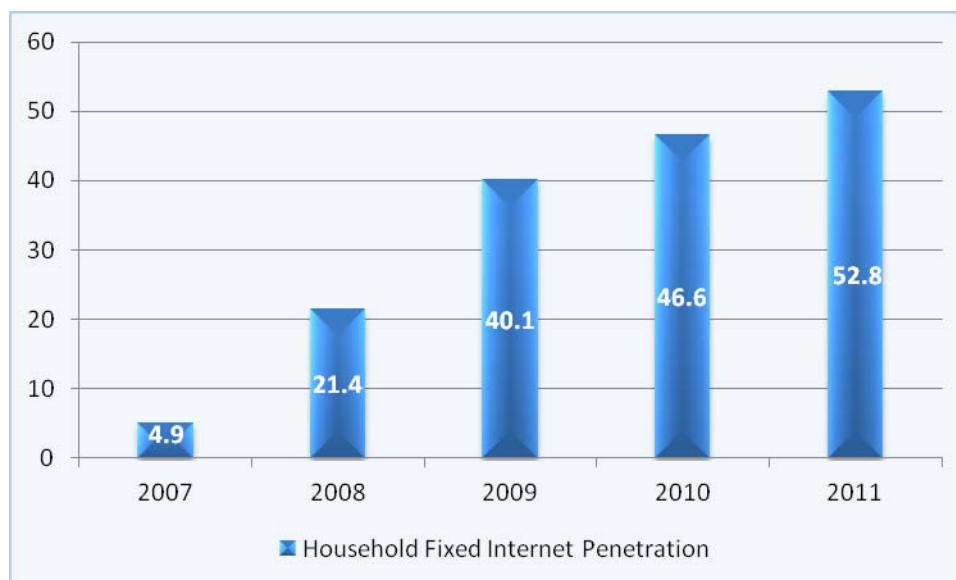


Source: BMI and TATT

Similar to Internet penetration, Internet household penetration⁴³ can be used to measure the proportion of households with Internet access at home. For 2011, Internet household penetration measured approximately 52.9. This indicates that approximately 53 out of every 100 households subscribe to a fixed Internet package. Figure 74 below depicts the growth in Internet household penetration for the period 2007 to 2011.

⁴³ Internet household penetration = (number of residential fixed Internet subscriptions / total number of households) * 100

Figure 74: Internet Household Penetration 2007-2011



Source: TATT

4.2.1 Internet Users

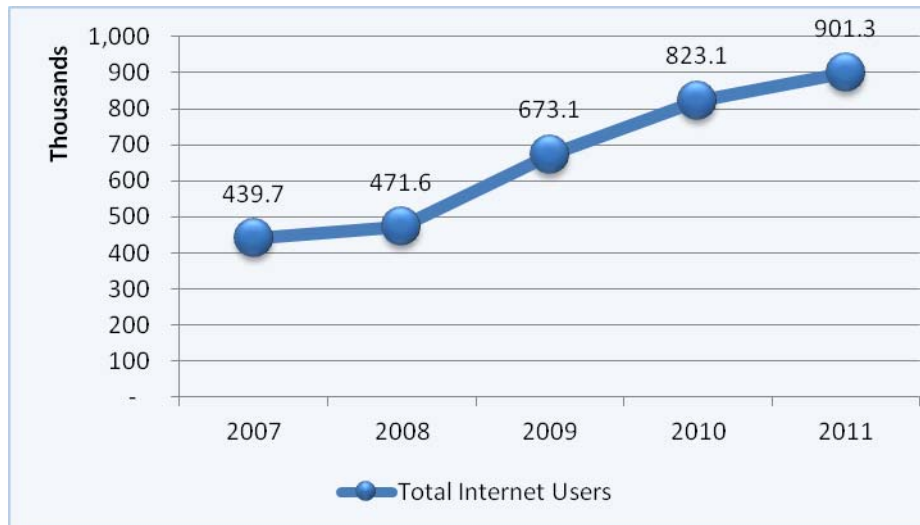
Another useful indicator to measure progress towards an Information society is the Internet penetration based on the number of Internet users⁴⁴. In 2007, the Authority conducted a Digital Divide survey⁴⁵ which showed that approximately 33 in every 100 persons (approximately 429,000 persons) in Trinidad and Tobago regularly used the Internet. Since no other survey was conducted after 2007, the Authority estimates the total number of Internet users to be the summation of the number of fixed Internet subscriptions for the year multiplied by the average number of persons residing within a household⁴⁶ and the number of postpaid mobile Internet users. For 2011, this approximates to 901.3 thousand Internet users or 68 out of every 100 persons who regularly use the Internet. Figure 75 below shows the growth in number of Internet users (both Fixed and mobile) over the last five years.

⁴⁴ Persons who regularly use the Internet. A person does not have to have a personal Internet subscription to be considered an Internet user.

⁴⁵ The complete Digital Divide Report 2007 can be found on the Authority's website: www.tatt.org.tt

⁴⁶ The Central Statistical Office estimated that an average of four (4) persons reside within a household in its 2000 Census Report.

Figure 75: Number of Internet Users (fixed and Mobile) 2007-2011



Source: TATT

4.3 Total Internet Revenues

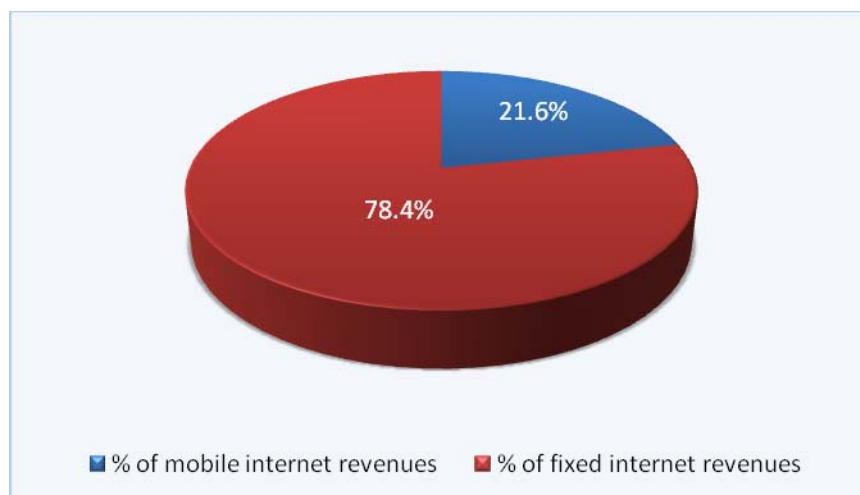
Revenues generated from fixed and mobile (prepaid and postpaid) Internet services totalled TT \$677.2 million, an increase of TT \$123.6 million or 22.3 percent when compared to 2010. The continued rise in revenues is attributed to the growth in Internet subscriptions. Figure 76 shows the Internet revenues trend from 2007 to 2011 and Figure 77 depicts the percentage of revenue contributions made by the fixed Internet and mobile Internet markets.

Figure 76: Total Internet Revenues 2007-2011



Source: TATT

Figure 77: Percentage of Fixed and Mobile Contributions to Internet Revenues 2011



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

4.3.1 Fixed Internet Revenues

For the period under review, the total estimated gross revenues for the fixed Internet market stood at TT \$530.8 million, an increase of TT \$79.9 million or 17.7 per cent over the revenues reported in 2010. Of this amount, narrowband Internet accounted for TT \$8.2 million and broadband Internet contributed TT \$522.7 million.

As the migration of subscriptions from narrowband to broadband services continued in 2011, narrowband revenues declined by TT \$8.4 million or 50.6 per cent whereas broadband revenues

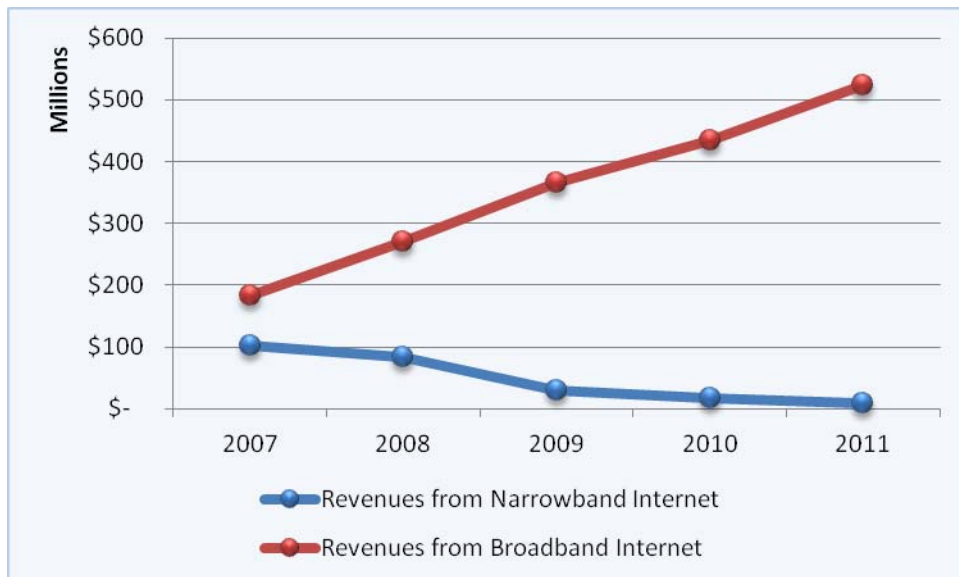
rose by TT \$88.2 million or 20.3 per cent when compared to the 2010 period. Figures 78 and 79 highlight the annual revenue trend in the fixed Internet market from 2007 to 2011.

Figure 78: Fixed Internet Revenues 2007-2011



Source: TATT

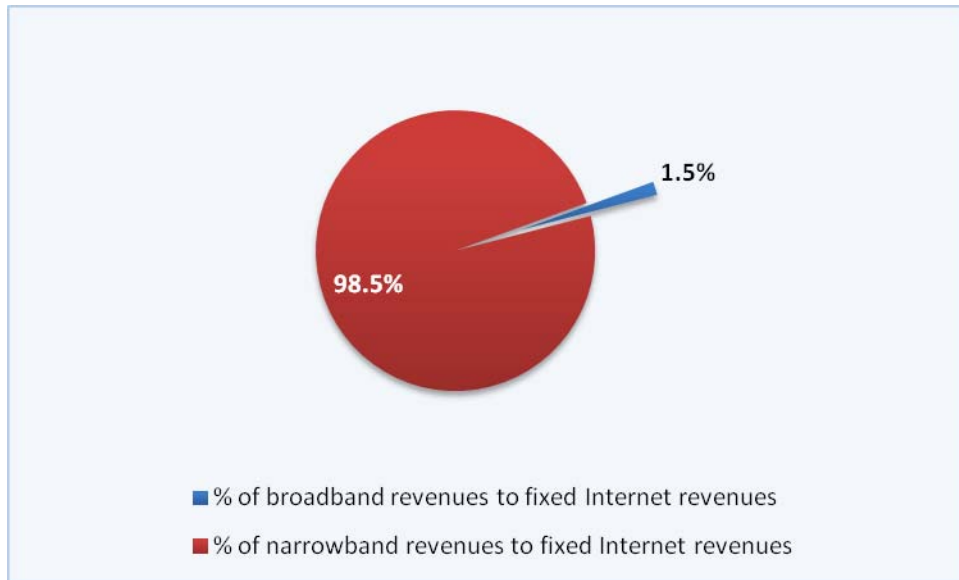
Figure 79: Revenues from Fixed Narrowband and Broadband Subscriptions 2007 - 2011



Source: TATT

With broadband Internet being the predominant choice of service in the market, broadband contributed 98.5 per cent to total fixed Internet revenues while narrowband contributed only 1.5 per cent. Figure 80 portrays the revenue percentage contributions for 2011.

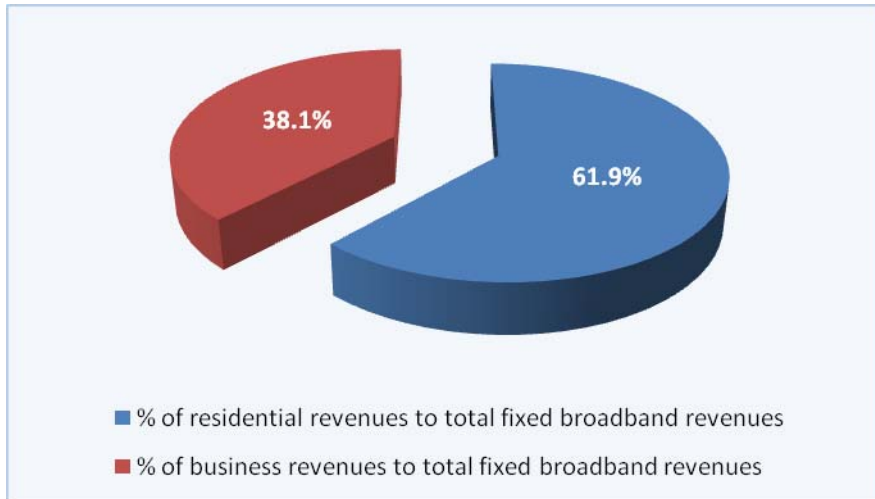
Figure 80: Percentage of Narrowband and Broadband Revenues to Total Fixed Internet Revenues 2011



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.

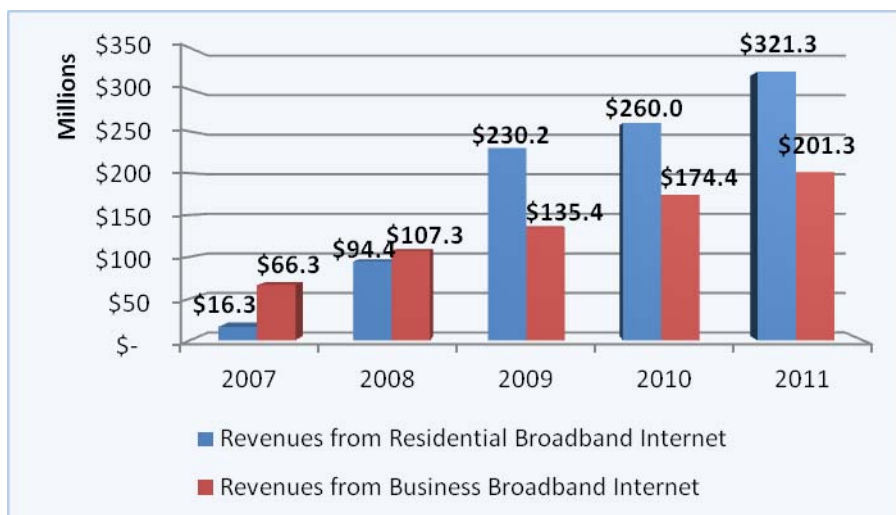
Figure 81: Percentage of Residential and Business Revenues to Fixed Broadband Revenues 2011



Source: TATT

Contrary to 2010, residential broadband Internet revenues experienced a higher growth rate than business broadband Internet revenues. Consistent with the significant growth in residential broadband fixed Internet subscriptions, revenues from residential broadband increased by 23.6 per cent or by TT \$61.3 million while revenues from business broadband grew only 15.4 per cent or by TT \$26.9 million. Figure 82 shows revenues from residential and business broadband subscriptions for the period 2007 to 2011.

Figure 82: Revenues from Residential and Business Fixed Broadband Subscriptions 2007-2011

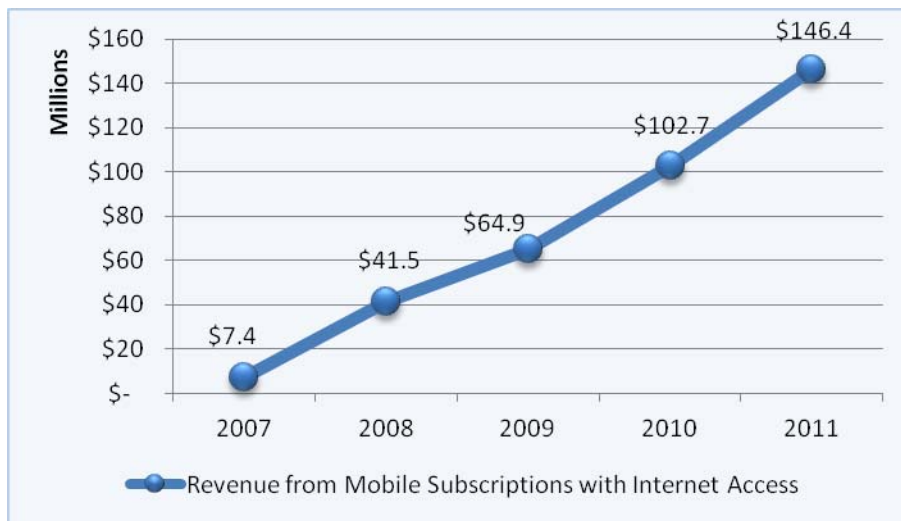


Source: TATT

4.3.2 Mobile Internet Revenues

Total gross revenues for the mobile (prepaid and postpaid) Internet market totalled TT \$146.4 million, an increase of TT \$43.7 million or 42.6 per cent over 2010. Figure 83 highlights annual trend for total revenues received from mobile subscriptions with Internet access. This overall growth in mobile Internet revenues is a direct result of the significant take-up of mobile Internet subscriptions as mentioned in Section 4.1.

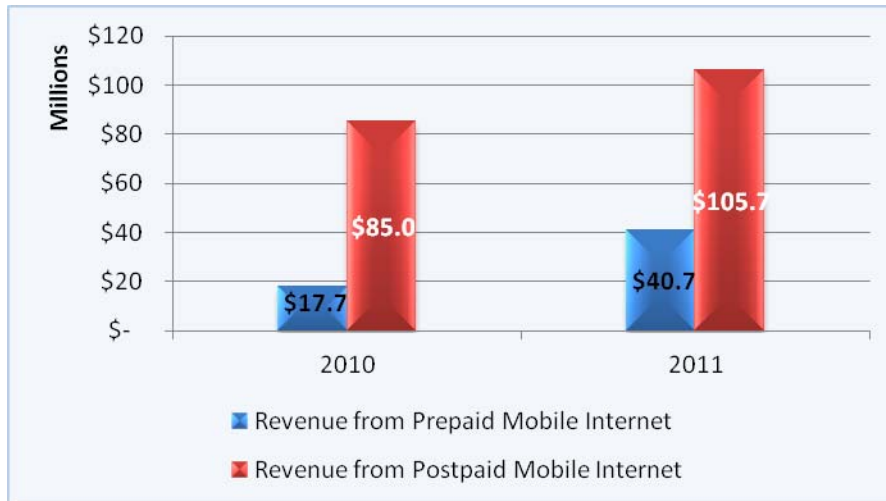
Figure 83: Total Mobile Internet Revenues 2007-2011



Source: TATT

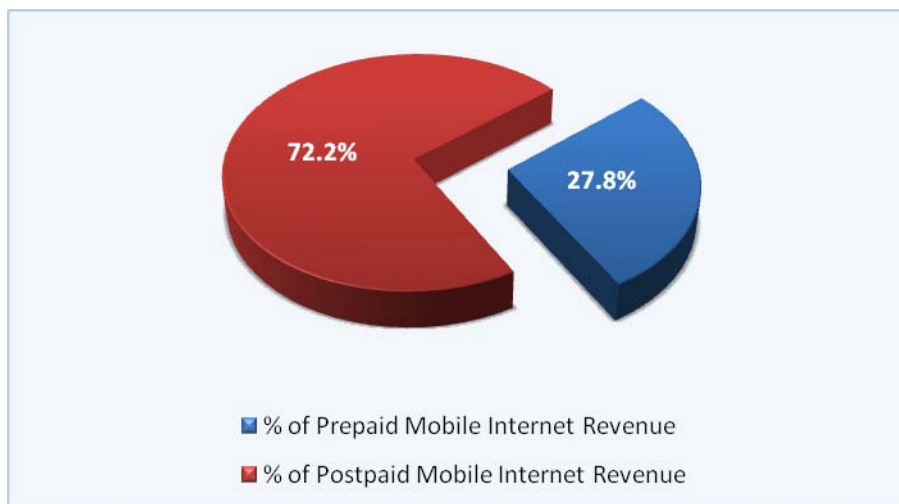
Prepaid subscriptions with Internet access contributed TT \$40.7 million, or 27.8 per cent to total mobile Internet revenues, while postpaid subscriptions accounted for TT \$105.7 million or 72.2 per cent. Figure 84 shows the separation of mobile Internet revenues into prepaid and postpaid for 2010 and 2011, while Figure 85 depicts the percentage revenue contributions of the individual prepaid and postpaid categories for 2011.

Figure 84: Revenues from Prepaid and Postpaid Mobile Internet Subscriptions 2010 and 2011



Source: TATT

Figure 85: Percentage of Prepaid and Postpaid Revenues to Mobile Internet Revenues 2011



Source: TATT

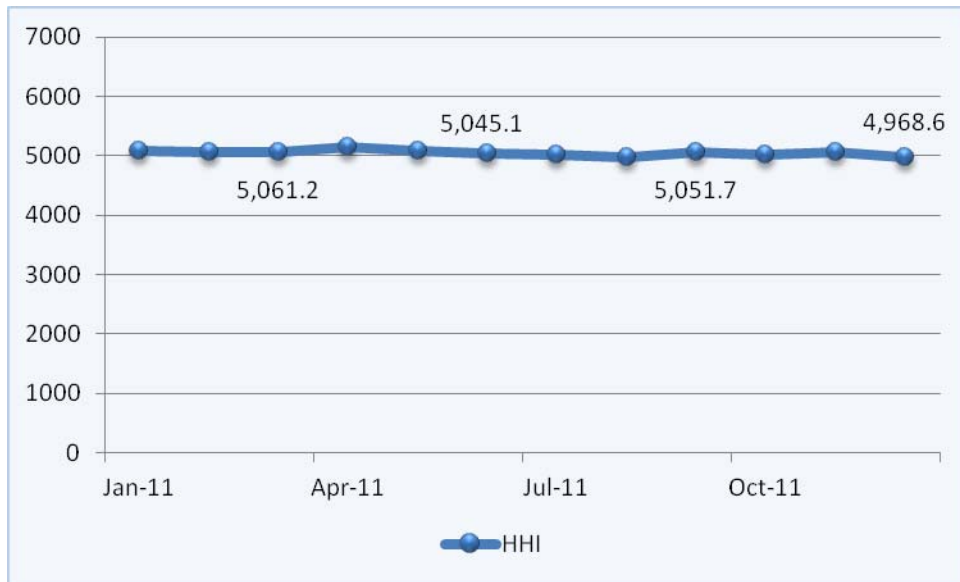
4.4 Fixed Internet Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the fixed Internet market⁴⁷ of Trinidad and Tobago for the year ending December 2011. With a HHI of 4986 calculated in 2011, the competitive landscape in the fixed Internet market was fairly stable decreasing by only 0.5 per cent, when compared to 2010.

⁴⁷ Subscriber market share was used in the calculation of the HHI.

Figure 86 reflects market concentration remaining relatively stable throughout the 2011 period, dipping slightly in the fourth quarter. However, it must be noted that even though there were a number of Internet providers in the market, the HHI of 4986 indicates that although contested, there may be few players who control significant shares of the market.

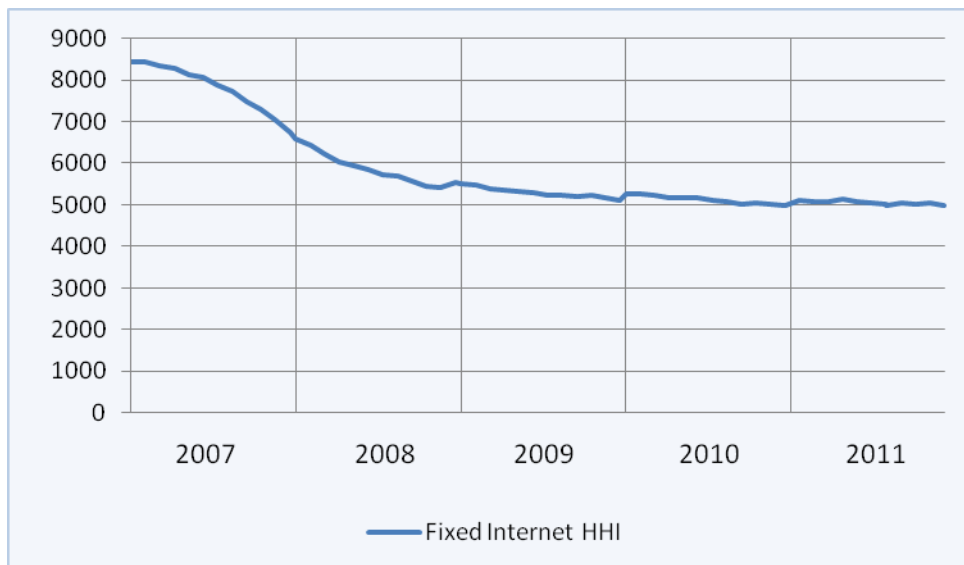
Figure 86: Hirschman-Herfindahl Index of Fixed Internet Market January–December 2011



Source: TATT

On comparing the last five years, Figure 87 shows the effects of market competition reducing the HHI from 8424 as at January 2007 to 4986 as at December 2011.

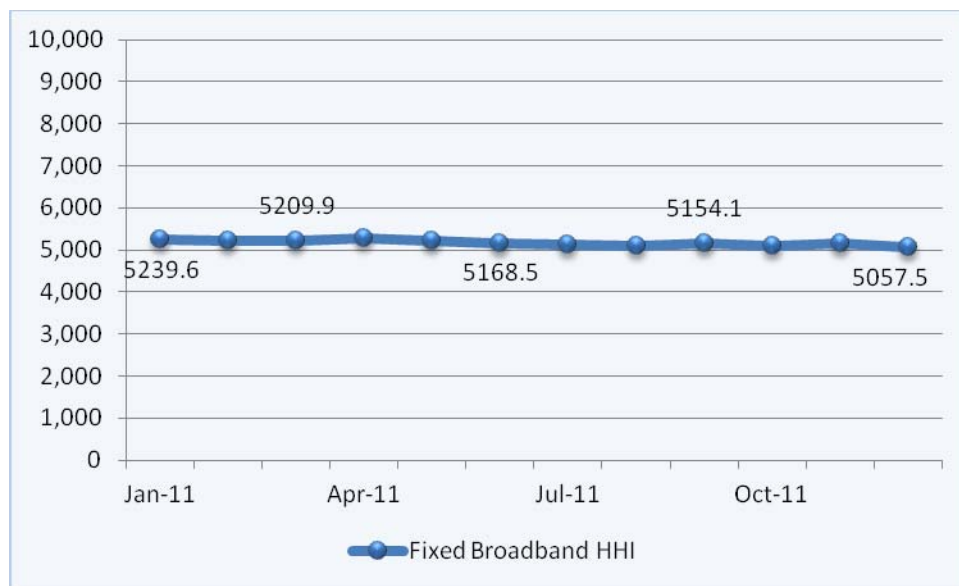
Figure 87: HHI of Total Fixed Internet Services 2007- 2011



4.4.1 HHI for Broadband and Narrowband Services

In an attempt to pinpoint the reason for the concentration level mentioned above, the HHI was separately examined for the fixed broadband market and the narrowband market. The calculation for fixed broadband services showed an HHI of 5057.5 as at the end of 2011. Although, the HHI results for fixed broadband services decreased from January to December, as Figure 88 below depicts, it has remained relatively stable during the year.

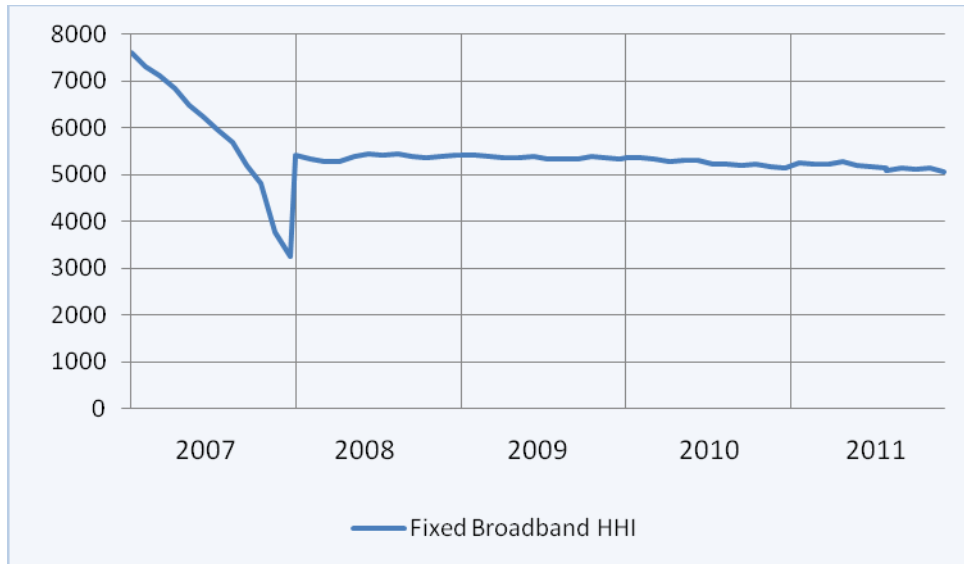
Figure 88: 2011 HHI for Fixed Broadband Services



Source: TATT

As seen in Figure 89, during the five year period 2006 to 2011 market competition has increased as evident by the broadband HHI being reduced from 7591.9 at the end of 2007 to 5057.5 at the end of December 2011. While broadband fixed Internet HHI has experienced a significant decline in 2007, it has been relatively stable over the last four years.

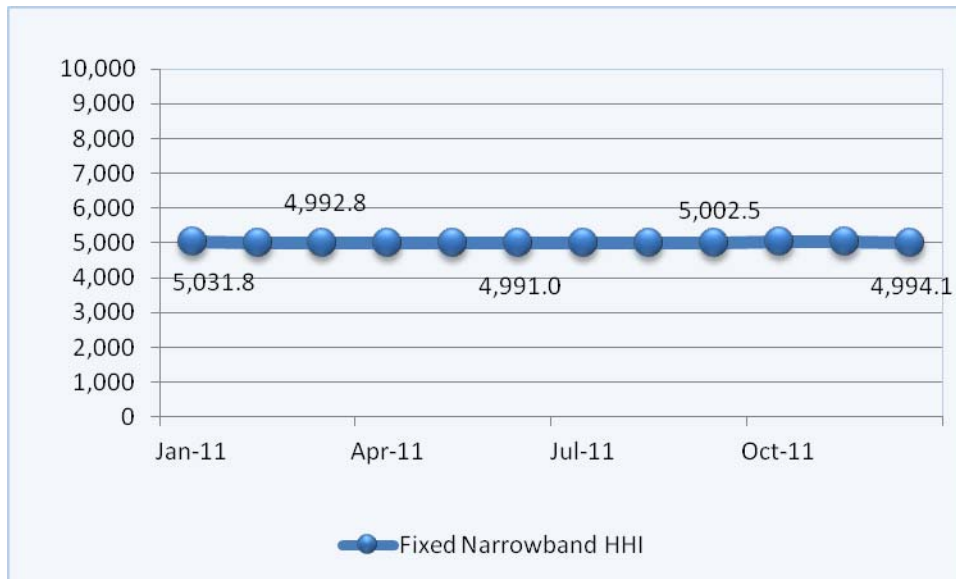
Figure 89: HHI of Fixed Broadband Services 2007- 2011



Source: TATT

On the other hand, narrowband services recorded an HHI of 4994.1 for the 2011 period. While the narrowband HHI has been decreasing throughout the year, the market continues to be contested with only four players competing. Figure 90 illustrates the narrowband HHI trends throughout 2011.

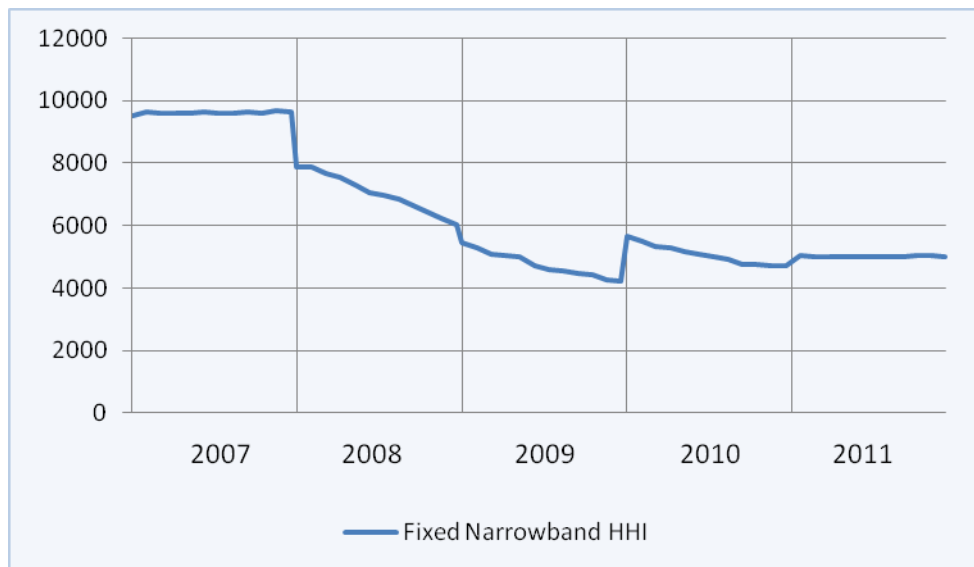
Figure 90: 2011 HHI for Fixed Narrowband Services



Source: TATT

On comparing the last five years, Figure 91 shows the effects of market competition reducing the narrowband HHI from 9,538 as at January 2007 to 4994 as at December 2011.

Figure 91: HHI of Fixed Narrowband Services 2007- 2011



Source: TATT

On evaluating Figures 90 and 91, it is evident that the narrowband market is slightly more competitive than the broadband market. One reason explaining the broadband market being less contested than narrowband may be as a result of subscriptions being more evenly spread among the service providers in the narrowband market.

4.5 Average Revenue per User

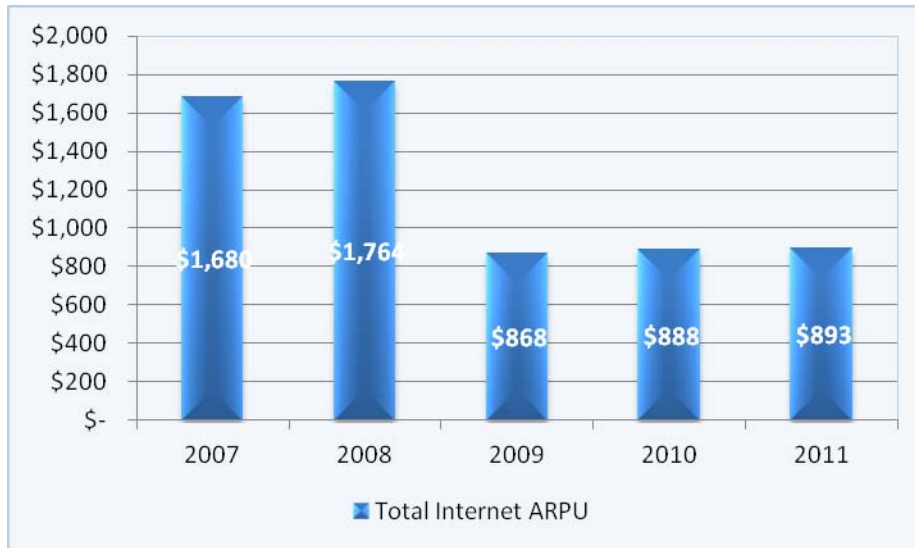
During the review period, customers with Internet subscriptions spent an average of TT \$893⁴⁸ in 2011 for Internet services. For fixed Internet services, customers spent approximately TT \$2764⁴⁹ during 2011. This represents an increase of TT \$128 or 5 per cent in the average revenue per user (ARPU) over the amount recorded for 2010. For mobile Internet services,

⁴⁸ ARPU for fixed and mobile Internet subscriptions combined.

⁴⁹ 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)

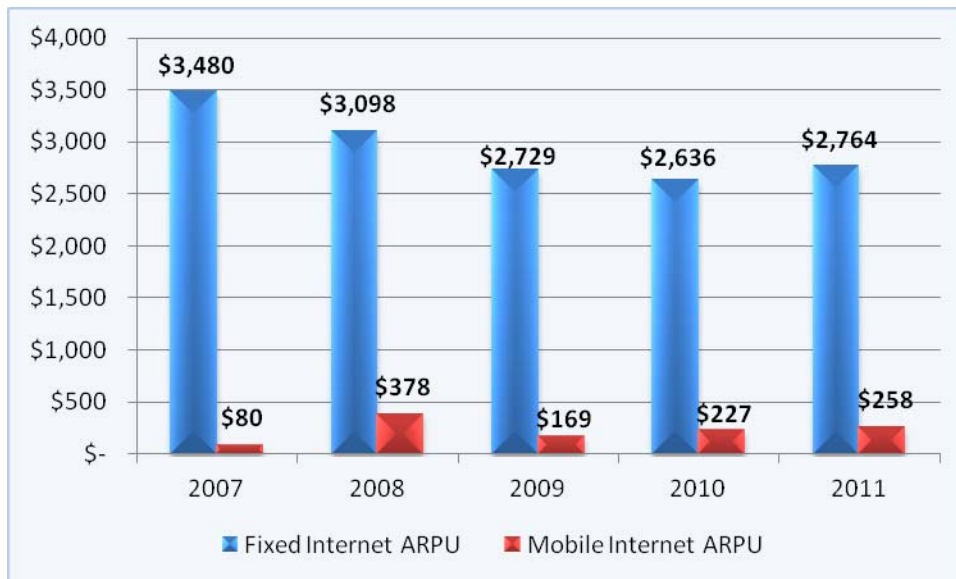
customers spent an average of TT \$258⁵⁰ in 2011. This represents an increase of TT \$31 or 14 per cent over the ARPU for mobile Internet recorded for 2010. Figure 92 and 93 show the ARPU trends for the individual categories over the last five years.

Figure 92: ARPU for Total Internet Services 2007-2011



Source: TATT

Figure 93: ARPU for Fixed and Mobile Internet Services 2007-2011



Source: TATT

⁵⁰ 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)

Key Market trends and Observations in the International Voice Market

- **International Voice traffic minutes slide**
- **International Voice revenues continue to fall**

5. International Voice Traffic Data

In 2011, nine (9) concessionaires were authorized 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 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 2011, Green Dot Limited and Laqtel Ltd were not operational and TATT has not received any information of Windward Telecom's operation as of January 2011 in Trinidad and Tobago.

5.1 International Voice Traffic Minutes

For the review period, total traffic volume for both incoming and outgoing international calls made via the fixed and mobile networks were estimated to be approximately 530.7 million minutes that is, a decrease of 17.2 per cent or 110.6 million minutes, when compared to 2010. This fall in international minutes is attributed mainly to a large decrease in the number of

inbound minutes of approximately 17.3 per cent for the period. As seen in the Figure 94, the market continues to experience a decline in the growth of international traffic since 2008.

Figure 94: International Traffic Minutes 2006 - 2011



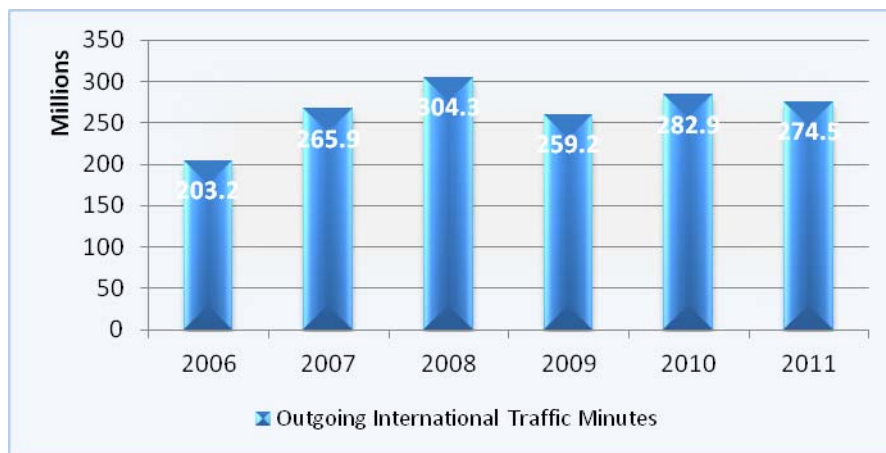
Source: TATT

Similar to 2010, incoming traffic volumes continued to decline in 2011 following consistent increases over the period 2006 to 2009. As illustrated in Figure 95, incoming international traffic for 2011 was estimated at 256.2 million minutes, a decrease 102.3 million minutes or 28.5 per cent, over last year's traffic. A decrease in outgoing international traffic was also observed for the 2011 period. Outgoing international traffic was estimated to be 274.5 million minutes, a decrease of 8.3 million minutes or 3.0 per cent, Figure 96 illustrates.

Figure 95: Incoming International Traffic Minutes 2006 - 2011



Figure 96: Outgoing International Traffic Minutes 2006 - 2011

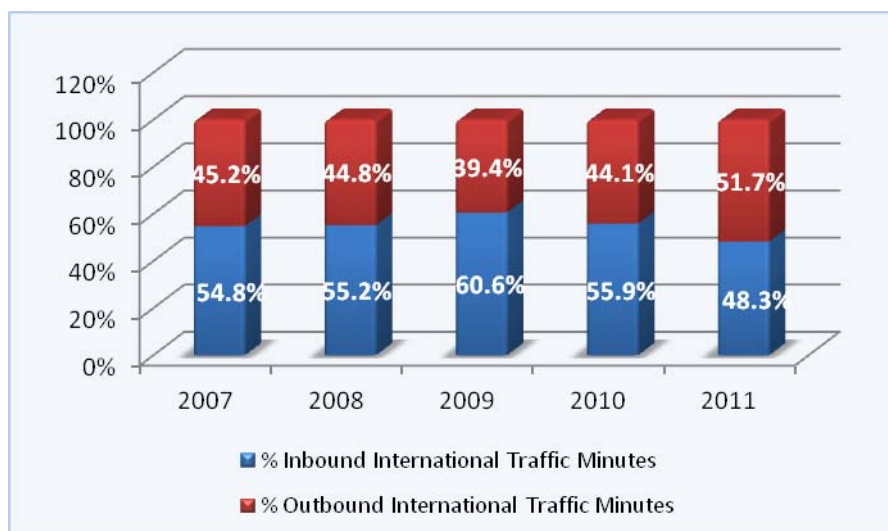


Source: TATT

For the first time since the year 2000⁵¹, outgoing international traffic minutes surpassed incoming traffic minutes in 2011. Incoming traffic accounted for 48.3 per cent of total international minutes, while outgoing traffic comprises the other 51.7 per cent. Figure 97 illustrates the proportion of incoming traffic compared to outgoing traffic over the past five years.

⁵¹ International Voice traffic data is only available from the year 2000.

Figure 97: Percentage of Incoming and Outgoing Traffic to Total International Traffic 2007-2011.



Source: TATT

5.2 International Traffic Revenues

Gross revenues⁵² received from international fixed and mobile traffic totalled TT \$259.2 million in 2011. This represents a decrease of approximately TT \$39.8 million or 13.3 per cent over the previous year. The fall in revenues is consistent with the 17.2 per cent reduction in international traffic minutes recorded during the same period. Figure 98 depicts the fluctuating trend in revenues received from international traffic for the years 2007 to 2011.

⁵² 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.

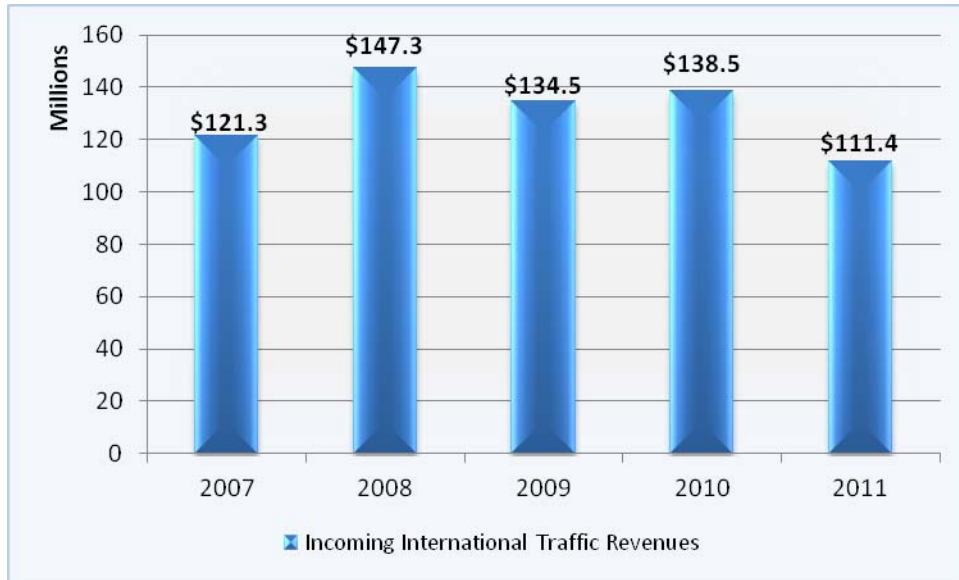
Figure 98: Gross Revenues from International Traffic 2007- 2011



Source: TATT

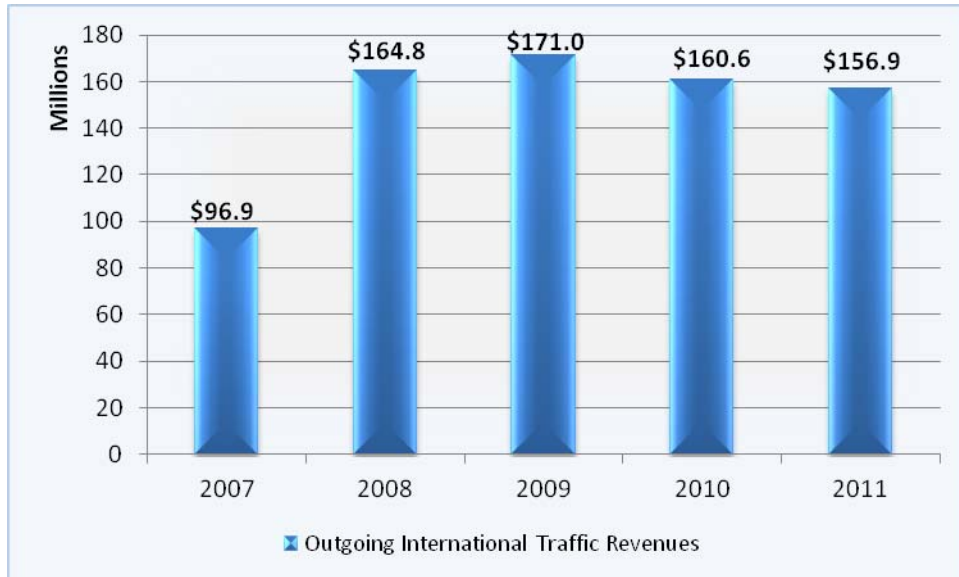
As shown in Figure 99, revenues earned from incoming traffic were estimated at TT \$111.4 million, a decrease of TT \$27.1 million or 19.6 per cent when compared to 2010. As seen in Figure 99 below, revenues obtained from incoming international traffic experienced several dips and peaks over the last five years. Revenues received from outgoing international traffic totalled TT \$156.9 million in 2011, decreasing minimally by TT \$3.7 million or 2.3 per cent over the last period. Outgoing international traffic revenues over the past five years is depicted in Figure 100.

Figure 99: Revenues from Incoming International Traffic 2007-2011



Source: TATT

Figure 100: Revenues from Outgoing International Traffic 2007-2011

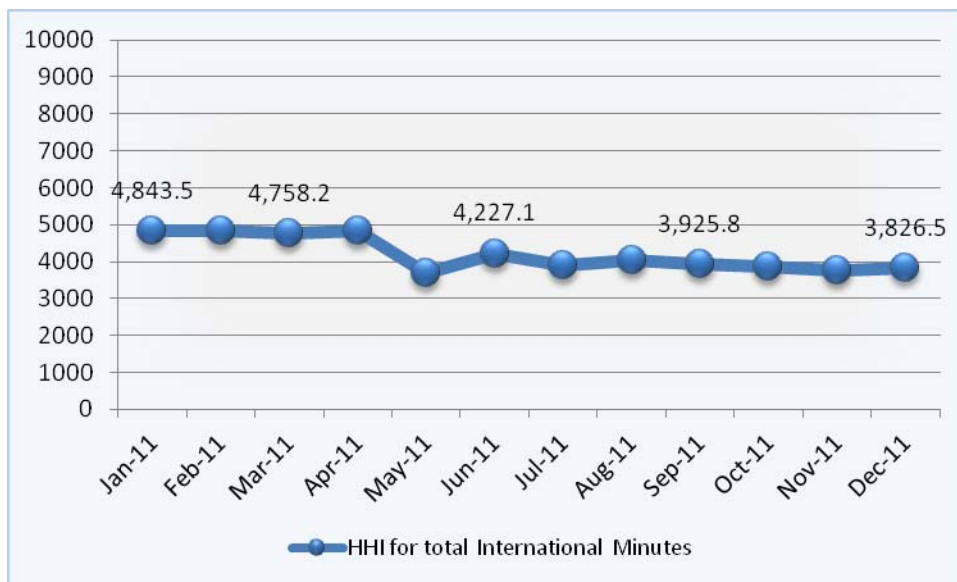


Source: TATT

5.3 International Voice Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the international voice market of Trinidad and Tobago for the year ending December 2011. The market share used in the calculation of the HHI was defined in terms of number of international minutes generated by the service providers. Figure 101 shows that as at December 2011, the HHI for the international market stood at 3826.5 indicating that the market is concentrated as well as contested.

Figure 101: Hirschman-Herfindahl Index of International Voice Market January–December 2011



Source: TATT

On comparing data over the last three periods, Figure 102 maps the effects of market competition reducing the HHI from 5711.1 in 2007 to 3826.5 in 2011. This is equivalent to a 28.1 per cent increase in the level of competition in the international traffic market.

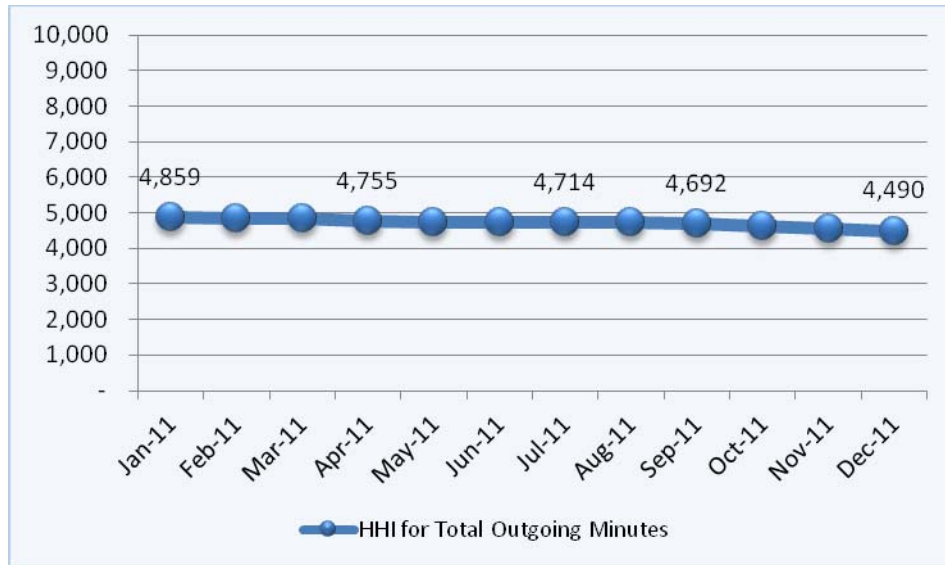
Figure 102: Hirschman-Herfindahl Index of International Traffic Market 2007- 2011



Source: TATT

As outlined in Figures 103 and 104 below, during 2011 the level of competitiveness in the international outgoing market remained relatively stable when compared to the international incoming market which has experienced a significant dip in May 2011. Notably, the international incoming market continues to be the more competitive of the two individual markets as at December 2011.

Figure 103: Hirschman-Herfindahl Index of International Outgoing Minutes January–December 2011



Source: TATT

Figure 104: Hirschman-Herfindahl Index of International Incoming Minutes January–December 2011



Source: TATT

BOX 2: GLOBAL TELECOMMUNICATIONS TRENDS

The following key highlights from the ITU's 2011 publication on ICT Facts and Figures outline the global performance of the Telecommunications sector in 2011:

- ✓ One third of the world's population is online
- ✓ Over the last five years, developing countries have increased their share of the world's total number of Internet users from 44% in 2006, to 62% in 2011.
- ✓ With 5.9 billion mobile-cellular subscriptions, global penetration reaches 87% and 79% in the developing world.
- ✓ Mobile-broadband subscriptions have grown 45% annually over the last four years and today there are twice as many mobile-broadband as fixed broadband subscriptions.
- ✓ Of 1.8 billion households worldwide, one third has Internet access, compared to only one fifth five years ago.
- ✓ International Internet bandwidth, a key factor for providing high-speed Internet access to a growing number of Internet users has grown exponentially over the last five years, from 11'000 Gbit/s in 2006, to close to 80'000 Gbit/s in 2011.
- ✓ Europe leads in broadband connectivity, with fixed- and mobile-broadband penetration reaching 26% and 54%, respectively.

Key Market trends and Observations in the Broadcasting Market

- Free to Air Television and Radio revenues decline
- Subscription TV Subscriptions increase

6. Broadcasting Market Data

For the 2011 period, concessions were held by nine operators of free-to-air TV broadcasting services, nine operators of subscription-broadcasting services, one operator of TV Broadcasting service via cable, and thirty-seven operators of free-to-air radio broadcasting services. Table 4 below gives a breakdown of the number of concessions in the broadcasting market from 2007 to 2011.

Table 4: Number of Concessions in the Broadcasting Market 2007-2011

Types of Broadcasting Concessions	Number of Concessionaires				
	2007	2008	2009	2010	2011
Free to Air Television	6	9	9	9	9
National	4	6	6	6	6
Major Territorial	2	3	3	3	3
Subscription Television	7	8	8	9	9
National	3	4	4	4	4
Major Territorial	1	1	1	1	1
Niche	2	2	2	3	3
Minor Territorial	1	1	1	1	1
TV Broadcasting via Cable	1	1	1	1	1
National	1	1	1	1	1
Free to Air Radio	37	37	37	37	37
National	30	30	30	30	30
Major Territorial	6	6	6	6	6
Minor Territorial	1	1	1	1	1
Total	52	55	55	56	56

6.1 Free-to-Air Television Broadcasting Market

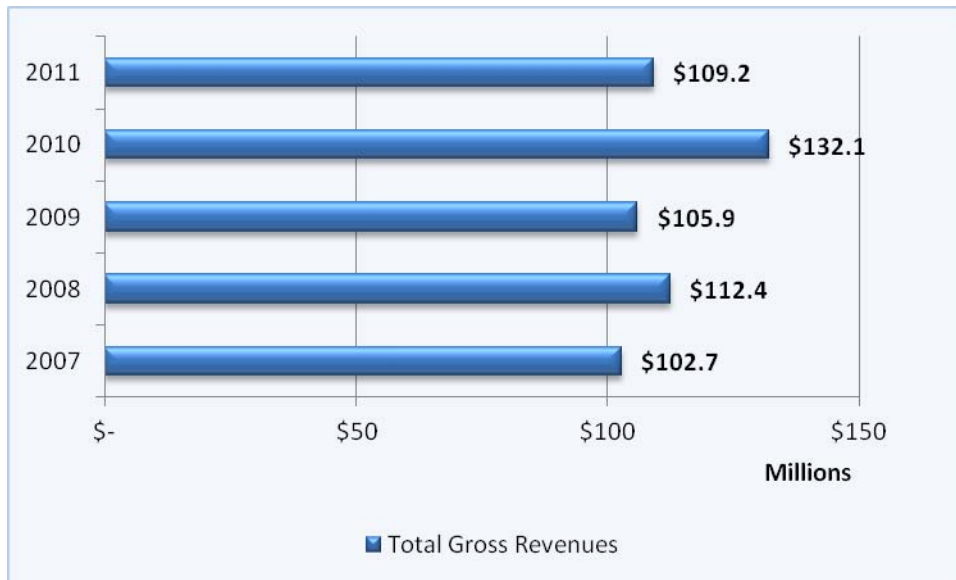
In 2011, the market for free-to-air TV broadcasting service comprised nine (9) operational concessionaires. They were:

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

6.1.1 Free to Air Television Revenues

Following a sharp increase in revenues last year mainly due to increased advertising revenues during the 2010 General election campaign, gross revenues in the free-to-air television market normalised in 2011. Total estimated gross revenues for this market stood at TT \$109.2 million, decreasing by 17.3 per cent over the previous year. Figure 105 shows the trend in revenues for the free-to-air television broadcasting market since 2007.

Figure 105: Gross Revenues for FTA Television Broadcasting Service Providers 2007-2011



Source: TATT

On a quarterly basis, revenues fluctuated in 2011 peaking at TT \$29.9 million in the second quarter. Compared to 2010, the free-to-air market performed better in the first and third quarters. A comparison of quarterly revenue trends for 2010 and 2011 are shown in Figure 106. On average the free to air television market generated approximately TT \$27.3 million per quarter 2011.

Figure 106: Quarterly Gross Revenues FTA Television Service Providers 2010 and 2011



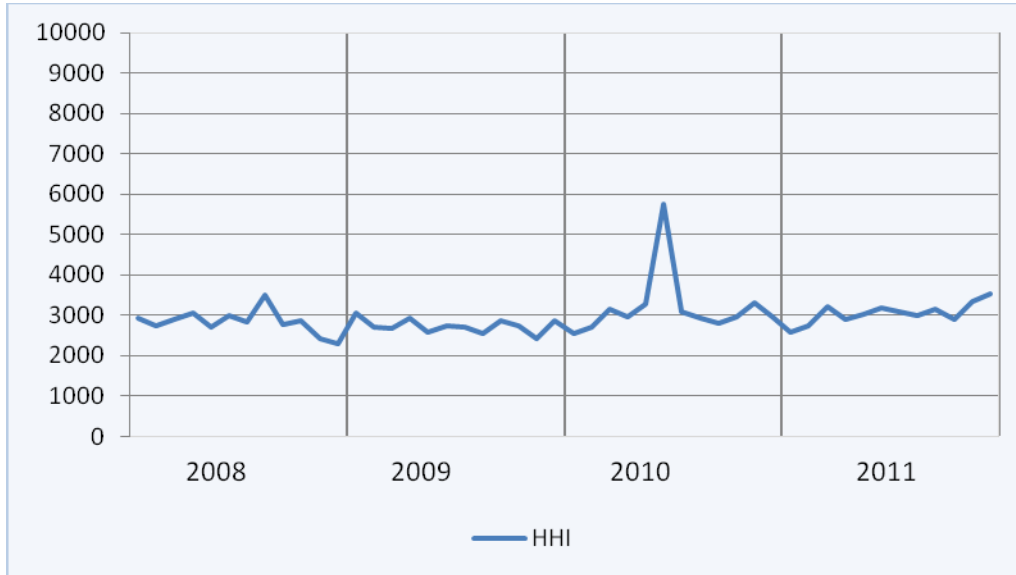
Source: TATT

6.1.2 Market Concentration Free to Air Television

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the free to air television broadcasting market⁵³ for the year ending December 2011. With the exception of 2010 in which the HHI experienced a sharp increase, the HHI in the free-to-air market has experienced several minor fluctuations from 2008 to 2011 as illustrated in Figure 107. As at December 2011, the free to air television market recorded an HHI of 3291 indicating that this market can be classified as concentrated and contested. This represents an increase of 12 per cent as compared to the HHI calculated in 2010. Figure 108 shows the HHI values for this market in 2011.

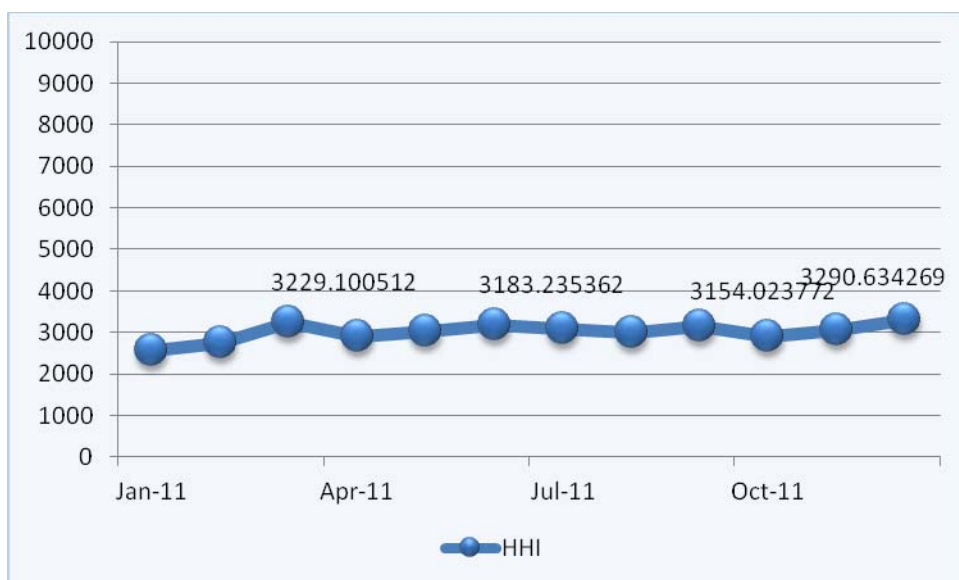
Figure 107: HHI for FTA Television Market 2008 to 2011

⁵³ The revenue market share was used in the calculation of the HHI



Source: TATT

Figure 108: HHI for FTA Television Broadcasting Market 2011



Source: TATT

6.2 Free-to-Air Radio Broadcasting Market⁵⁴

In 2011, the free-to-air (FTA) radio broadcasting market consisted of one (1) AM and thirty six (36) FM concessions which were operational. Although this number is relatively large, it must be noted that some concessionaires hold more than one concession and as result operate more than one radio station.

During 2011, free-to-air radio broadcasting market earned an estimated TT \$161.5 million in gross revenues. This represents a 3.3 per cent, or TT \$5.4 million decrease over the previous year. Figure 109 compares gross revenues from 2007 to 2011.

⁵⁴ For the review period, one concessionaire did not submit market data to the Authority; as a result, revenue Figures were estimated.

Figure 109: Gross Revenues for FTA Radio Service Providers 2007-2011

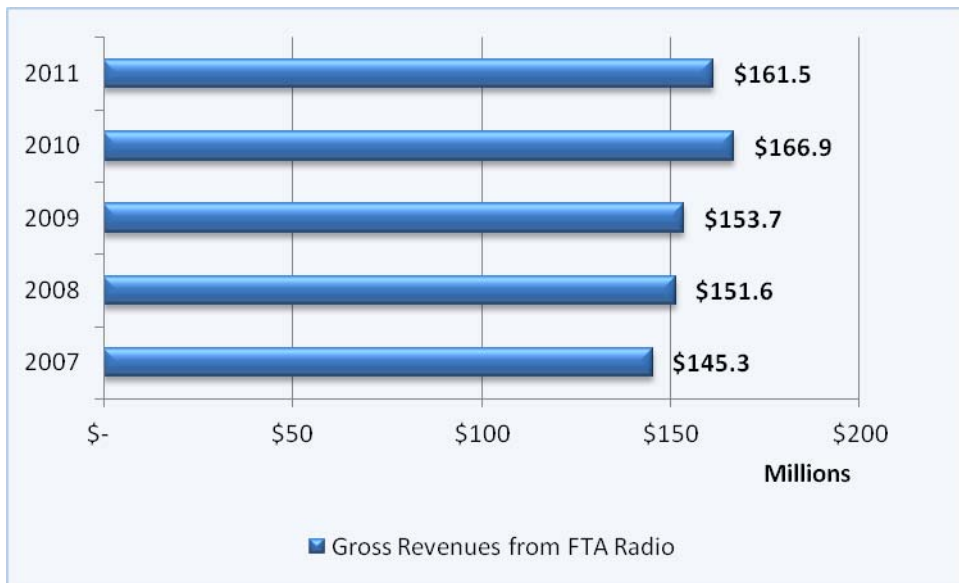


Figure 110 highlights quarterly gross revenues earned by concessionaires in the Free-to-air radio market in 2011. Gross revenues increased by 7 per cent from Q1 to Q2, and then decreased by 6.4 per cent from Q2 to Q3. Subsequently, gross revenues peaked in the fourth quarter, increasing 14.7 per cent from Q3 to Q4. On average the free to air radio market generated approximately TT \$40.3 million per quarter 2011.

Figure 110: Quarterly Gross Revenues for FTA Radio Service Providers 2011

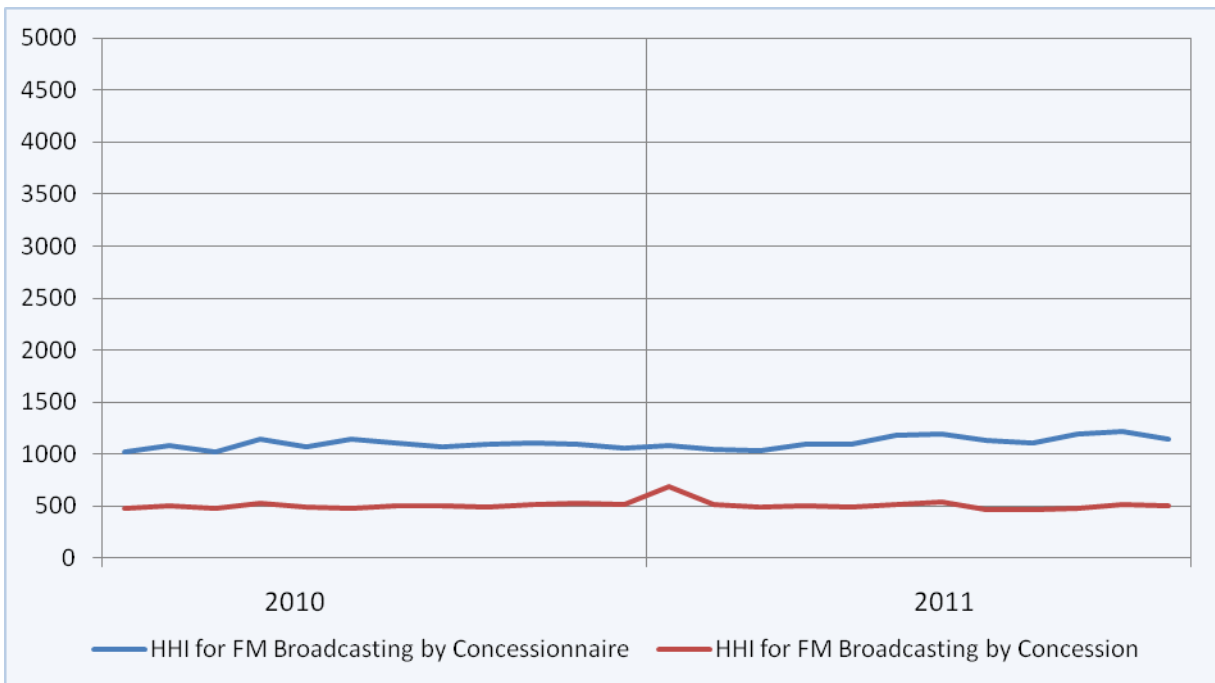


Source: TATT

6.2.1 Market Concentration Free to Air Radio

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the free to air radio broadcasting market⁵⁵ for the year ending December 2011 based on the number of concessions as well as on the number of concessionaires in the market. The result, as illustrated in Figure 111, revealed that there was a HHI of 498 based on the number of *concessions* in the market. Based on the number of *concessionaires* in the market, an HHI of 1140.5 was recorded. A comparison of these two HHIs indicates that the market based on the number of concessionaires is slightly more concentrated than one based on the number of concessions. It is observed however, that this market can be labelled as not concentrated such that there is a high level of competition due to the number of broadcasters in the market. Figure 112 shows the HHI values for this market in 2011.

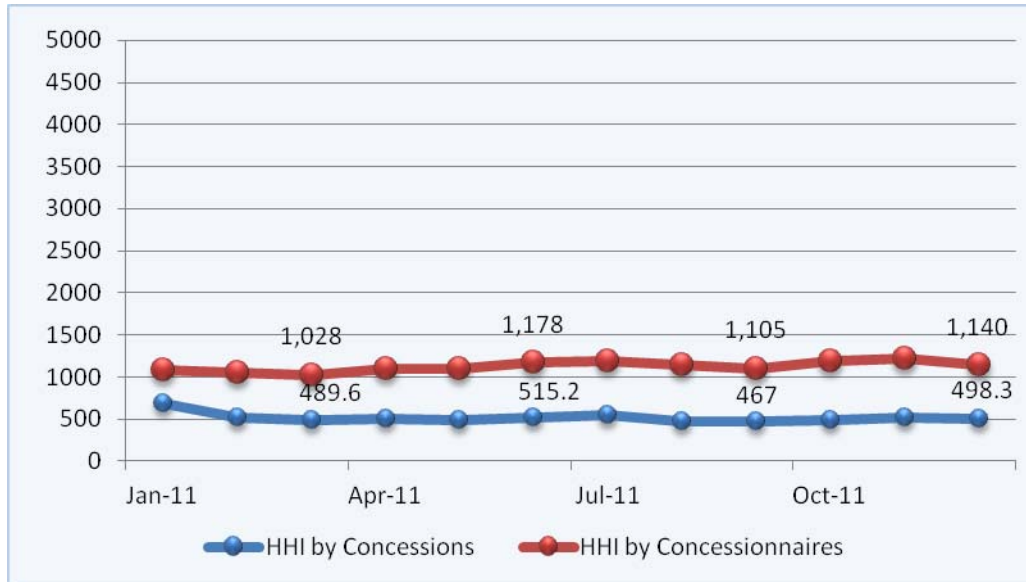
Figure 111: HHI in the Free to Air Radio Broadcasting Market 2010-2011



Source: TATT

⁵⁵ The revenue market share was used in the calculation of the HHI

Figure 112: HHI in the Free to Air Radio Broadcasting Market - 2011



Source: TATT

6.3 Subscription Television (‘Pay TV’) Broadcasting Market

For the 2011 period, the Subscription TV market comprised nine authorised and operational service providers. They were as follows:

Table 5: List of Subscription TV Providers 2011

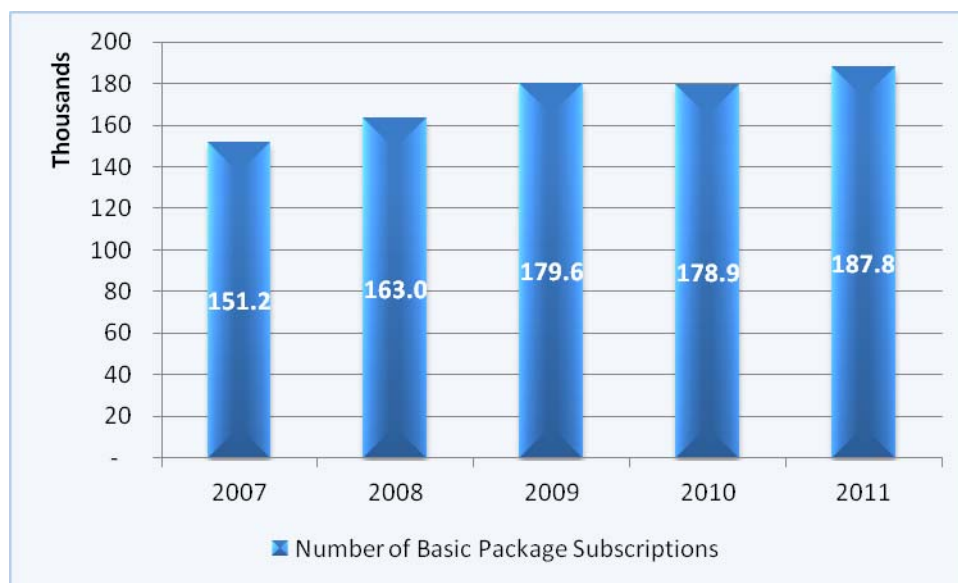
Name of Provider	Technology Used	Authorised Coverage Area
1. Columbus Communications Trinidad Limited (CCTL)	Analogue – Cable Digital – Cable	Trinidad and Tobago
2. DirecTV Trinidad Limited	Digital – Satellite	
3. Telecommunication Services of Trinidad and Tobago (TSTT)	Digital – IP TV	
4. Green Dot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

6.3.1 Total Subscription TV (Pay TV) Subscriptions

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

As at December 2011, the total number of subscriptions to basic Subscription TV services stood at approximately 187.8 thousand, an increase of 8.9 thousand subscriptions or a 5 per cent increase when compared to December 2010. Figure 113 shows the trend in subscriptions to Subscription TV for the period 2007 to 2011.

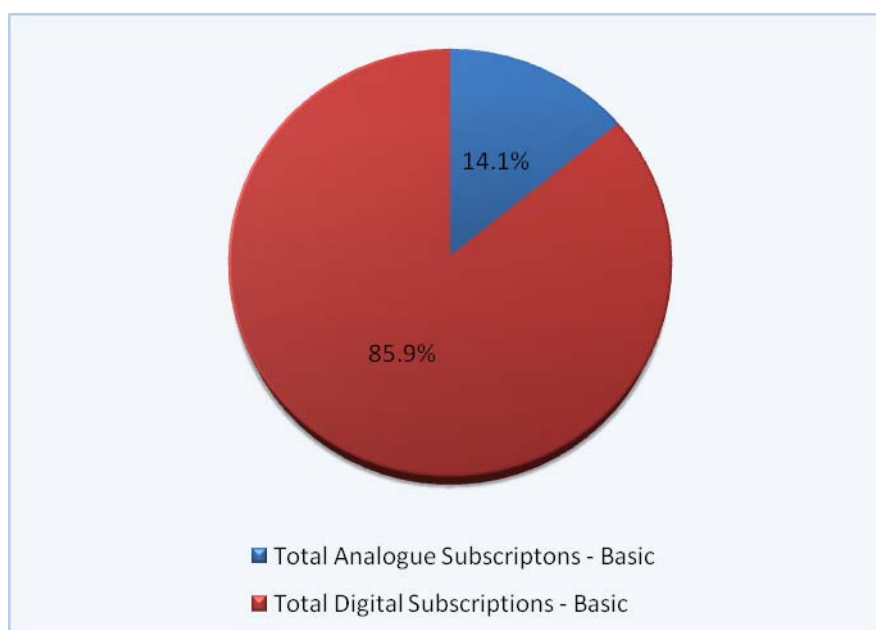
Figure 113: Number of Subscription TV Subscriptions (Basic Package Subscriptions) 2007 – 2011



Source: TATT

Of the total number of subscriptions, analogue subscriptions represented 26.5 thousand or 14.1 per cent, whilst digital subscriptions contributed 161.3 thousand or 85.9 per cent. Figure 114 below presents a percentage breakdown of the number of Subscription TV subscriptions per platform for 2011.

Figure 114: Subscription TV Subscriptions (Basic Package Subscriptions) by Platform for 2011



Source: TATT

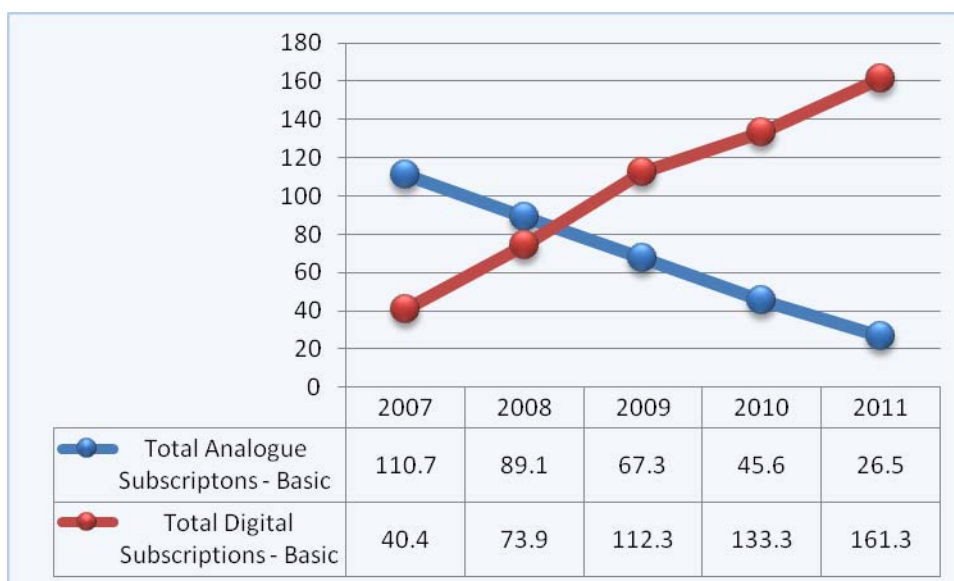
Digital subscriptions increased by 28 thousand or 21 per cent from 2010 to 2011 as it continued to comprise the larger share of subscriptions. Analogue subscriptions, however, decreased by 19.1 thousand or 41.9 per cent for the same period under review. This noticeable trade-off between digital and analogue subscriptions is evident as the main cable provider in Trinidad, CCTL, continues in its drive to upgrade its analogue network to a digital platform and as new entrants to the Subscription TV market, TSTT and Green Dot, continue to expand their services. See Box 3. This annual change in subscribership via platform is shown in Table 6 and illustrated in Figure 115.

Table 6: Growth Rate of Subscription TV Subscriptions by Platform 2011

Type of Platform	Number of Basic Subscription TV Subscriptions -2011 (*000)	Percentage change between 2010 and 2011
Analogue	26.5	(41.9%)
Digital	161.3	21.0%

Source: TATT

Figure 115: Subscription TV Subscriptions by Platform 2007-2011

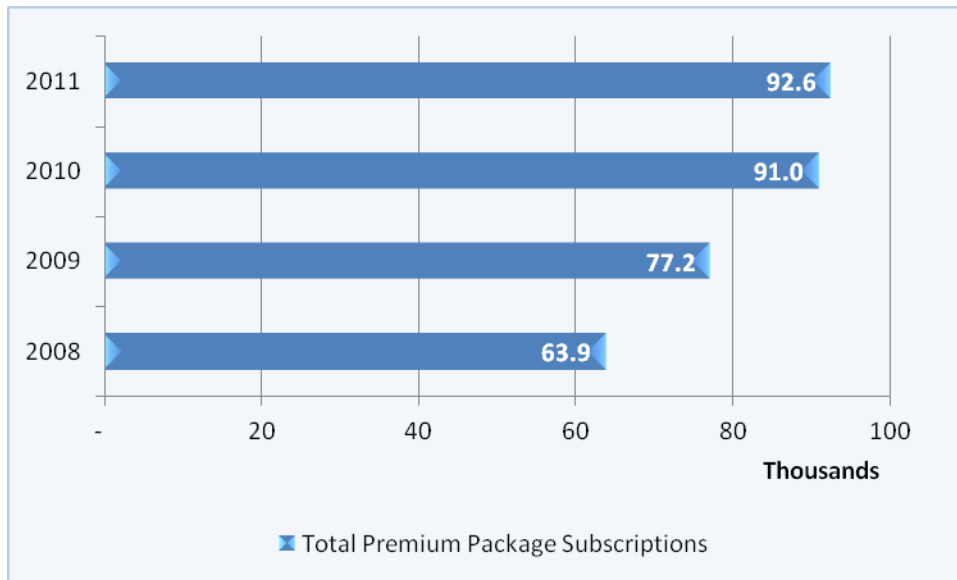


Source: TATT

6.3.2 Premium Packages Subscriptions

As mentioned in the previous section, all subscription televisions customers must subscribe to a basic package before subscribing to a premium package. As a result, premium package subscriptions represent a subset of total Subscription TV (or total basic package) subscriptions and it is noted that a subscriber can subscribe to more than one premium package. As at December 2011, the total number of subscriptions to premium packages was approximately 92.6 thousand, an increase of 1.6 thousand subscriptions or a 1.8 per cent increase from 2010. As illustrated in Figure 116, the demand for premium packages has increased significantly by 45 per cent from 2008 to 2011.

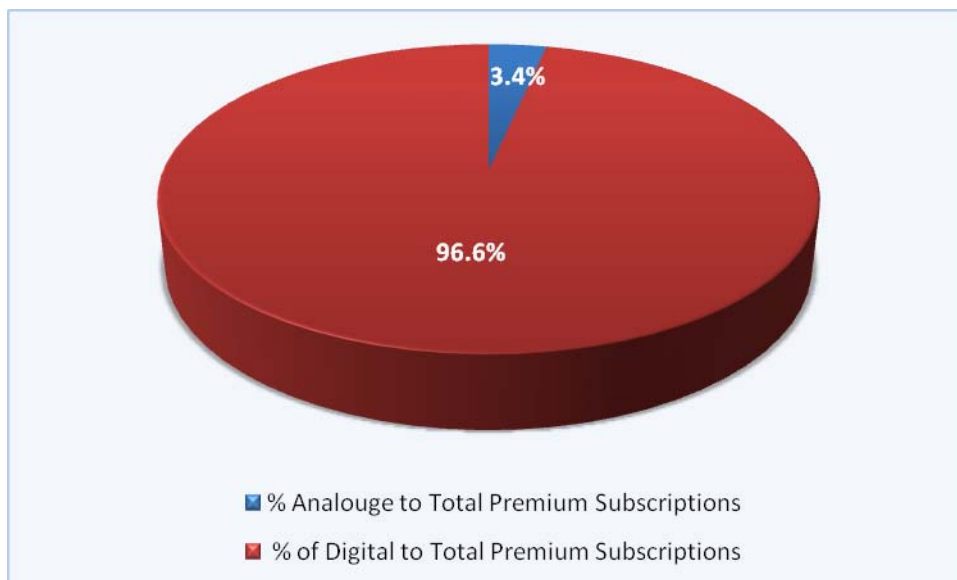
Figure 116: Number of Premium Package Subscriptions 2008 – 2011



Source: TATT

Analogue premium packages account for 3.1 thousand or 3.4 per cent of total premium packages subscriptions while Digital premium packages contributed the remaining 89.4 thousand or 96.6 per cent. Figure 117 below presents a percentage breakdown of the number of premium package subscriptions by platform for 2011.

Figure 117: Number of Premium Package Subscriptions by Platform 2011



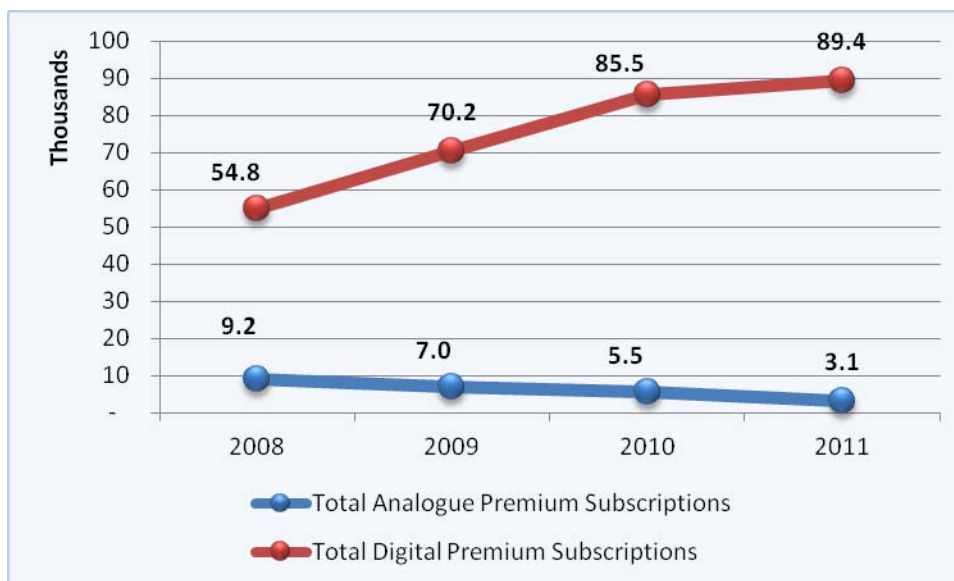
Source: TATT

As seen in Figure 117 above, the number of subscriptions to digital premium packages represented the largest share of theme packages in 2011, increasing by approximately 4 thousand or 4.6 per cent. Subscriptions to analogue premium packages decreased by 2.3 thousand, or 42.6 per cent, for the same period under review. This was expected as mentioned in Section 6.3.1, as the main cable provider in Trinidad, CCTL, continues its rollout of its digital network. The annual change in subscriptions to premium packages via platform for 2011 is shown in Table 7 while the trend in subscription to premium packages over the last four years is illustrated in Figure 118.

Table 7: Growth Rate of Theme Package Subscriptions by Platform

Platform	Number of Premium Package Subscriptions - 2011 ('000)	% Change between 2010 and 2010
Analogue	3.1	(42.6%)
Digital	89.4	4.6%

Figure 118: Subscriptions to Premium Packages by Platform 2008-2011



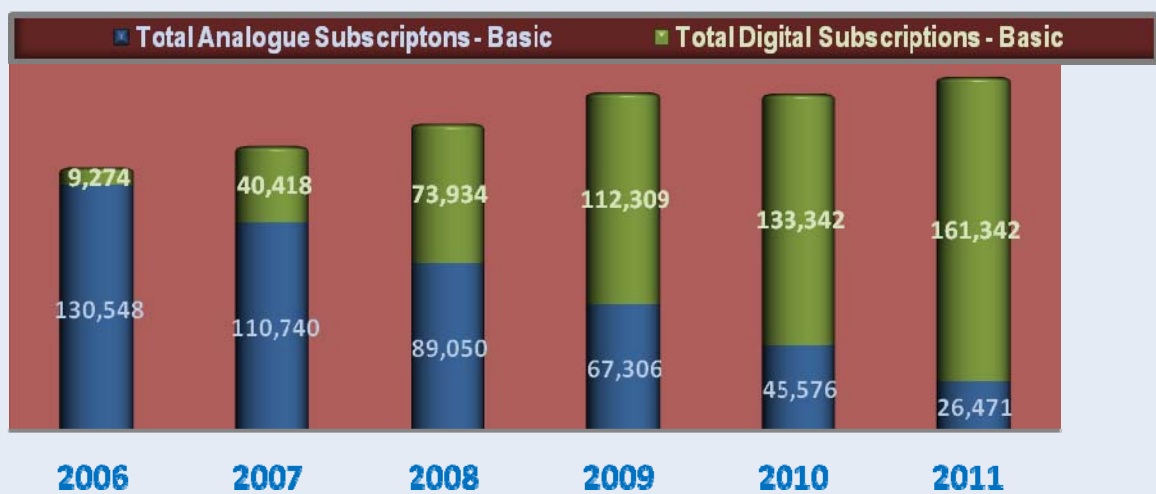
Source: TATT

BOX 3: TRENDS IN THE SUBSCRIPTION TELEVISION MARKET

Without doubt, subscription TV services are fast becoming a staple within households in Trinidad and Tobago as evidenced by the continuous growth of the number of subscriptions observed throughout the years (See Figure 1). In fact, it is estimated that 54 out of every 100 households in Trinidad and Tobago enjoy subscription television services. Growth in this sector is also evidenced by steady increases in revenue over the past five years. Contributing approximately 66 per cent of the broadcasting sector's revenue in 2011, the subscription television market continues to be the highest revenue generator in this sector.

It is noted from the high national market penetration of number of subscriptions observed in Figure 1 that the number of digital television subscriptions has steadily grown and currently supersedes the number of analogue television subscriptions. While analogue television maintains itself as the basic service, digitization in the television world has opened the doors for more value added and interactive services like gaming and travel reports, broadening the consumer's choices while experiencing significant improvement in signal quality.

FIGURE 1: TOTAL ANALOGUE VERSUS DIGITAL IN TRINIDAD AND TOBAGO FOR 2007-2011

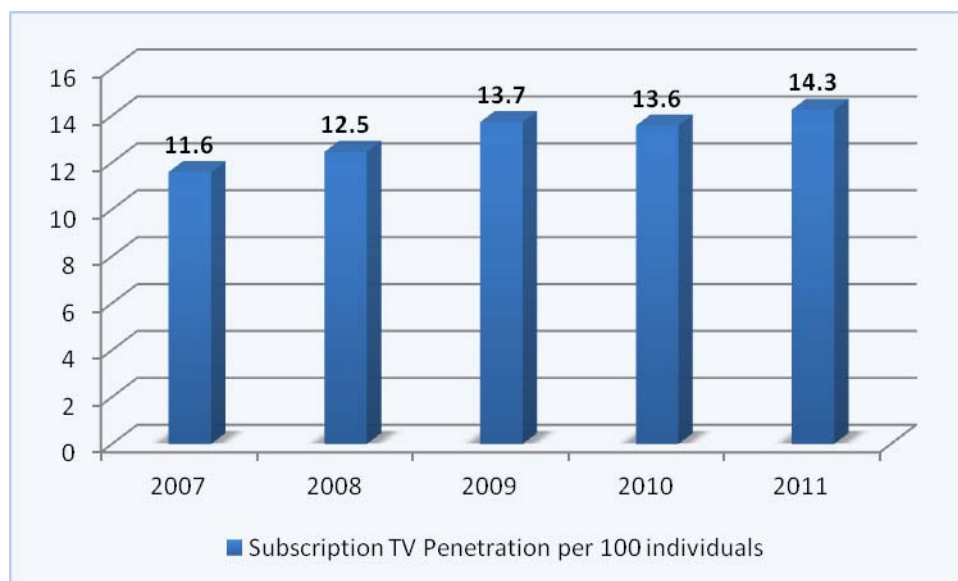


SOURCE: TATT

6.3.3 Subscription TV Penetration

Although experiencing a minor dip in 2010, Subscription TV penetration in the broadcasting market has been growing relatively steady over the past five years. As at December 2011, the penetration of Subscription TV services (the number of Subscription TV subscriptions per 100 inhabitants⁵⁶) was 14.3 while Subscription TV household penetration (the number of subscriptions per 100 households⁵⁷) measured 54.7. This means approximately 14 out of every 100 persons and 55 out of every 100 households subscribe to these services. Figures 119 and 120 highlight the trend in Subscription TV penetration over the last five years.

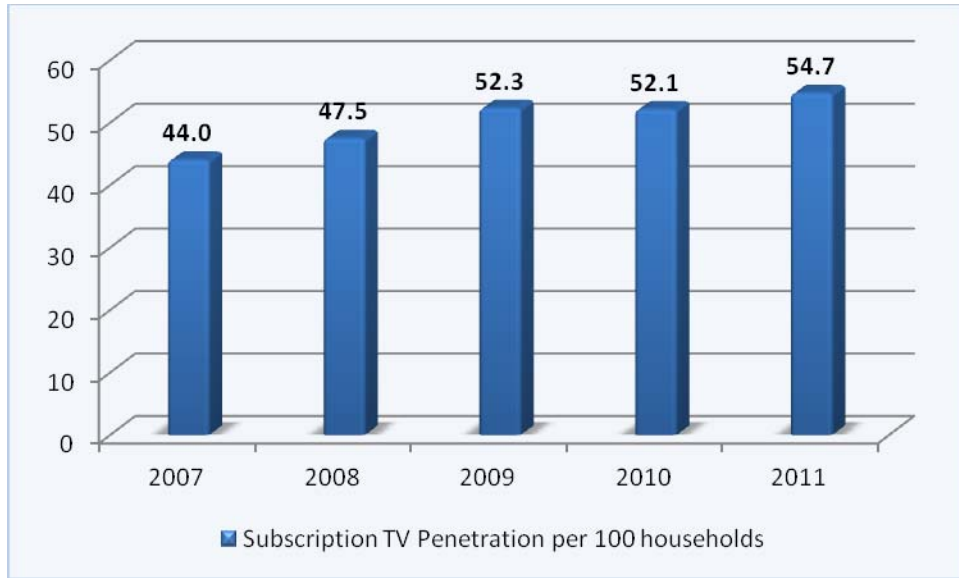
Figure 119: Subscription TV Penetration –2007 to 2011



⁵⁶ Number of Subscription TV subscriptions per 100 inhabitants = (number of Subscription TV subscriptions / population) * 100

⁵⁷ Subscription TV penetration per 100 households = (number of Subscription TV subscriptions / number of households) * 100

Figure 120: Subscription TV Household Penetration 2007 to 2011

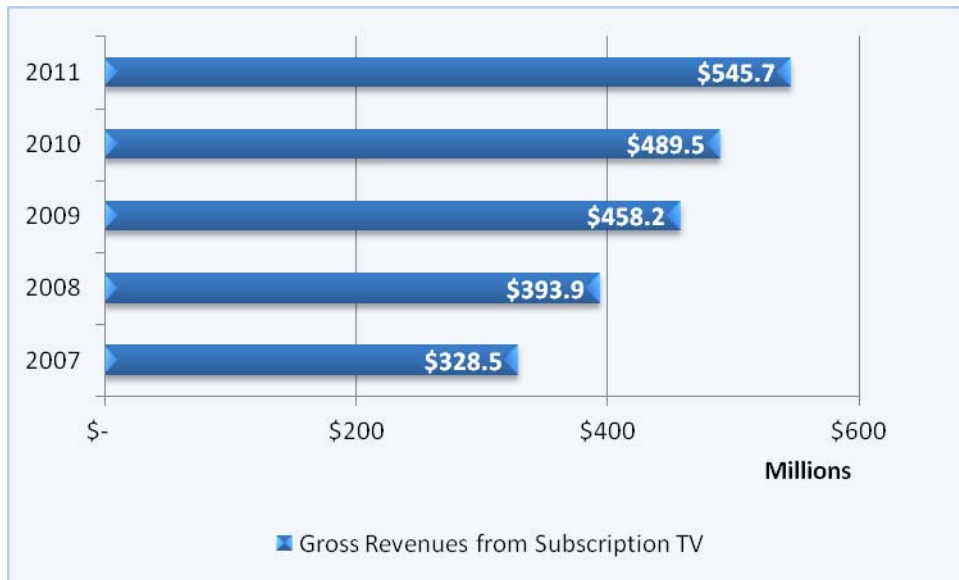


Source: TATT

6.3.4 Subscription TV Broadcasting Revenues

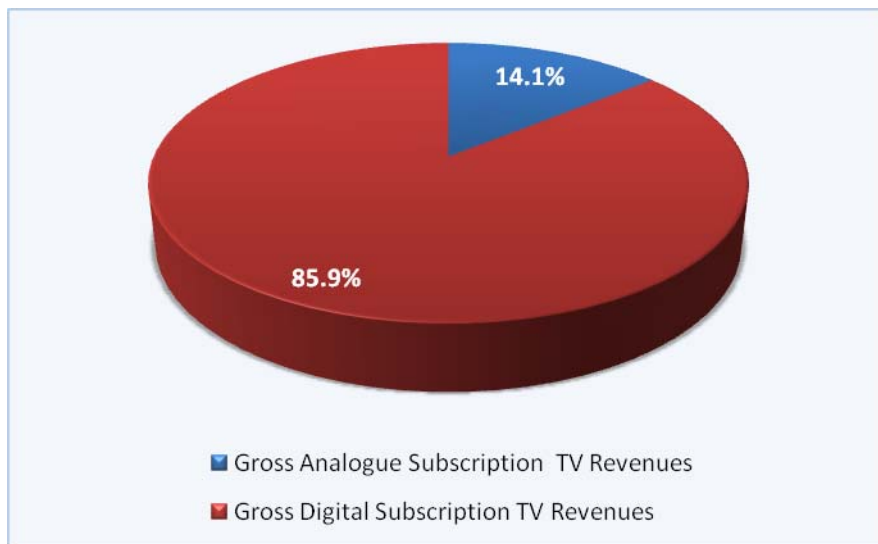
For 2011, the total estimated gross revenue from the Subscription TV broadcasting market was TT \$545.7 million, an increase of TT \$56.2 million or 11.5 per cent from 2010. Figure 121 displays the trend in gross revenues from this market from 2007 to 2011. Of this TT \$545.7 million, analogue Subscription TV revenues accounted for TT \$76.7 million or 14.1 per cent, whilst digital Subscription TV revenues recorded TT \$469.0 million or 85.9 per cent. The percentage breakdown of Subscription TV revenues by platform is shown in Figure 122.

Figure 121: Subscription TV Gross Revenues 2007-2011



Source: TATT

Figure 122: Breakdown of Subscription TV Revenues for 2011



Source: TATT

6.3.5 Revenues from Analogue Subscription TV Subscriptions

Of the TT \$76.7 million analogue subscription TV revenues generated in 2011, TT \$76.4 million comprised analogue usage revenues whereas miscellaneous⁵⁸ analogue revenues accounted for TT \$0.35million. Consistent with decreasing subscriptions to analogue packages, Figure 123 presents the declining trend in total analogue usage revenue from 2008 to 2011. It is noted that analogue revenues have fallen drastically by 69 per cent over the past five years.

Figure 123: Gross Usage Revenues from Analogue Subscriptions 2007-2011



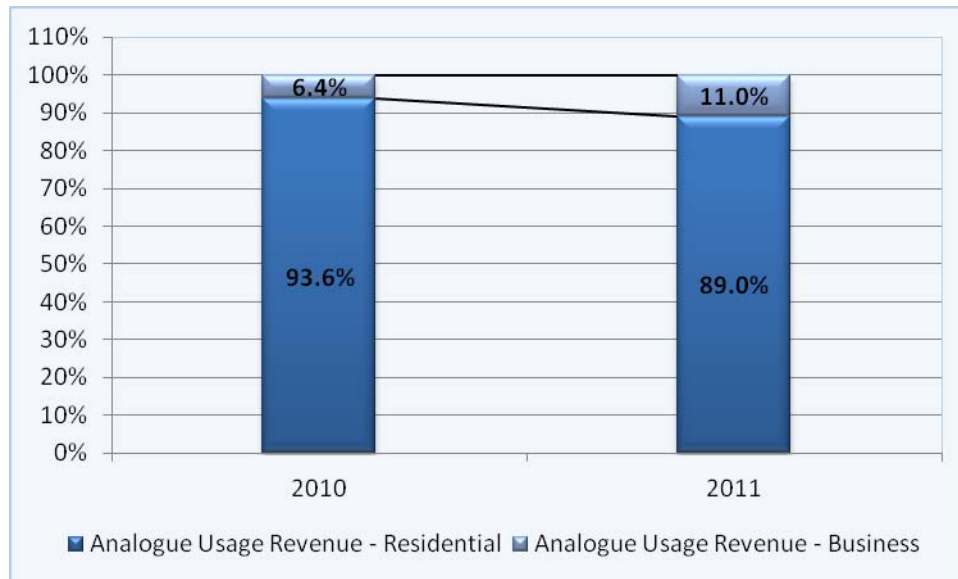
Source: TATT

Gross analogue usage revenues gained the largest proportion of its revenues from residential subscriptions, contributing TT \$67.9 million or 89 per cent compared to TT \$8.4 million or 11 percent for business analogue usage revenues. Notably, the proportion of revenues from analogue residential subscriptions decreased from 93.6 per cent in 2010 to 89 per cent in 2011. On the other hand, the proportion of revenues from analogue business revenues increased from 6.4 per cent in 2010 to 11 per cent in 2011. Figure 124 shows the percentage breakdown of gross usage analogue Subscription TV revenues by category over the past two years. It was observed

⁵⁸ Miscellaneous revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.

that the increase in revenues from business analogue subscriptions was mainly due to an increase in premium subscriptions by business users.

Figure 124: Breakdown of Gross Usage Revenues from Analogue Subscriptions 2010 to 2011



Source: TATT

6.3.6 Revenues from Digital Subscription TV Subscriptions

Total revenues received from digital subscriptions totalled TT \$469 million of which TT \$393.7 million represented digital usage revenues whereas miscellaneous⁵⁹ digital revenues accounted for TT \$75.3 million. Consistent with increasing subscriptions to digital packages, Figure 125 presents the increasing trend in total digital usage revenue from 2007 to 2011. It is noted that digital revenues have increased drastically by 367 per cent over the past five years.

⁵⁹ Miscellaneous revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.

Figure 125: Gross Usage Revenues from Digital Subscriptions 2007-2011



Source: TATT

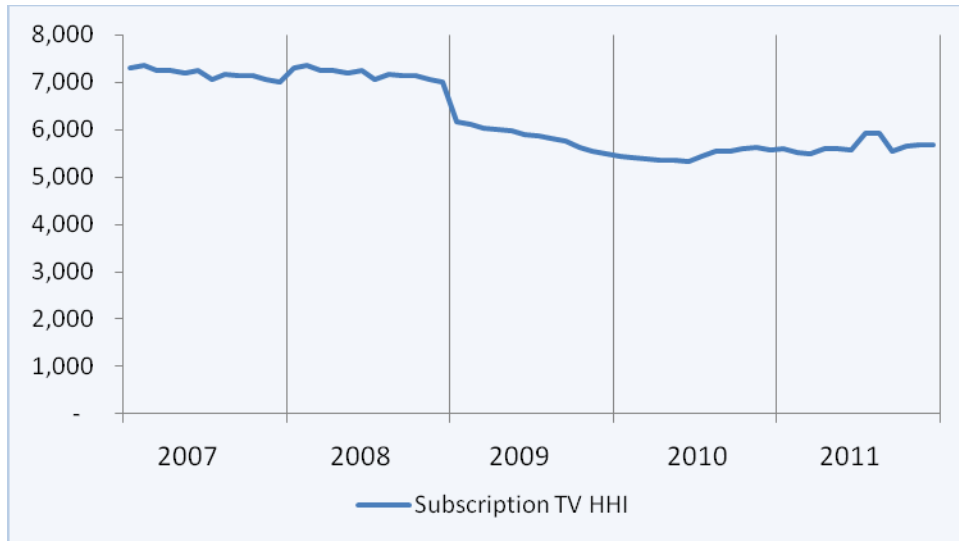
Gross digital usage revenues also gained the largest proportion of its revenues from residential subscriptions, contributing TT \$393.2 million or 99.9 per cent. Business digital usage revenues contributed TT \$518.1 thousand or 0.1percent.

6.3.7 Subscription Television Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the Subscription TV market⁶⁰ for the year ending December 2011. The HHI for this market stood at 5685 at the end of December 2011 increasing by 2% from 2010. This market is thus moderately concentrated and contested. 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 126. During 2011, the level of concentration in the Subscription TV market remained relatively stable throughout, as Figure 127 below illustrates.

⁶⁰ Subscription market share was used in the calculation of the HHI.

Figure 126: HHI for Subscription TV Market 2007-2011



Source: TATT

Figure 127: Hirschman-Herfindahl Index of Subscription TV Market January – December 2011



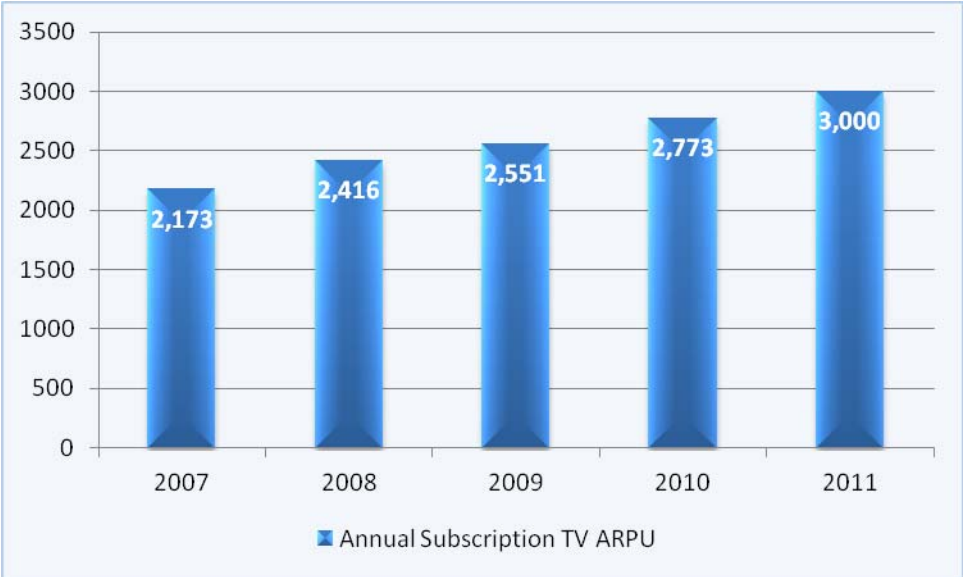
Source: TATT

6.3.8 Annual Average Revenue per User (ARPU)

On average each consumer spent TT \$3000 in 2011 for Subscription TV services. This represents an increase of TT \$227 or 8.2 per cent in the annual average revenue per user (ARPU)

over the amount recorded for 2010. This increase was supported by the 11.5 per cent growth in revenues outweighing the 5 per cent increase in subscriptions. Figure 128 highlights the changes in ARPU over the last five years.

Figure 128: Subscription TV Average Revenue per User (ARPU) 2007 to 2011



Source: TATT

7. Appendix I: Domestic Telecommunications Statistics

Table 8: Domestic Telecommunications Statistics

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
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
	GDP per capita (US \$) ⁶¹	5,950	6,891	7,166	8,246	8,470	11,560	14,576	16,683	21,408	15,067	15,924	17,042
	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
	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
	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
	Average revenue per user ⁶² (ARPU) US \$		659.4	550.4	506.8	420.3	304.3	239.5	286.9	365.6	318.7	322.5	348.0
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
	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
	Fixed Voice household penetration	-	-	-	-	-	-	77.4	71.5	73.3	70.1	67.5	67.1
	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
	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	-0.4
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

⁶¹ GDP per capita is recorded at current market prices

⁶² 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
	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
	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
	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
Internet	Total Internet subscriptions ⁶³ ('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
	Fixed Internet subscriptions ⁶⁴ ('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
	Mobile Internet subscriptions ⁶⁵ ('000s)	-	-	-	-	-	-	-	10.7	15.6	93.3	138.8	133.2
	Fixed Broadband subscriptions ⁶⁶ ('000s)	-	-	-	-	-	14.0	21.1	35.5	85.4	130.1	162.9	187.9
	Fixed Internet users ⁶⁷ ('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
	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
	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
	Mobile Internet penetration	-	-	-	-	-	-	-	0.8	1.2	7.1	10.5	10.1
	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

⁶³ Total Internet subscriptions is the sum of fixed Internet subscriptions and mobile postpaid Internet subscriptions

⁶⁴ Fixed Internet subscriptions – total number of subscriptions with fixed wired or fixed wireless Internet access

⁶⁵ Mobile Internet subscriptions – postpaid mobile customers who subscribe to monthly Internet airtime and who are billed accordingly

⁶⁶ Fixed Broadband subscriptions – the number of Internet subscribers with access to download speeds of 256kbps or above

⁶⁷ 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
	Fixed Internet household penetration	-	-	-	-	-	-	-	4.9	21.4	40.1	49.9	52.8
	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
	Average revenue per user (ARPU) US \$ for fixed Internet	-	-	-	-	-	-	392.3	552.3	491.8	433.2	409.9	431.9
	Internet subscription growth (%)	51.0	31.4	14.7	10.8	24.8	12.9	17.7	27.4	38.9	83.8	18.0	21.7
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
	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
	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
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
	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
	Subscription TV household penetration	-	-	-	27.0	30.1	38.3	40.7	44.0	47.5	52.3	52.1	54.0
	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
	Subscription TV subscription growth (%)			4.5	12.3	11.7	27.3	6.2	8.1	12.5	10.2	-0.4	5.0

8. Appendix II: List of Concessionaires

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
INTERNATIONAL TELECOMMUNICATIONS							
Columbus Communications Trinidad Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Columbus Networks International (Trinidad) Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Green Dot Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Laqtel Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Laqtel Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Lisa Communications Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Lisa Communications Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Open Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Open Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Southern Caribbean Fibre Limited	Public International Telecommunications Network	N/A	Type 1	10 Years	17 August 2006	16 August 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and 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 Network	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A
Three Sixty Communications Limited [Transferred from Illuminat (Trinidad and Tobago) Limited]	Public International Telecommunications Services	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A
Windward Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Windward Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
FREE-TO-AIR RADIO BROADCASTING							
21st Century Arts and Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.5 FM
British Broadcasting Corporation	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	15 June 2007	14 June 2017	98.7FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	100.1 FM
Central Broadcasting Services Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	21 September 2006	20 September 2016	102.7 FM
Central Radio FM90 Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.5 FM
Citadel Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.5 FM
Family Focus Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	98.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air AM)	National	Type 5	10 Years	23 February 2006	22 February 2016	730 AM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	105.1 FM

Publishing Company Limited)							
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	106.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	106.5 FM
Heritage Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.7 FM
Inner City Broadcasting Company Ltd.	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.1 FM
Kaisoca Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	92.7 FM
Kenny Phillips	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.1 FM
Marcel Mahabir	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.7 FM
Mohan Jaikaran	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.1 FM
Neil "Iwer" George	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.9 FM
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	1 March 2007	28 February 2017	105.5 FM
PBCT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.7 FM
Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	93.5 FM
Radio News Network	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.1 FM
Radio Vision Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	102.1 FM
Sidewalk Radio Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	92.3 FM
Superior Infinite Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.1 FM
Telemedia Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	97.1 FM
The Q Corporation Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.7 FM
Trinidad and Tobago Citizen's Agenda Network	Broadcasting Services (Free to Air FM)	Minor Territorial/Niche - Toco and environs	Type 5	10 Years	1 March 2006	28 February 2016	106.7 FM
Trinidad and Tobago Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.1 FM

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

SUBSCRIPTION TELEVISION BROADCASTING							
Air Link Communications	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Environs	Type 5	10 Years	1 May 2010	30 April 2020	N/A
Columbus Communications Trinidad Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	5 January 2006	4 January 2016	N/A
DirecTV Trinidad Limited	Subscription Broadcasting Service (direct from Satellite only)	National	Type 5	10 Years	28 February 2006	27 February 2016	N/A
Green Dot Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	11 July 2008	10 July 2018	N/A
Independent Cable Network of Trinidad & Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Major Territorial	Type 5	10 Years	1 November 2006	31 October 2016	N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Mayaro and Guayaguayare	Type 5	10 Years	5 January 2006	4 January 2016	N/A
RVR International Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Rio Claro	Type 5	10 Years	5 January 2006	4 January 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	30 December 2005	29 December 2015	N/A
TRICO Industries Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Minor Territorial	Type 5	10 Years	1 September 2006	31 August 2016	N/A
TELEVISION BROADCASTING SERVICE VIA CABLE							
IETV Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5				N/A
FIXED TELECOMMUNICATIONS							
Air Link Communications	Public Domestic Fixed Telecommunications Network	Niche - Princes Town and Environs	Type 2	10 Years	1 May 2010	30 April 2020	N/A

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

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

9. Appendix III: Tariffs

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

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

10. Appendix IV: Glossary of Terms

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

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

Terms	Definition
	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.