Telecommunications Authority of Trinidad and Tobago

Annual Market Report

Telecommunications and Broadcasting Sectors

2014

EXECUTIVE SUMMARY

The Telecommunications Authority of Trinidad and Tobago

8th Avenue Extension

Barataria

Republic of Trinidad and Tobago

Tel: 1-868-675-8288

Fax: 1-868-674-1055

Website: http://www.tatt.org.tt

Email: policy@tatt.org.tt

Disclaimer

The information and statistics contained in this document were obtained from various sources available to the Telecommunications Authority of Trinidad and Tobago at the time of publication. The Authority does not give any warranty as to the accuracy or reliability of the information and shall not be liable for any loss or damage howsoever caused arising out of any use or reliance upon any statements made or information contained in this document.

Nothing in this report shall be construed as prejudicing any determination or regulatory action undertaken by the Authority in accordance with the Telecommunications Act Chap. 47:31

EXECUTIVE SUMMARY

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Telecommunications Authority of Trinidad and Tobago presents its 9th Annual Market Report: Telecommunications and Broadcasting Sectors. This report covers performance statistics and market trends observed within the telecommunications and broadcasting industry during the period January to December 2014.

CONTINUED GROWTH IN REVENUES OBSERVED WITHIN THE TELECOMMUNICATIONS AND BROADCASTING SECTORS

The year 2014 showed a continuation of revenue growth observed within the telecommunications and broadcasting sectors. Total revenues generated by the industry increased by 1.9 percent in 2014 when compared to the previous year. As observed in prior years, the telecommunications sectors accrued the majority of the revenues, with an estimated 79.2 percent share of the total industry revenues.

As in previous years, mobile revenues continued to be the leading source of revenues within the sectors, generating an estimated TT$2.20 billion or 39.2 percent of total industry revenues. This was followed by Internet services and fixed voice services which generated an estimated TT$1.18 billion and TT$0.76 billion respectively.

PENETRATION RATES ON THE RISE FOR SUBSCRIPTION BASED MARKETS WITH THE EXCEPTION OF FIXED VOICE SERVICES

During the review period, total subscriptions within the various market segments increased by 6.2 percent or 192.6 thousand when compared to the previous year. In 2014, mobile subscriptions rose to 1.98 million, an increase of 1.9 percent from 2013. This increase was also reflected in a similar 1.9 percent increase in the mobile penetration rate, which in 2014 stood at 148.1. It is also worth noting that in 2014, the number of persons switching from pre-paid to postpaid almost doubled when compared to the previous year.

Despite a one year increase observed in 2013, fixed voice subscriptions continued its downward trend observed in previous years with an estimated decrease of 0.7 percent in 2014. Likewise, its household penetration also decreased from 57.1 in 2013 to 56.6 in 2014. Internet subscriptions, on the other hand, continued to record favourable growth, increasing by 7.8%

compared to 2013. In 2014, it is estimated that 74 out of every 100 persons use the Internet in Trinidad and Tobago.

OPERATORS CONTINUE TO EMPLOY A MIX OF TECHNOLOGY FOR INTERNET SERVICES

In 2014, a mix of technologies was used 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 utilising DOCSIS 3.0 technology, as well as a mix of Fibre to the Curb (FTTC), Fibre to the Business (FTTB) or Home (FTTH) topologies.

On the other hand, fixed wireless Broadband Internet operators employ WiMAX technologies. More recently, LTE technologies was used to offer an alternative means of broadband Internet access and to augment the wired access network.

Mobile Internet operators offered customers mobile broadband Internet services utilising Evolved High Speed Packet Access (HSPA+). Mobile Internet services via 2.5G technology (i.e. Enhanced Data Rates for GSM Evolution (EDGE)) were also offered during this reporting period.

MARKET CONCENTRATIONS REMAINED RELATIVELY STABLE WITHIN THE OBSERVED SEGMENTS

Market concentrations, as measured by the Hirschman Herfindahl Index (HHI), for most markets remained fairly stable in 2014. As observed in the past five years, the HHI in the mobile market remained relatively constant standing at roughly 5000 points. As at December 2014, a slight increase (0.5 percent) in the level of concentration in the fixed voice market was observed when compared to 2013. On the other hand, the fixed Internet market experienced a 1.4 percent decrease compared to the previous year. Likewise, the Pay TV market also experienced a decrease in HHI of 5.3 percent from 2013. Conversely, in 2014, the Free-to-Air television market became slightly more concentrated when compared to 2013.

OVERALL REVIEW

1. OVERALL MARKET REVIEW

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

The data presented is based primarily on the results of completed questionnaires by operational concessionaires within the telecommunications and broadcasting sectors for the period 1st January to 31st December 2014, as well as historical data series and other information made available to the Authority at the time of publication of the report.

The Authority also publishes quarterly market updates on the telecommunications and broadcasting sectors to supplement this Annual Market Report which can be accessed from the Authority's website: http://www.tatt.org.tt.

1.1. TOTAL AUTHORISATION

Under the Telecommunications Act Chap. 37:42, the Authority is responsible for making recommendations to the Minister of Science and Technology for the granting of concessions to telecommunications and broadcasting operators (Section 21(5)). To date, one hundred and twenty-six (126) concessions were granted to ninety-seven (97) service providers (concessionaires) by the Minister based on the Authority's recommendations.

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

Table 1 provides a list of the number of authorised and operational concessionaires in the various markets as at December 2014.

Table 1: Number of Concessions, Concessionaires and Operators as at December 2014

Network Category	Service Provided	Authorised Concessionaires	Operational Concessionaires
International Telecommunications	Network only	1	1
	Services only	1	1
	Network and Services	9	5
Mobile Telecommunications	Mobile voice and Internet services	2	2
Fixed Telecommunications[1]	Fixed Telephony	17	3
	Fixed Internet		9
Pay TV (Subscription TV)		13	11
Free-to-air Radio Broadcasting		39	38
Free to Air Television Broadcasting		8	8
TV Broadcasting via Cable		7	7
Total		**97**	**85**

Source: TATT

OVERALL REVIEW

A detailed list of concessions granted by the Authority can be found in Appendix II and on the Authority's website.

In addition to the granting of concessions, under Section 36 of the Telecommunications Act, the Authority is also authorised and responsible for the granting of licences. In accordance with its legislative powers, for the period January to December 2014, the Authority granted a total of 398 licences. Table 2 lists the categories and the number of licences granted during 2014.

Table 2: Number of Licences Granted for the period January to December 2014

Type of Licence		2014
Spectrum	Cellular Mobile	**0**
	Land Mobile	**70**
	Point-to-Point	**46**
	Point-to-Multipoint	**1**
	SCADA	**3**
General Radiocommunications	Satellite Earth Stations	**27**
	Amateur Stations	**124**
	Maritime Stations	**76**
	Aeronautical Stations	**46**
Broadcasting (Special Events)		**5**
Total		**398**

Source: TATT

OVERALL REVIEW

1.2. OVERVIEW OF THE TELECOMMUNICATIONS AND BROADCASTING SECTORS

1.2.1. MARKET REVENUE CONTRIBUTIONS TO THE SECTORS

The Telecommunications and Broadcasting sectors generated an estimated TT$5.63 billion[2] (US$0.88 billion[3]) in 2014, which as a percentage of GDP[4] equates to 3.1 percent. This represented a 1.9 percent increase in total revenues generated by this industry compared to last year. Of total telecommunications and broadcasting revenues, mobile voice services accounted for the majority of revenues with TT$2.20 billion (39.2 percent). This was followed by Internet services which contributed TT$1.18 billion or 21.1 percent. The next highest revenue earners for the industry were Fixed[5] Voice services and Pay TV services whose contributions totalled TT$0.76 billion and TT$0.70 respectively (13.4 percent and 12.4 percent). International voice services was next in line, generating, TT$0.27 billion (4.7 percent) in revenues. Free-to-Air radio and television services contributed TT$0.18 billion and TT$0.13 billion respectively (3.2 percent and 2.4 percent). Finally, other contributors included "other revenues"[6] and "leased line services" with earnings of TT$0.16 billion and TT$0.05 billion respectively, with 2.8 percent and 0.9 percent.

To summarise the above information, Figure 1 below 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.

---

[2] This figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services.

[3] Exchange rate US$1=TT$6.38

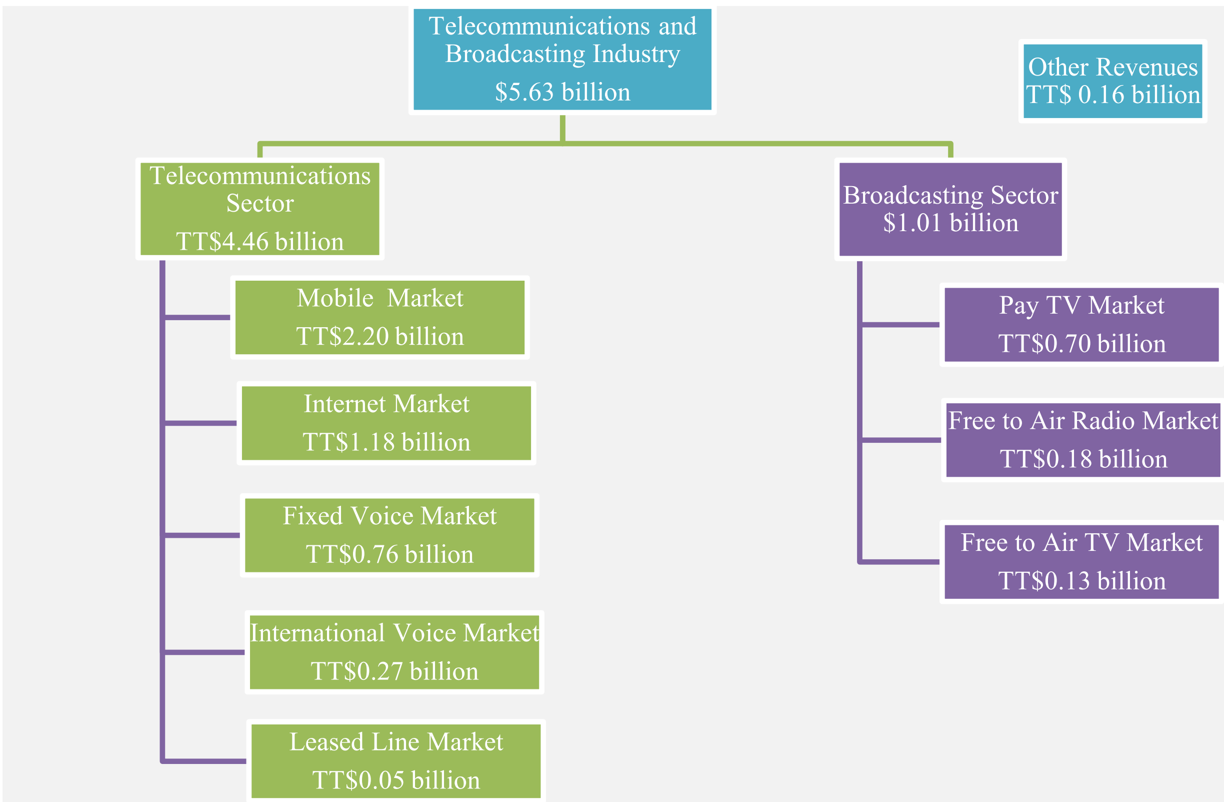
[4] Gross Domestic Product (GDP) at current market prices for 2014 TT$179,842 million (Source: Ministry of Finance Review of the Economy)

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

[6] 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.

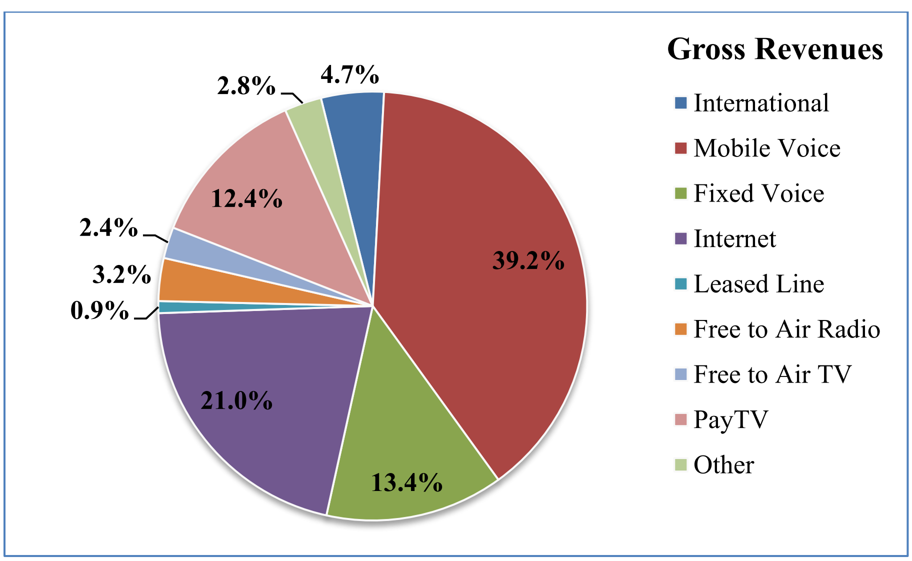
OVERALL REVIEW

Figure 1: Industry, Sectors and Markets Revenues 2014



Source: TATT

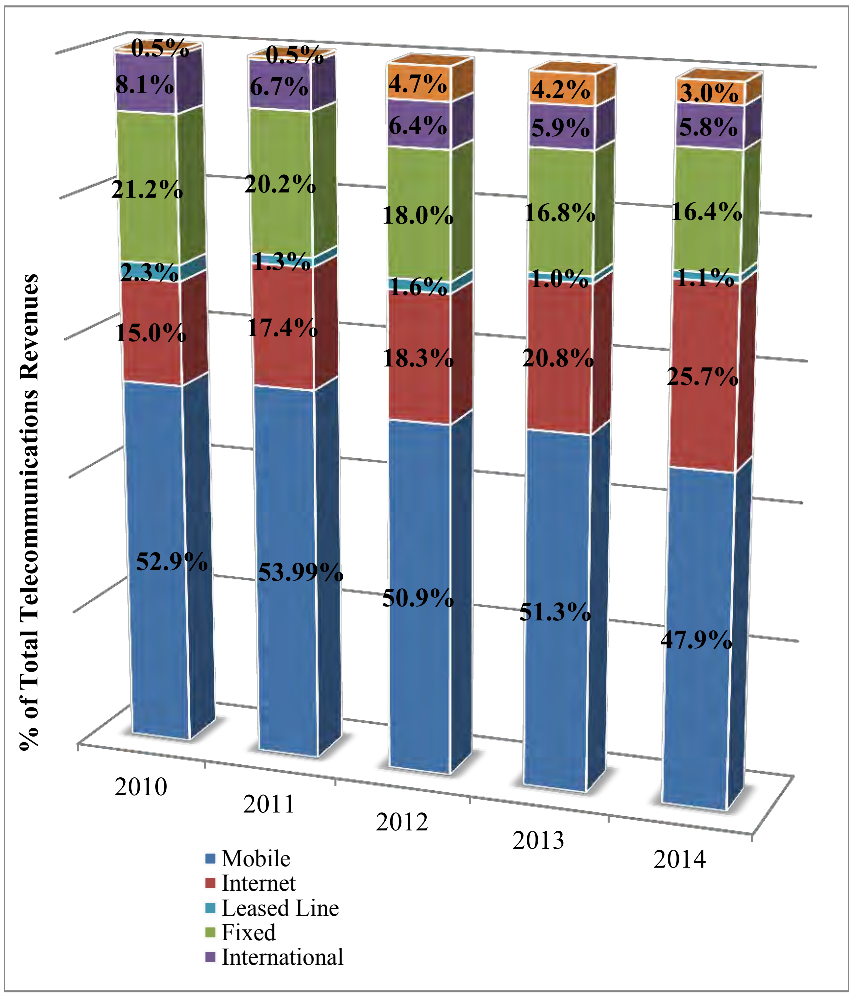
Figure 2: Percentage of Gross Revenues contributed by Markets - 2014



1.2.2. MARKET REVENUE TRENDS IN THE TELECOMMUNICATIONS SECTOR

For the 2014 period, the Telecommunications sector contributed TT$4.46 billion or 82.3 percent to overall industry revenues. Of the five main markets within this sector, the mobile market continued to generate the majority of revenues, accounting for 47.9 percent of total telecommunications revenues. The Internet market generated the second highest with 25.7 percent, while revenues from the fixed voice services and international markets followed thereafter with 16.4 percent and 5.8 percent respectively. The leased line market earned 1.1 percent of telecommunications revenues and continued to be the smallest revenue contributor to the sector. 'Other' telecommunications revenues [7] contributed 3.0 percent to total telecommunications revenues. Figure 3 depicts the revenue contributions of the individual markets toward the total revenues generated from the telecommunications sector. As seen, the Internet market

Figure 3: Percentage Contributions of Telecommunications Markets – 2010 to 2014



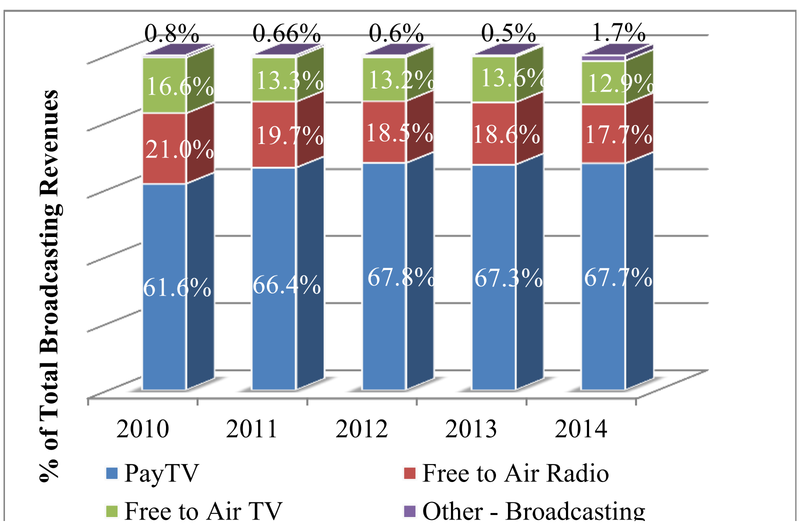
[7] Other telecommunications revenues earned from service providers in the telecommunications sector include other wholesale services (excluding leased line), high capacity wireless links and two-way radios.

experienced growth in its percentage contribution to total telecommunications revenue, while the proportion of revenues generated by all other telecommunications services decreased. The Internet market increased its contribution to total telecommunications revenues from 20.8 percent in 2013 to 25.7 percent in 2014.

1.2.3. MARKET REVENUE TRENDS IN THE BROADCASTING SECTOR

For the review period, the broadcasting sector contributed TT$1.01 billion, or 17.3 percent towards overall industry revenues. The broadcasting sector is divided into three main markets: Pay TV[8], Free-to-Air television and Free-to-Air radio. Similar to the trends experienced over the last five years, the Pay TV market continued to earn the majority of revenues in the broadcasting sector, accounting for 67.7 percent of total broadcasting revenues for 2014. Trailing behind significantly were the Free-to-Air radio and Free-to-Air television markets earning 17.7 percent and 12.9 percent of broadcasting revenues respectively. 'Other' broadcasting revenues[9] contributed 1.7 percent to total broadcasting revenues. Figure 4 highlights the yearly trends with respect to the revenue contributions by the individual markets towards total broadcasting sector revenues. As seen, the Pay TV market increased its percentage contribution to revenues in the broadcasting sector from 67.3 percent in

Figure 4: Percentage Contributions of the Broadcasting Markets – 2010 to 20143



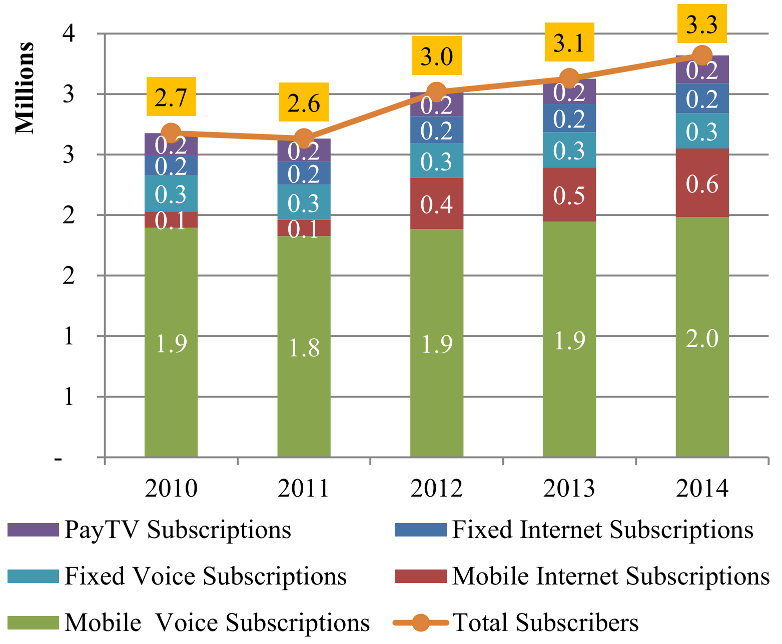
[8] Also known as Subscription TV
[9] Other revenues earned from service providers in the broadcasting sector include Production and Air time for local programming on Pay TV

2013 to 67.7 percent in 2014. The percentage of revenue earned from the Free-to-Air radio and Free-to-Air television markets declined marginally in 2014.

1.2.4. TELECOMMUNICATIONS AND BROADCASTING SUBSCRIPTIONS

For the year ending December 2014, the number of subscriptions within the fixed voice, mobile voice, fixed Internet, mobile Internet and Pay TV market segments totalled approximately 3.3 million[10]. This represents an increase of 6.2 percent or 192.6 thousand subscriptions when compared to the same period in 2013. The mobile voice market contributed 2.0 million subscriptions representing 59.7 percent, whereas the fixed voice market contributed 289.8 thousand subscriptions representing 8.7 percent of total subscriptions. Fixed Internet subscriptions stood at 249.6 thousand as at December 2014, contributing 7.5 percent to total subscriptions, whereas the number of Mobile Internet subscriptions totalled 570.5 thousand or 17.2 percent of total subscriptions. Pay TV services contributed 6.9 percent with 228.8 thousand subscriptions. Figure 5 compares total industry subscriptions for the period 2010-2014 while contributions by the various market segments towards total industry subscriptions as at December 2014 are shown in Figure 6 below.

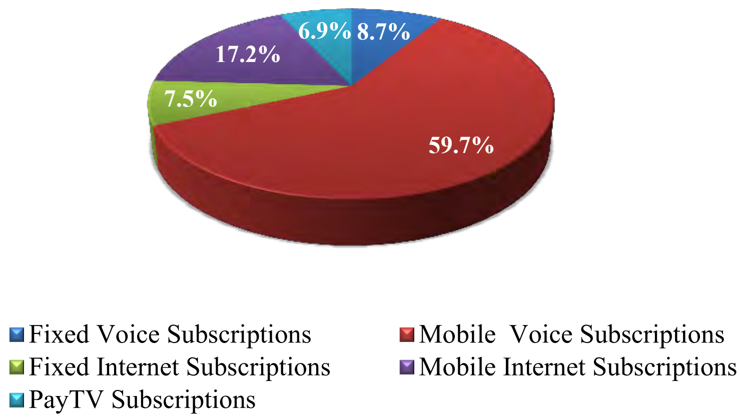
Figure 5: Market Share of Total Subscriptions by Service from 2009 to 2013



[10] The significant increase in the number of Mobile Internet subscriptions mainly is due to the Authority's revision of the calculation of the Mobile Internet Penetration to include actual prepaid Internet subscriptions.

OVERALL REVIEW

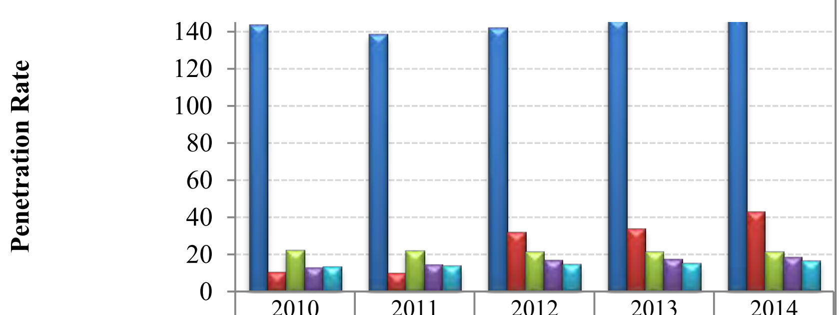
Figure 6: Market Shares of Total Industry Subscriptions by Service as at December 2014



1.2.5. SUBSCRIPTION PENETRATION RATE

As seen in Figure 7, the penetration rates for all subscription-based markets increased for the 2014 period, with the exception of fixed voice. Mobile voice penetration sustained its dominant position with a penetration rate of 149.1 percent while the level of Mobile Internet penetration in the country maintained its second place, increasing from 33.9 percent to 43.0 percent in 2014. Fixed Internet and Pay TV penetration also increased in 2014 to record 18.8 percent and 16.8 percent respectively.

Figure 7: Penetration Rate of Subscriptions 2010 to 2014



	2010	2011	2012	2013	2014
Mobile Penetration	143.8	138.6	142.2	146.4	149.1
Mobile Internet Penetration	10.5	10.1	31.9	33.9	43.0
Fixed Voice Penetration	22.3	22.0	21.6	21.7	21.7
Fixed Internet Penetration	13.0	14.6	16.9	17.4	18.8
PayTV Penetration	13.6	14.1	14.8	15.4	16.8

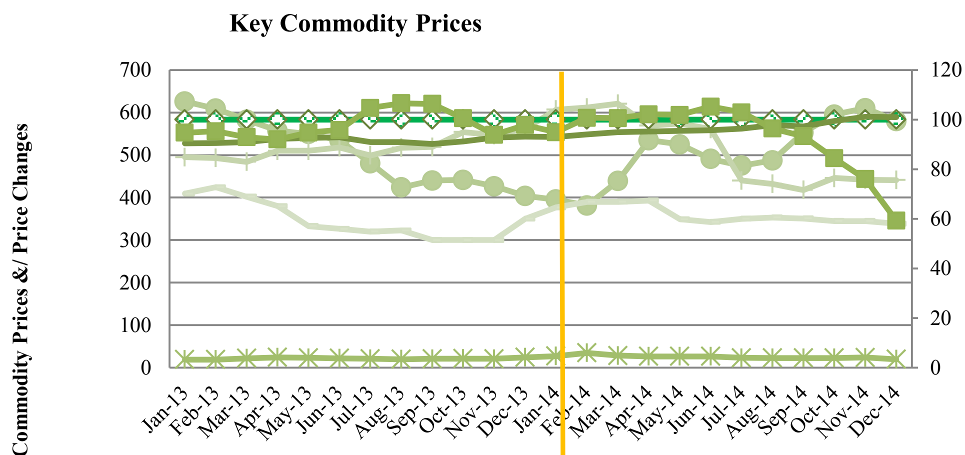
OVERALL REVIEW

BOX 1: SUMMARY OF THE DOMESTIC MACRO-ECONOMY

Overview

Trinidad and Tobago’s economy is estimated to have grown by 1.9% in 2014. This growth rate which, is marginally up from the 1.6% achieved in 2013, is reflective of continued slow growth from the energy sector and modest growth from the non-energy sector which, attained growth rates of 1% and 2.5% respectively in 2014. Several economic shocks may have contributed to the overall sluggish performance of the domestic economy over the period, some of which include plunging crude oil prices and a glutting natural gas market.

The following panel shows the price trends of key commodities affecting Trinidad and Tobago’s national income and export earnings over the two-year period 2013-2014.



	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Price of Ammonia (US$/Tonne)	626	609	583	558	550	535	481	424	440	442	427	404	395	381	439	535	525	491	475	488	553	595	610	580
Price of Methanol (US$/Tonne)	495	493	484	510	510	518	499	517	519	554	547	561	607	612	621	569	574	561	440	432	418	446	442	441
Price of Urea (US$/MT)	409	424	402	380	333	327	320	323	300	300	300	350	377	390	390	393	349	343	350	353	351	345	345	338
Index of Retail Prices - Communication (Jan. 15 = 100)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Index of Retail Prices - All Items - (Jan. 15 = 100)	90	91	91	92	93	93	91	91	90	91	93	93	93	94	95	95	96	96	96	98	97	99	101	101
WTI Crude Oil Price (US$/bbl)	95	95	93	92	95	96	105	107	106	101	94	98	95	101	101	102	102	105	103	96	93	84	76	59
Henry Hub Natural Gas Price (US$/mmbtu)	3	3	4	4	4	4	4	3	4	4	4	4	5	6	5	5	5	5	4	4	4	4	4	3

Key Commodity Prices 2013: 2014

OVERALL REVIEW

The above panel illustrates significant declines in the prices of three key national exports namely crude oil, ammonia, and urea, amidst relatively flat prices for LNG and notably increasing prices for ammonia. The retail index for communication services was also noted to be flat over the period considered. The overall decline in key commodity prices coupled with non-compensatory increases in corresponding output contributed to the overall decline in central government revenue by approximately two (2) billion when compared year–on-year. Pursuing expansionary fiscal policy in 2014, central government expenditure was noted to increase to TT$ 62.2 Bn in 2014, an increase of 3.8 Bn when compared year-on-year and resulting in a significantly increased deficit by the state of TT$ 6.5 Bn in 2014 (MOF 2014).

Other performance measures of Trinidad and Tobago economic activity are presented below for the five year period 2010 to 2014:

Economic Indicator	2010	2011	2012	2013	2014
[11]Real GDP Growth (2000=100)	0.0	-1.4	1.2	1.6	1.9
Energy Sector	2.0	0.0	-1.0	0.5	1.0
Non-energy Sector	-3.8	-1.0	1.9	2.5	2.5
Inflation Rate (%)	10.5	5.3	9.3	5.4[12]	2.8
Unemployment Rate	5.9	5.0	5.4	4.9	3.5[13]
Exports (% of GDP)	54.3	62.9	44.3	47[14]	41
Imports (% of GDP)	31.14	42.3	25.0	30[15]	31
[16]Current Account Balance (% of GDP)	19.8	11.9	3.4	6.7	8.3
[17]Overall BOP TT$MM	2,652	4,794	-662	587	4400
[18]Standard and Poor's Credit Rating	A	A	A	A	A

[11] Source: MOF
[12] Revised to reflect Headline Inflation mid-year-on-year rate of change
[13] Source: CSO 2nd Quarter 2014 Bulletin
[14] Calculated as the ratio of the value of exports to GDP at current prices. Input data source CBTT &TTMOF
[15] Same as above
[16] Source: International Monetary Fund Revised
[17] Source: Central Bank of Trinidad and Tobago

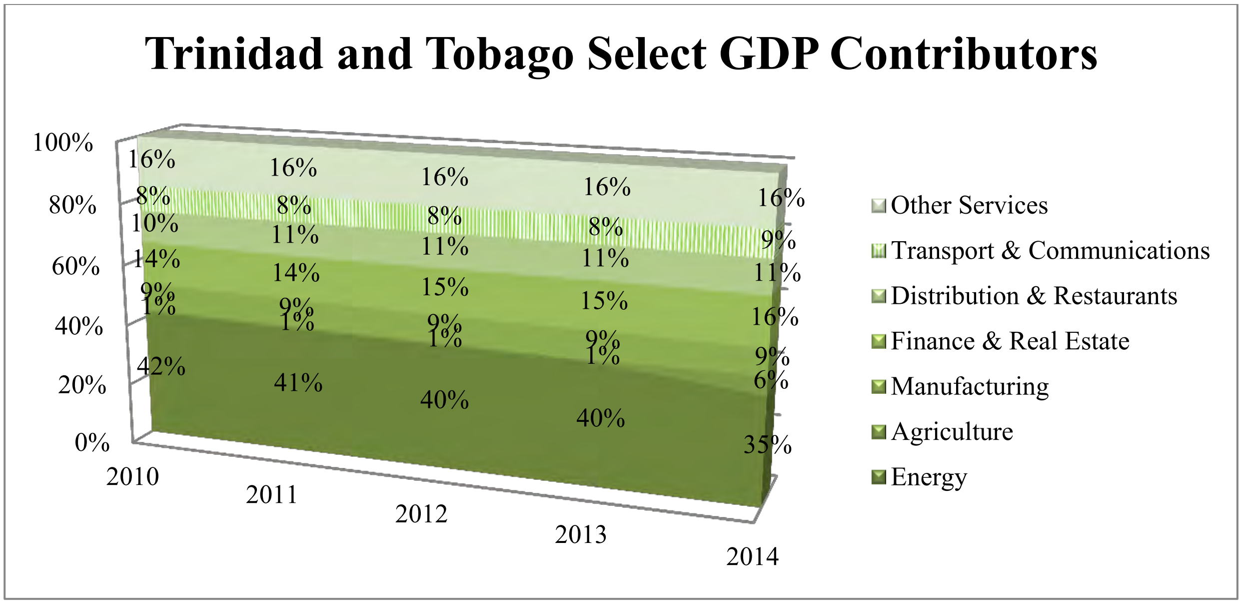
OVERALL REVIEW

[19]Exchange Rate (USD)	6.34	6.37	6.37	6.39	6.36
[20]Gross National Savings % GDP	33.7	25.7	17.2	20.5	22.1
[7]Population ('000's)	1,318	1,328	1,335	1,340	1,345
[7]GDP (current Prices -$Mn-TT)	134,125	156,449	158,045	175,609	179,842
[7]GDP per capita (Current Prices -TT)	101,786	117,806	118,369	130,997	133,677

The graph below illustrates Trinidad and Tobago sectoral GDP contribution for the five-year period 2010-2014. Overall slow signs of economic diversification were observed in 2014 following several years of largely static contribution by the non-energy sectors. Firstly, small but significant increases in the relative output contribution of the agriculture sector were noted in 2014 which grew to 6% of GDP, and reflects a year on year increase of 5%. Secondly, marginal increases in GDP contribution were also noted in the sectors of Communication and Transport, and Finance and Real Estate which both grew by approximately 1%. Finally, a 5% reduction in the GDP contribution of the energy sector was observed. However, this lessened contribution is likely to be largely the result of the global commodity price shocks and exogenous factors aforementioned. Moreover, given that the energy sector continues to be a significant driver of national income, export earnings and overall economic activity, fiscal sustainability continues to be at significant risk for Trinidad and Tobago's economy.

[18] Source: Calculated from MOF, Review of the Economy 2014, revised estimates
[19] Source: Central Bank of Trinidad and Tobago
[20] Source: International Monetary Fund Revised

OVERALL REVIEW



Data Source MOF Review of the Economy 2014

Outlook:

Trinidad and Tobago's estimated strong balance of payment, increased capital formation, investment grade credit rating and lower levels of inflation in 2014 have demonstrated the country's ability to weather the storm of revenue shortfall in the short-term. However, the country's slow pace of economic growth and diversification and increased government expenditure continue to expose the local economy to increased risks of future global shocks. Foreign and local investment in non-traditional sectors, including and especially the Information Communication and Technology sector, present effective methods to reduce said economic vulnerabilities and facilitate sustainable growth and foster prosperity in the domestic economy.

FIXED VOICE REVIEW

Key Market trends and Observations in the Fixed Voice Telephony Market

- **Fixed voice market remained relatively stable in 2014; subscriptions and revenues increased by 0.7% and 0.8% respectively.**
- **Fixed voice subscriptions stood at approximately 288,000**
- **Consumers in the fixed voice market continued to spend less time on fixed voice phone calls.**

2. FIXED VOICE TELEPHONY MARKET DATA

As at December 2014, there were seventeen (17) operators authorised to provide fixed domestic telecommunications services to the public over wired and/or wireless facilities as listed below.

Table 3: Operators Authorised to Provide Public Fixed Domestic Telecommunications Services as at December 31st 2014

Name of Provider		
1. Air Link Communications	2. Columbus Communications Trinidad Limited (FLOW)	3. Digicel (Trinidad and Tobago) Limited
4. Diversified Technologies Limited	5. Green Dot Limited	6. Independent Cable Network of Trinidad & Tobago Limited
7. Lisa Communications Limited	8. Massy Communications Limited	9. Massy Technologies Infocom (Trinidad) Limited
10. Network Technologies Limited	11. Open Telecom Limited	12. Prism Services (Trinidad) Limited
13. RVR International Limited	14. Santa Flora Cable Network Ltd	15. Telecommunications Services of Trinidad and Tobago (TSTT)
16. TRICO Industries Limited	17. Wireless Telecommunications Ltd.	

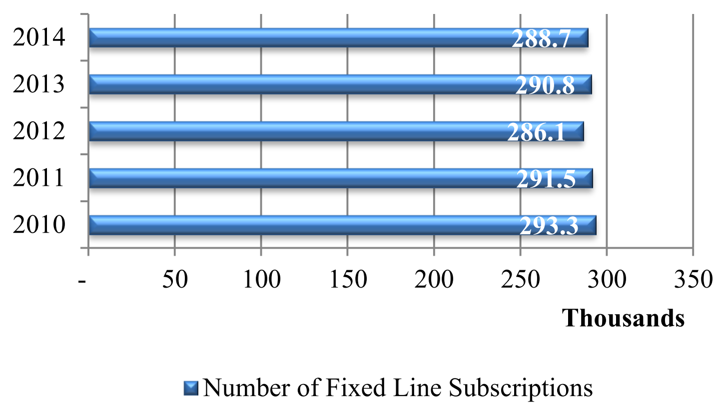
Source: TATT

While the above seventeen (17) operators were authorised by the Authority to provide fixed telecommunications services, only three operators offered domestic fixed voice services in 2014. TSTT offered fixed voice services through their Public Switched Telephone Network, FLOW via their Hybrid Fibre Coax network and Massy Communications Limited provided fixed voice services through its Gigabit Passive Optic Network (GPON).

2.1. ANNUAL FIXED VOICE TELEPHONY SUBSCRIPTIONS

Following an increase in 2013, the number of fixed voice subscriptions decreased in 2014 to record 288.7 thousand subscriptions as illustrated in Figure 8. This represented an overall 0.7 percent or 2.1 thousand decline in subscriptions as compared to the previous period.

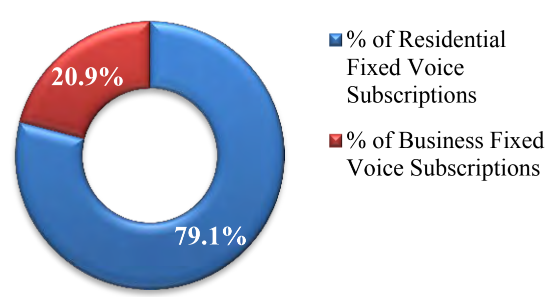
Figure 8: Fixed Voice Subscriptions 2010-2014



2.1.1. ANNUAL RESIDENTIAL AND BUSINESS FIXED VOICE SUBSCRIPTIONS

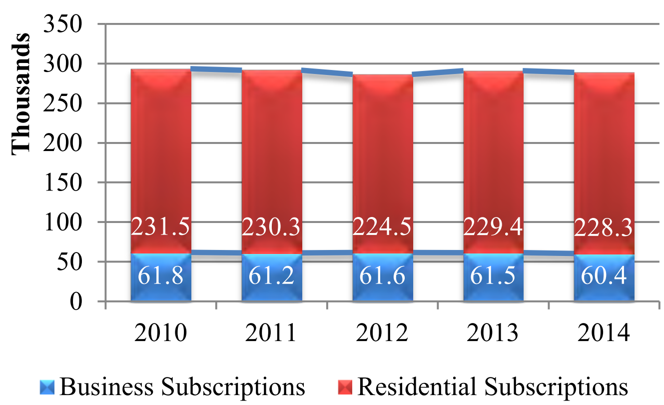
The fixed voice market in Trinidad and Tobago can be grouped into two categories - residential and business subscriptions (inclusive of companies subscribing to systems services, e.g. PBX trunks). As at December 2014, out of the recorded 288.7 thousand fixed voice subscriptions, 228.3 thousand (79.1 per cent) were residential

Figure 9: Percentage breakdown of Residential and Business Fixed Voice Subscriptions 2014



subscriptions, and 60.4 thousand (20.9 percent) comprised business subscriptions. Figure 9 illustrates the percentage breakdown of residential and business fixed voice subscriptions in 2014.

Figure 10: Residential and Business Fixed Voice Subscriptions 2010-2014

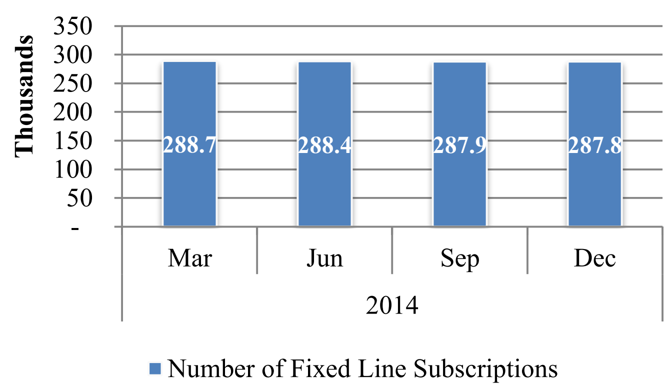


Compared to 2013, there were fewer residential and business fixed voice subscriptions at the end of 2014. Residential fixed subscriptions decreased marginally by 0.5 percent to record approximately 228.3 thousand subscriptions. Similarly, the number of subscriptions in the business market for fixed voice services decreased by 1.7 percent to record 60.4 thousand subscriptions. Figure 10 illustrates.

2.1.2. QUARTERLY FIXED VOICE SUBSCRIPTIONS

Figure 11 shows the quarterly trend in fixed voice subscriptions during 2014. Recording 288.7 thousand subscriptions in the first quarter, minor quarterly declines were observed throughout the year. The quarterly percentage change in subscriptions remained relatively steady, as there were less than 1 percent decreases recorded for each quarter.

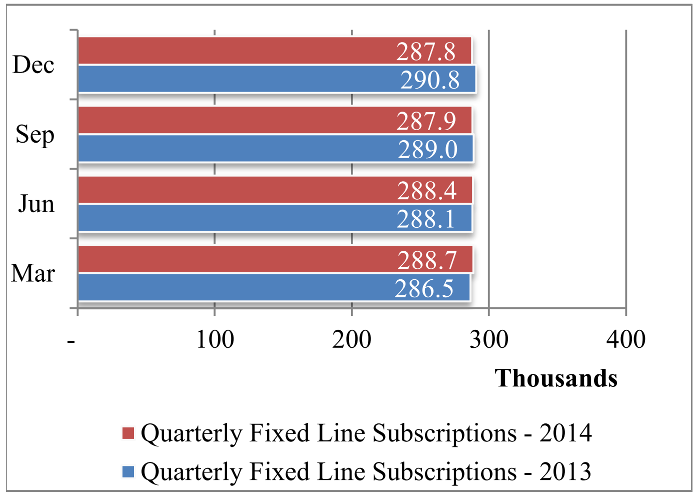
Figure 11: Quarterly Fixed Voice Subscriptions 2014



FIXED VOICE REVIEW

The fixed voice market performed marginally better in the first half of 2014, with more subscriptions being recorded in the first and second quarters, compared to the same period in 2013. There were 288.7 thousand subscriptions in quarter one compared to 286.5 thousand subscriptions for the corresponding period in 2013 However, subscriptions declined subsequently in the second half of 2014, with fewer subscriptions being recorded in the third and fourth quarters of 2014, compared to the same period in 2013. Figure 12 highlights.

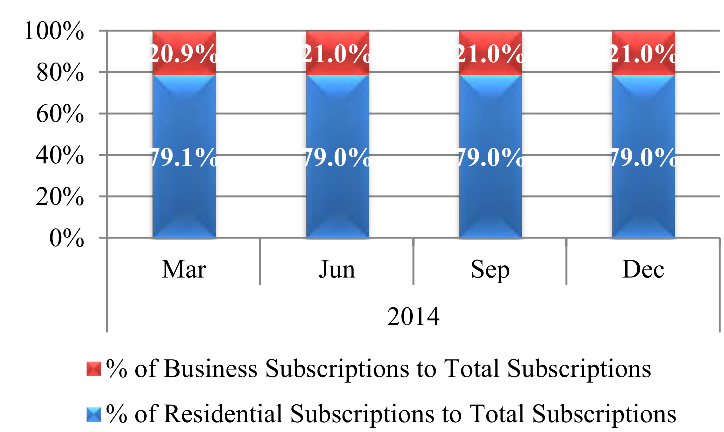
Figure 12: Comparison of Quarters 2013 and 2014



2.1.3. QUARTERLY RESIDENTIAL AND BUSINESS FIXED VOICE SUBSCRIPTIONS

Figure 13 shows a percentage breakdown of residential and business fixed voice subscriptions at the end of each quarter of 2014. At the end of the first quarter, residential fixed voice subscriptions captured 79.1 percent of the market while business accounted for 20.9 percent. This ratio between residential and business subscriptions remained relatively unchanged throughout the remaining quarters of 2014.

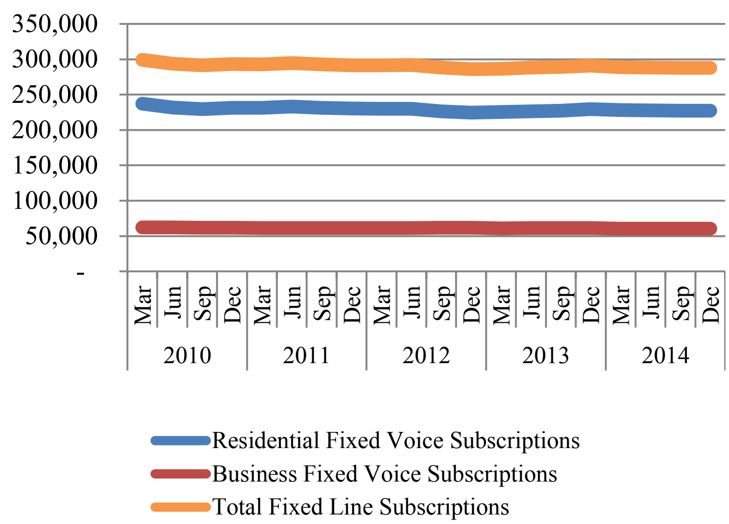
Figure 13: Percentage Breakdown of Quarterly Residential and Business Fixed Voice Subscriptions 2014



FIXED VOICE REVIEW

Over the past five years, there was an overall downward trend in the total number of subscriptions. As seen in Figure 14, residential subscriptions declined slowly over the years while business subscriptions remained relatively stable.

Figure 14: Comparison of quarterly fixed voice Subscriptions from 2010 to 2014



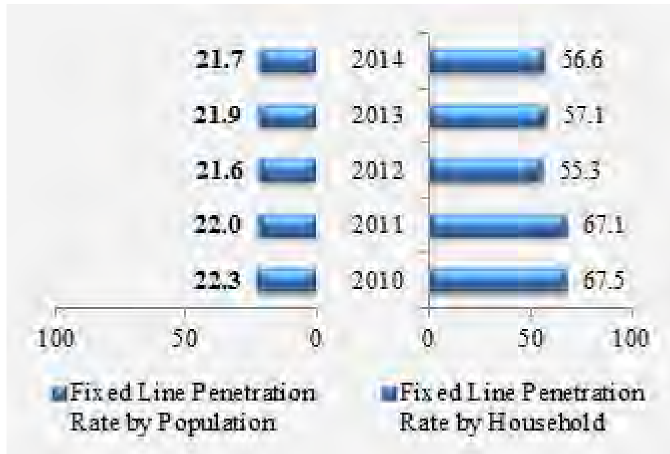
2.2. FIXED LINE PENETRATION

As the standard metric recognised internationally by the International Telecommunications Union (ITU) to measure the adoption of fixed voice services, fixed voice penetration[21] is calculated using the number of fixed voice subscriptions per 100 of the population. As at December 2014, fixed voice penetration was calculated at 21.7. This implies that in 2014 there were approximately 22 fixed voice subscriptions to every 100 persons in Trinidad and Tobago. Fixed line household penetration[22] decreased slightly from 57.1 in 2013 to 56.6 in 2014,

[21] Fixed line penetration = (number of residential fixed voice subscriptions / total population) *100
Total population used from the Central Statistical Office's Trinidad and Tobago 2011 Population and Housing Census, Demographic Report.
[22] Fixed line household penetration = (number of residential fixed voice subscriptions / total number of households) *100.
Number of households from the Central Statistical Office's Trinidad and Tobago 2011 Population and Housing Census, Demographic Report.

signifying that out of every 100 households, approximately 57 households had access to fixed voice services in Trinidad and Tobago. An illustration of the fixed voice penetration trend from 2010 to 2014 is given in Figure 15 for both population and household.

Figure 15: Fixed Voice Penetration 2010-2014

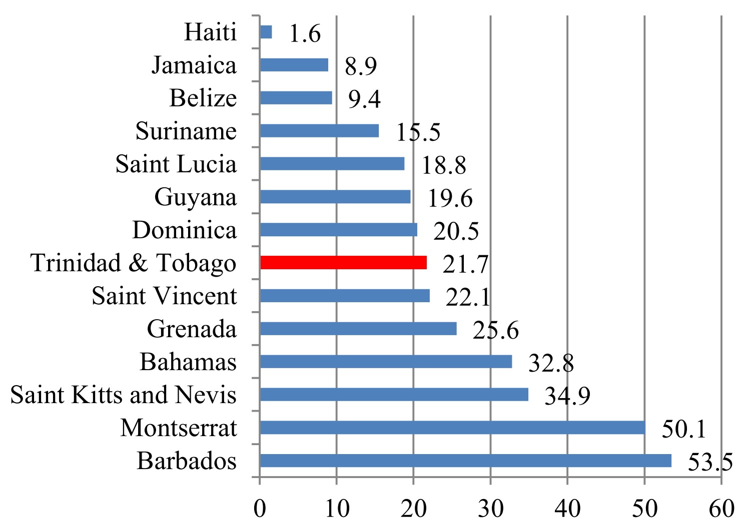


Source: TATT

2.2.1. FIXED PENETRATION RATES CARICOM CARIBBEAN COUNTRIES

Comparison among CARICOM countries, as listed in Figure 16, places Trinidad and Tobago seventh (7th) in terms of fixed line penetration. Based on estimated data from Business Monitor International, Barbados ranks first (1st) with a fixed line penetration of 53.5, followed closely behind by Montserrat (50.1).

Figure 16: Fixed Line Penetration among CARICOM Countries for 2014



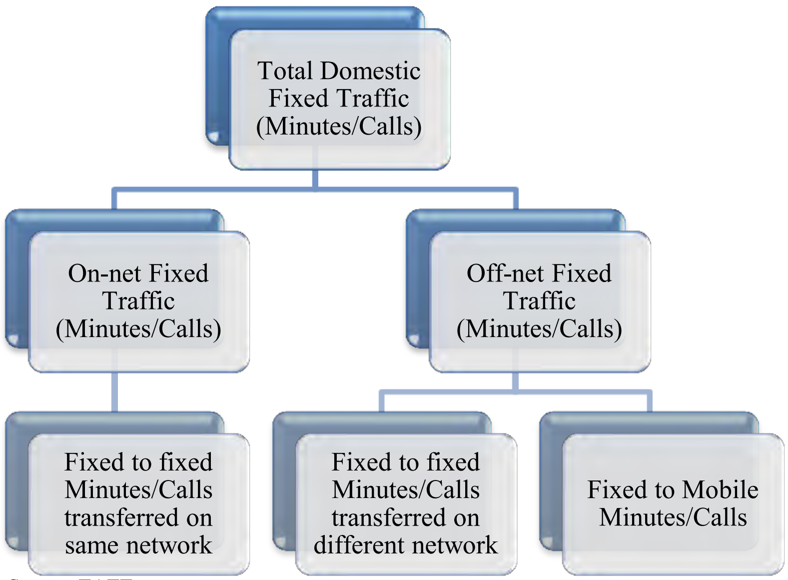
Source: Business Monitor International Telecommunications Database, TATT

FIXED VOICE REVIEW

2.3. DOMESTIC FIXED VOICE TRAFFIC

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

Figure 17: Classification of Domestic Fixed Traffic

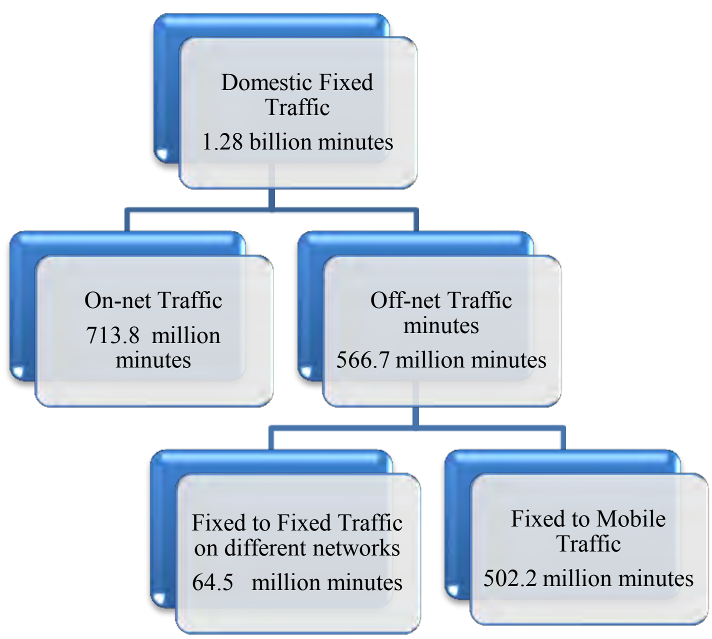


Source: TATT

2.3.1. ANNUAL DOMESTIC FIXED VOICE TRAFFIC IN MINUTES

Consumers in the fixed voice market continued to spend less time on fixed voice phone calls in 2014. There were 1.28 billion fixed voice traffic minutes in 2014, a 2.3 percentage decrease over the previous period. This downward trend was been observed over the past five years, with the exception of 2012, where a marginal increase in minutes was recorded. Both on-net[23] and off-net[24] minutes decreased in 2014; recording 713.8 million and 566.7 million minutes respectively. A greater reduction was observed for on-net minutes (3.2 percent) as compared to off-net minutes (1.1 percent). Comparing the composition of off-net minutes, off-net fixed to fixed minutes increased while fixed to mobile minutes decreased. Fixed to fixed minutes transferred on different networks (off-net) continued its upward trend, increasing by 1.2 percent to record 64.5 million minutes. Fixed to mobile minutes continued its downward trend, recording 502.2 million minutes; decreasing by 1.4 percent in 2014. The number of fixed voice minutes by traffic types is given in Figure 18 below.

Figure 18: Breakdown of fixed domestic traffic minutes 2014



Source: TATT

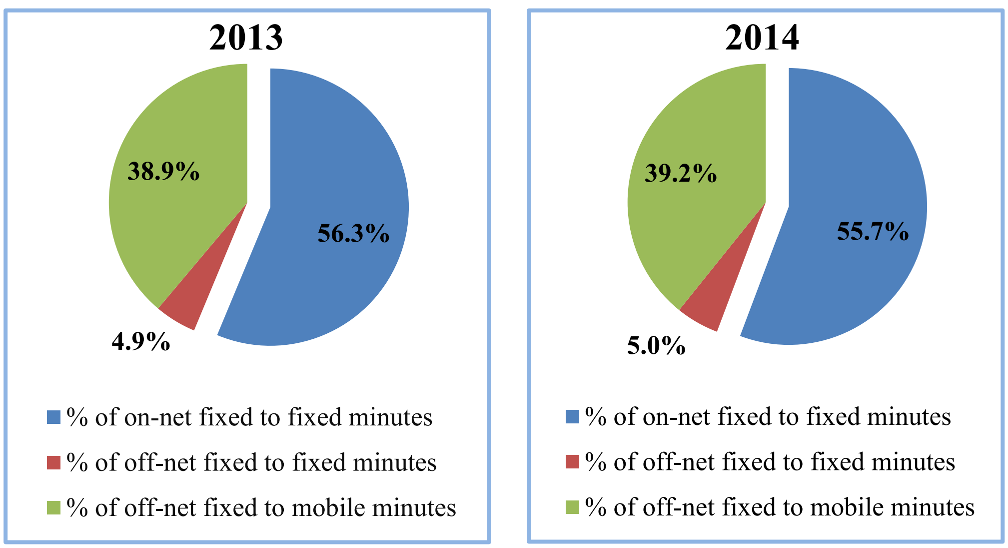
[23] On-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on the same fixed network.

[24] 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.

FIXED VOICE REVIEW

Consumers' consumption patterns for fixed voice minutes remained relatively unchanged in 2014. The proportion of on-net traffic and off-net traffic minutes was relatively stable, with a slight decline being observed in the proportion of on-net traffic minutes. On-net traffic minutes contributed 55.7 percent of total minutes in the fixed voice market while off-net traffic contributed 44.2 percent. Furthermore, off-net fixed to mobile minutes comprised the majority of total off-net minutes with 39.2 percent of total fixed voice traffic minutes. Alternatively, off-net fixed to fixed minutes comprised the minority with 5.0 percent of total fixed voice traffic minutes. This percentage breakdown of minutes by traffic-types is shown in Figure 19 below over the last 2 years.

Figure 19: Total domestic fixed traffic minutes by traffic-types 2013 to 2014



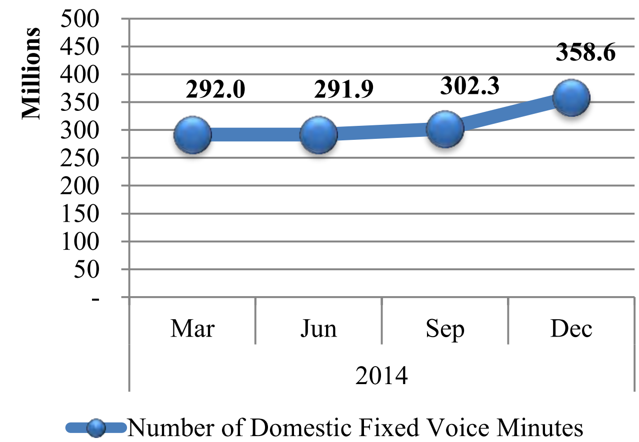
Source: TATT

FIXED VOICE REVIEW

1.1.1. QUARTERLY DOMESTIC FIXED VOICE TRAFFIC IN MINUTES

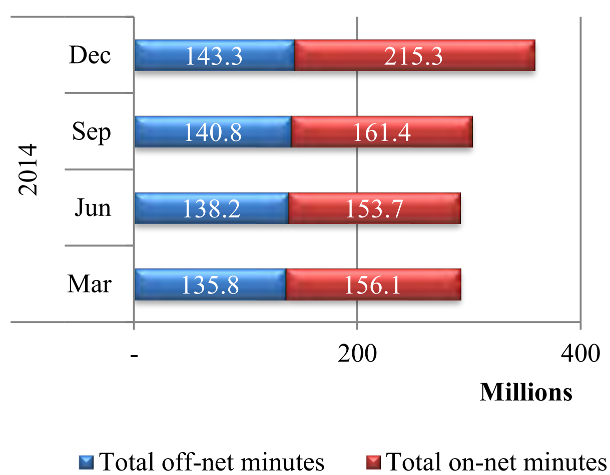
Following a significant decline in the first quarter of 2014, quarterly fixed voice minutes generally increased during 2014, reaching its highest point in the fourth quarter as shown in Figure 20. Recording 292.0 domestic fixed voice minutes in the first quarter, significant increases were recorded in the third and fourth quarters. Up by 18.6 percent, domestic fixed voice minutes reached 358.6 million minutes in the fourth quarter.

Figure 20: Quarterly Fixed Voice Traffic 2014



In terms of quarterly fixed voice minutes by traffic type, off-net fixed voice minutes increased steadily during 2014, averaging an increase of 2 percent per quarter. On-net minutes fluctuated during the year, with a slight decline being experienced in the second quarter and a sharp increase observed in the fourth quarter. On-net minutes increased 33 percent in the fourth quarter, to record 215.5 million minutes. The quarterly trend by traffic-type is depicted in Figure 21.

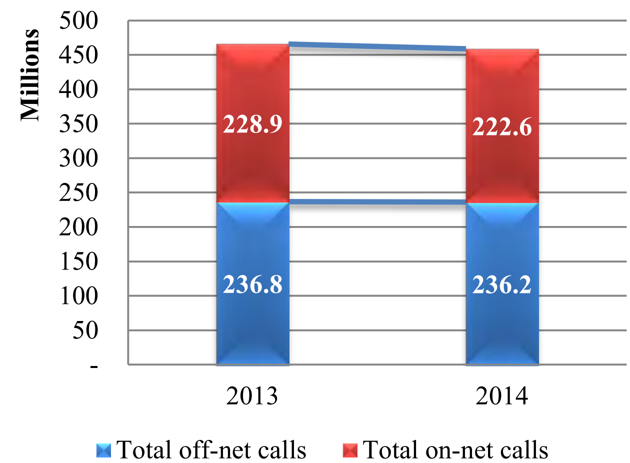
Figure 21: Quarterly Fixed Voice Traffic Minutes by Type - 2014



1.1.2. ANNUAL DOMESTIC FIXED VOICE CALL VOLUMES

In addition to the reduction in domestic fixed voice minutes observed in 2014, the number of domestic calls also decreased. There were 458.8 million domestic fixed voice calls during the 2014 period, a decrease by 1.5 percent. Total on-net calls accounted for 222.6 million or 49 percent of total fixed voice calls while total off-net calls accounted for 236.2 million calls or 51 percent. When compared to 2013, both the number of on-net and off-net calls declined with a greater reduction being observed for on-net calls. The number of on-net calls decreased by 2.7 percent while total off-net calls experienced a smaller decrease of 0.3 percent. Figure 22 below provides a breakdown of domestic fixed line calls from 2013 to 2014.

Figure 22: Comparison of Domestic Call Volume Traffic Type 2013-2014



FIXED VOICE REVIEW

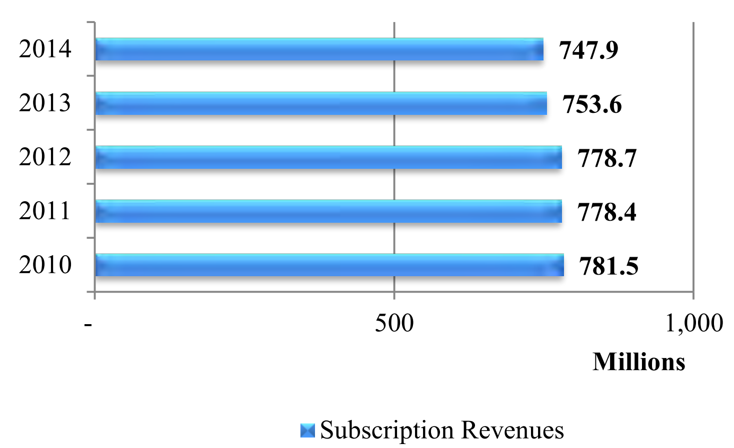
1.2. FIXED TELEPHONY REVENUES

1.2.1. ANNUAL FIXED VOICE REVENUES

Gross revenues received from all fixed voice services[25] totalled TT$755.6 million in 2014 as compared to TT$761.2 million in 2013, a 0.7 percent decrease. These revenues can be broken down in to fixed voice subscription revenues and auxiliary fixed voice revenues. Gross revenues received from fixed voice subscriptions for 2014 amounted to TT$747.9 million, a decrease of TT$57.4 million or 0.8 percent. Auxiliary fixed voice revenues accounted for TT$7.7 million in 2014.

The annual trend in fixed telephony subscription revenues for the period 2010 to 2014 is illustrated in Figure 23.

Figure 23: Fixed Voice Subscription Revenues 2010-2014



During 2014, both residential and business subscription revenues decreased. Residential subscriptions contributed TT$353.9 million or 47.3 percent; a 0.4 percent decrease from 2013.

[25] Fixed voice services include revenues from voice subscriptions and auxiliary fixed voice services including payphones, calling cards, and miscellaneous services.

Business subscriptions accounted for TT$394.0 million or 52.7 percent; a decrease of 1.1 percent from 2013. Figure 24 shows the separation of annual revenues derived from residential and business categories over the past 5 years while Figure 25 below illustrates the percentage of revenue contribution for the 2014 period.

Figure 24: Residential and Business Fixed Voice Subscription Revenues 2010-2014

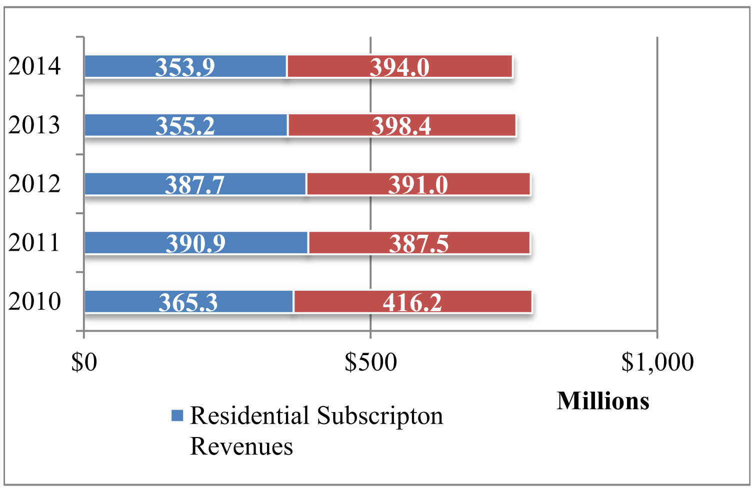
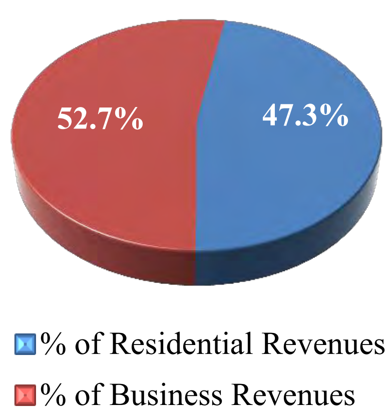


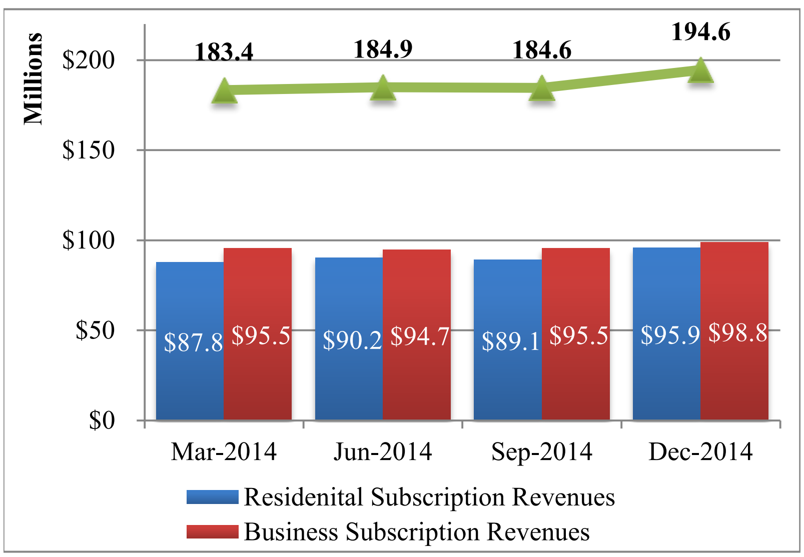
Figure 25: Percentage of Residential and Business Revenues 2014



1.2.2. QUARTERLY FIXED VOICE SUBSCRIPTION REVENUES

Quarterly fixed voice revenues experienced a general upward trend during 2014, notwithstanding the minor decrease observed in the third quarter. Subscription revenues increased from TT$183.4 million in the first quarter to TT$194.6 million in the fourth quarter. Comparing the composition of this revenue, both residential and business subscription revenues fluctuated during the period, averaging TT$90.8 million and TT$96.1 million per quarter, respectively. The quarterly residential and business subscription revenues for 2014 are depicted in Figure 26 below.

Figure 26: Quarterly Residential and Business Voice Subscription Revenues - 2014



FIXED VOICE REVIEW

1.3. FIXED MARKET CONCENTRATION

The Hirschman-Herfindahl Index (HHI) is a useful tool that measures the concentration of firms within a particular market. It is computed as the sum of squares of the market shares of all firms within a particular market and ranges from approximately 0 to 10,000. On comparing the last five years, Figure 27 shows that the HHI for the fixed voice market has been generally declining.

Figure 27: HHI for the Fixed Voice Market 2010-2014

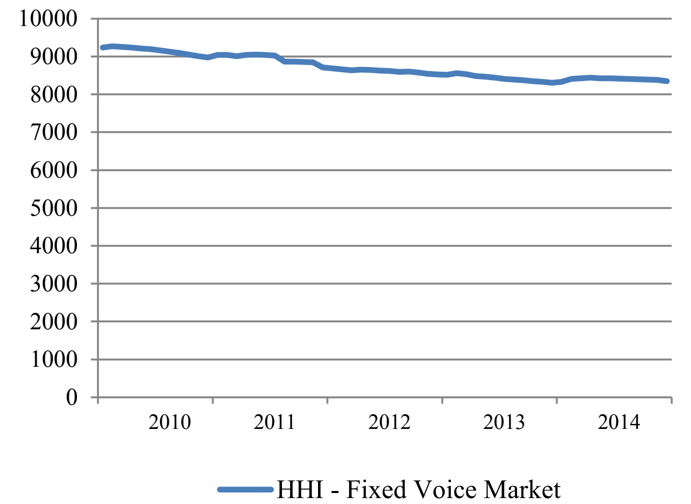
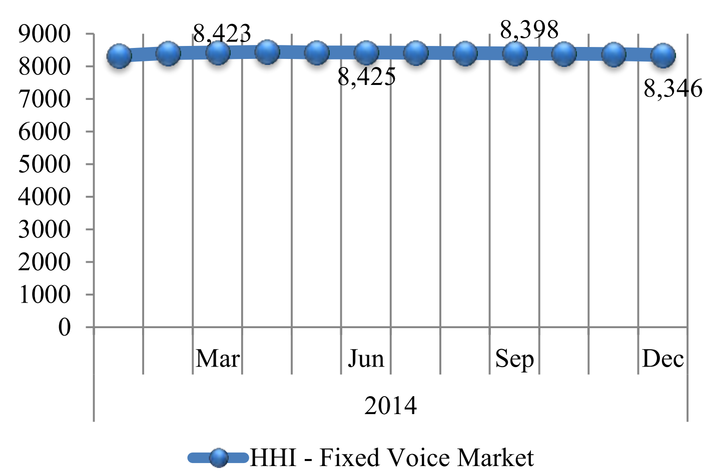


Figure 28 shows the HHI for the period January to December 2014. As at December 2014, a slight increase in the level of concentration in the fixed voice market was observed when compared to 2013. The HHI calculated for the fixed voice market was 8,346[26] as at December 2014; a 0.5 percent increase when compared to the same period last year. This increase in the level of concentration implies a minor shift in the proportion of subscriptions between the players in the fixed voice market.

Figure 28: HHI for the Fixed Voice Market 2013



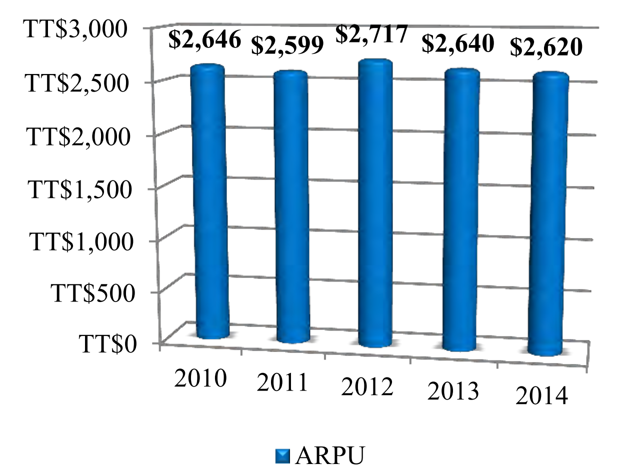
[26] Based on subscription market share

FIXED VOICE REVIEW

1.3.1. FIXED VOICE AVERAGE REVENUE PER USER (ARPU)

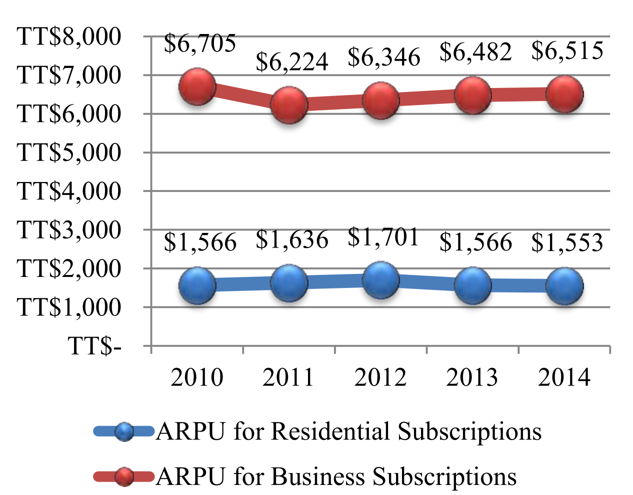
On average, each consumer spent TT$2,620 annually in 2014 for fixed voice services. This represents a decrease of TT$20.0 or 0.8 percent in the average revenue per user (ARPU)[27] over the amount recorded for 2013. The overall decrease in ARPU is consistent with the observed decreases in subscriptions and revenues in 2014. The changes in ARPU for the last five years are highlighted in Figure 29.

Figure 29: ARPU Fixed Voice Services 2010-2014



Residential consumers spent an average of TT$1,553 annually on fixed voice subscription services, a decrease of 0.8 percent over 2013. Business consumers spent an average of TT$6,515 annually on fixed voice subscription services, an increase of 0.5 percent. The trend in ARPU for residential and business consumers is illustrated in Figure 30.

Figure 30: ARPU for Fixed Residential and Business Voice Services 2010- 2014



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

MOBILE VOICE MARKET REVIEW

Key Market trends and Observations in the Mobile Voice Market

- **Mobile voice subscriptions stood at 1.98 million as at December 2014.**
- **TT$2.2 billion in gross revenues generated from Mobile voice services.**
- **The number of persons switching from prepaid to postpaid services almost doubled in 2014.**

3. MOBILE VOICE MARKET DATA[28]

Trinidad and Tobago's public domestic mobile telecommunication services, for the period January to December 2014, were provided by two authorised mobile service providers:-

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

The following is an overview of the Mobile Voice Market of Trinidad and Tobago, which was compiled using data submitted by these mobile operators.

3.1. MOBILE VOICE SUBSCRIPTIONS[29]

3.1.1. ANNUAL MOBILE SUBSCRIPTIONS

Mobile subscriptions stood at 1.98 million at the end of 2014. Up by 1.9 percent when compared to 2013, the mobile market continued to experience a steady upward trend in subscriptions following a marginal decrease which was observed in 2011. Figure 31 below illustrates the number of mobile voice subscriptions over a five year period (2010-2014).

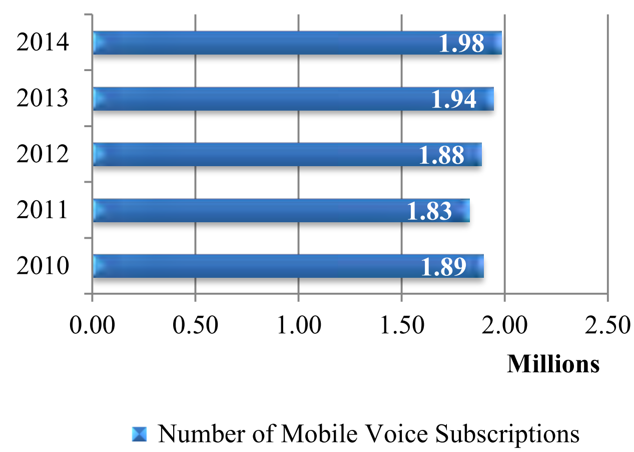
---

[28]A mobile voice subscription includes SMS services

[29]A mobile voice subscription refers to an activated (prepaid or postpaid) SIM card that enables the user to make and/or receive a call or SMS/MMS.

MOBILE VOICE MARKET REVIEW

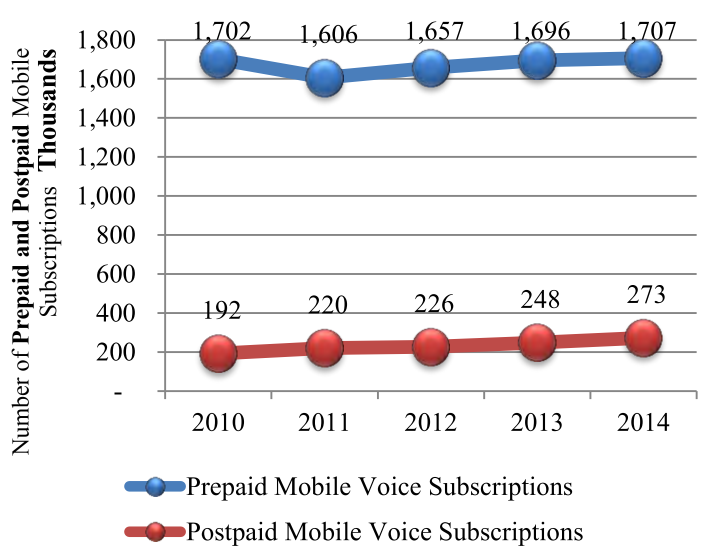
Figure 31: Mobile Subscriptions 2010 - 2014



Source: TATT

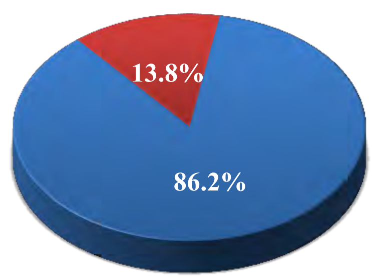
Of 1.98 million mobile voice subscriptions, approximately 1.707 million were prepaid while 0.273 million were postpaid. Figure 32 illustrates this sub-division of mobile voice subscriptions into prepaid (where customers purchase credit prior to service use) and postpaid (where customers enter into a contractual billing arrangement with a mobile service provider). It was further observed that both prepaid and postpaid subscriptions increased in 2014; 0.7 percent and 10.1 percent respectively. The growth rate of postpaid subscriptions was substantially higher than prepaid subscriptions. This growth pattern was similarly observed in 2013. As depicted in Figure 2, during 2010 to 2014, a steady upward trend was observed for postpaid subscriptions while prepaid subscriptions experienced fluctuations.

Figure 32: Mobile Prepaid and Postpaid subscriptions 2010-2014



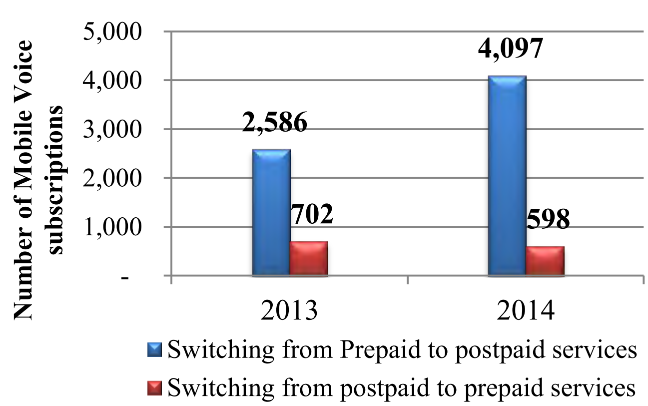
Prepaid subscriptions continued to constitute the majority of the mobile market, accounting for 86.2 percent of total mobile voice subscriptions (down by 0.1 percent when compared to 2013). Postpaid subscriptions made up the remaining 13.8 percent (up by 0.1 percent when compared to 2013). Figure 33 shows the percentage breakdown of mobile subscriptions in 2014.

Figure 33: Percentage of Prepaid and Postpaid subscriptions 2014



The 0.1 percent change in the proportion of prepaid and postpaid subscriptions reported above may reflect consumers switching between the two service options. Figure 34 below illustrates consumers switching for 2013 and 2014. In both periods, there were a greater number of consumers switching from prepaid to postpaid services. Notably, the number of persons switching from prepaid to postpaid services almost doubled in 2014 as compared to 2013. During the 2014 period, there were 4,097 subscriptions migrating from prepaid services to postpaid services in contrast to 598 subscriptions migrating from postpaid to prepaid services.

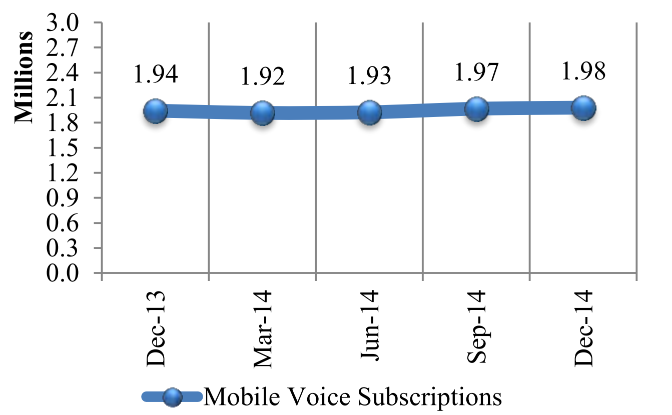
Figure 34: Mobile Subscription Migration in 2013-2014



3.1.2. QUARTERLY MOBILE SUBSCRIPTIONS

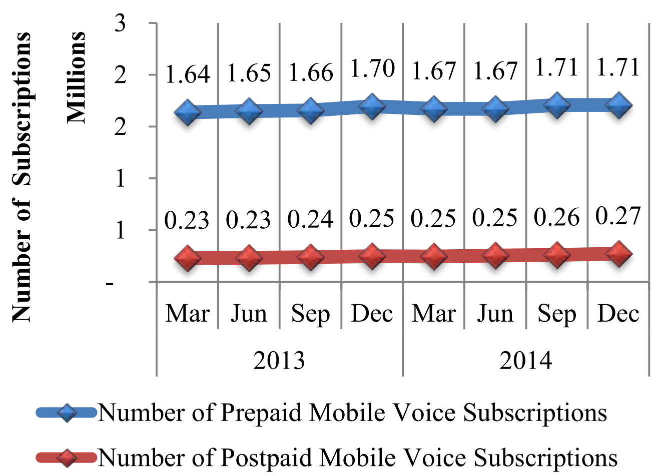
As illustrated in Figure 35, quarterly mobile subscriptions during 2014 remained relatively constant in the mobile voice market. Similar to the pattern observed last year, there was a marginal decrease in subscriptions from 1.94 million subscriptions at the end of the fourth quarter of 2013 to 1.92 million in the first quarter of 2014. Subsequently, there were minimal improvements observed during the remaining quarters of 2014; from 1.93 million to 1.98 million subscriptions by the end of the fourth quarter.

Figure 35: Quarterly Number of Subscriptions 2013–2014



During the second quarter of 2014, both prepaid and postpaid subscriptions remained unchanged. Increasing marginally in the third quarter, prepaid and postpaid subscriptions grew by 2.1 percent and 2.7 percent respectively. While prepaid subscriptions maintained 1.71 million subscriptions in the fourth quarter, a small increase in postpaid subscriptions was observed. Figure 36 shows a relatively steady quarter-on-quarter growth for both prepaid and postpaid subscriptions over the period 2013-2014.

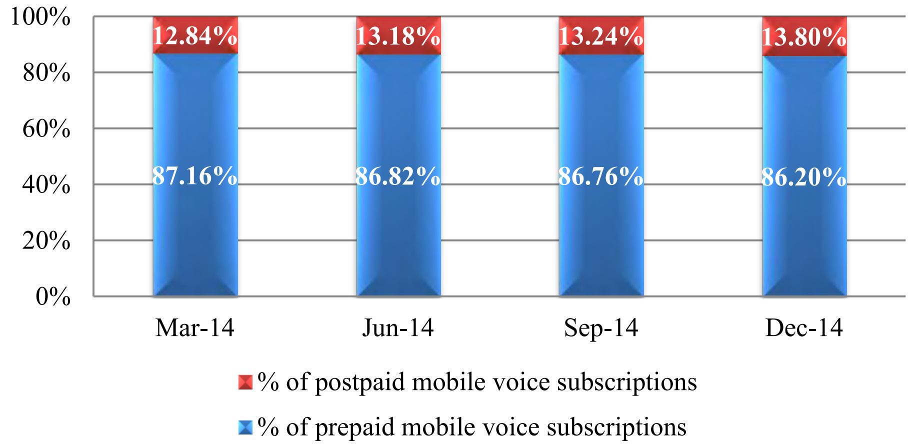
Figure 36: Quarterly Prepaid and Postpaid Subscriptions: 2013 – 2014



MOBILE VOICE MARKET REVIEW

Prepaid subscriptions averaged 86.8 percent during 2014, as it continued to comprise the majority of the mobile voice market subscriptions. Postpaid subscriptions accounted for, on average, 13.2 percent of mobile subscriptions in 2014. The share of prepaid and postpaid mobile subscriptions on a quarterly basis is seen in Figure 37 below.

Figure 37: Percentage of prepaid and postpaid subscribers on a Quarterly Basis – 2014

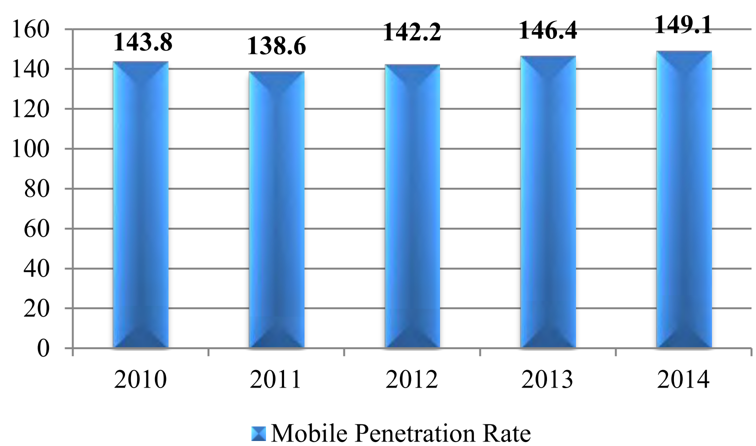


3.2. MOBILE PENETRATION

3.2.1. MOBILE PENETRATION RATE IN THE DOMESTIC MARKET

The increase in mobile subscriptions observed in 2014 is reflected in an increase in the mobile penetration rate. The mobile penetration[30] rate in the mobile voice market stood at 149.1 as at December 2014, representing a 1.9 percent increase over 2013. This implies that there were approximately 149 mobile subscriptions per 100 inhabitants in Trinidad and Tobago as at the end of 2014. Figure 38 highlights the mobile penetration rate from 2010 to 2014.

Figure 38: Mobile Penetration Rate per 100 Inhabitants for Trinidad and Tobago 2010-2014

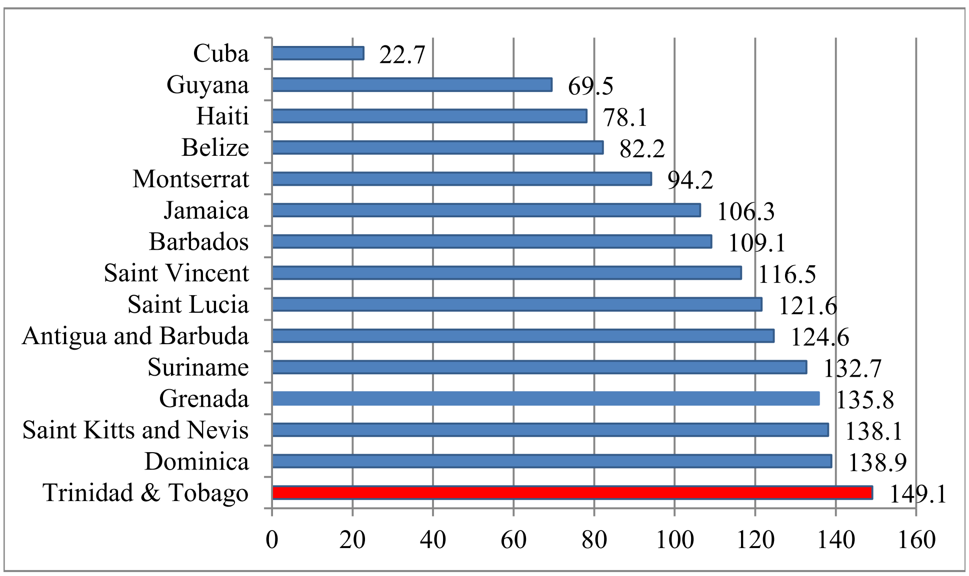


[30]Mobile Penetration is calculated = (number of mobile subscriptions / total population *100). Population based on the Central Statistical Office's 2011 Population and Housing Census Preliminary Count.

3.2.2. REGIONAL MOBILE PENETRATION RATES

Figure 39 compares the mobile penetration rates among CARICOM Countries. Trinidad and Tobago recorded the highest mobile penetration rate of 149.1 for the 2014 period. According to Business Monitor International, Dominica ranks second in mobile voice penetration with approximately 139.9 mobile subscriptions per 100 of its population. Following closely behind, was Saint Kitts and Nevis, recording a mobile penetration rate of 138.1.

Figure 39: Mobile Penetration Rates among CARICOM Countries – 2014

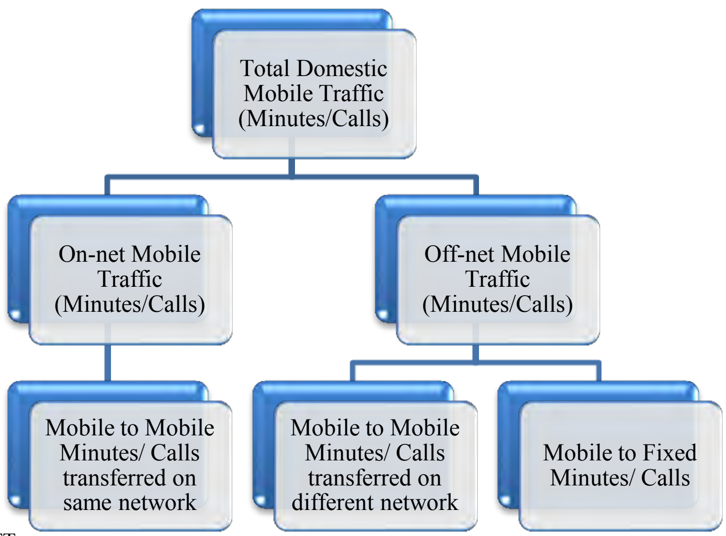


Source: Business Monitor International, TATT

3.3. DOMESTIC MOBILE VOICE TRAFFIC

Domestic mobile voice traffic refers to the number of minutes or calls originating on domestic mobile networks. Consumers made 3,468.1 million mobile telephone calls, with a total duration of 4,169.0 million minutes in 2014. This traffic can be categorised as depicted in Figure 40.

Figure 40: Classification of Domestic Mobile Traffic



Source: TATT

3.3.1. ANNUAL DOMESTIC MOBILE VOICE TRAFFIC IN MINUTES

Of the 4,169.0 million minutes of domestic mobile traffic recorded for 2014, on-net[31] traffic totalled 3,363.7 million minutes while off-net[32] traffic recorded 805.3 million minutes. Off-net mobile to mobile minutes totalled 551.8 million, while off-net mobile to fixed minutes totalled 253.5 million minutes.

---

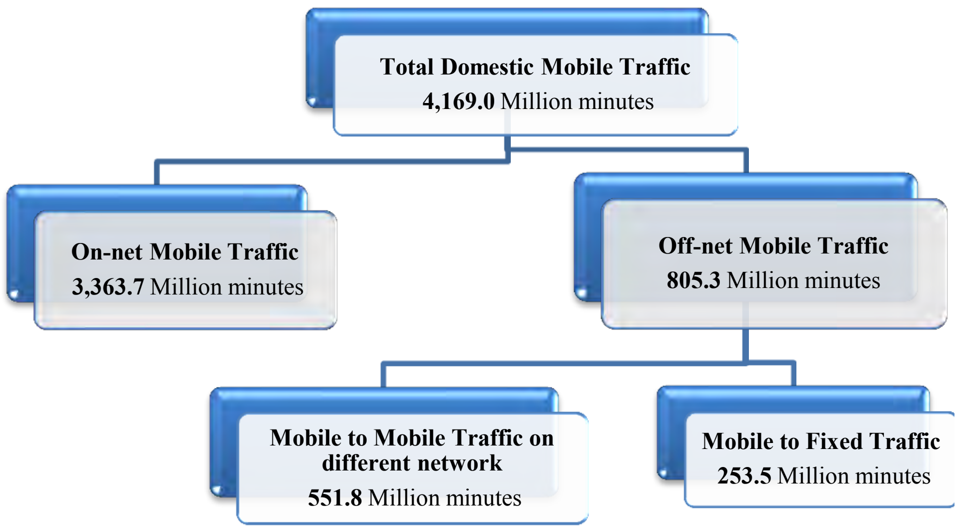
[31] On-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on the same mobile network.

[32] 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.

MOBILE VOICE MARKET REVIEW

When compared to 2013, total domestic traffic for on-net and off-net decreased in 2014 by 6.3 percent or 279.8 million. It was also observed that all categories of traffic minutes decreased in 2014, where on-net traffic experienced a greater decline (7.2 percent or 260.5 million minutes) as compared to off-net traffic (2.3 percent or 19.3 million minutes). Figure 41, illustrates the breakdown of domestic mobile traffic minutes for 2014 and Table 4 compares 2013-2014 domestic mobile traffic in minutes.

Figure 41: Breakdown of Domestic Mobile Traffic Minutes 2014



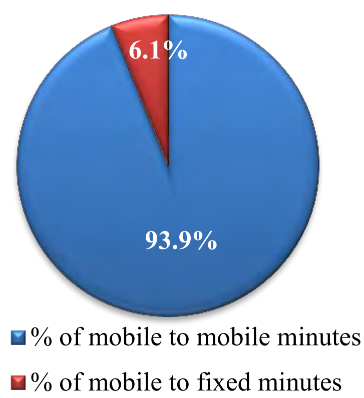
Source: TATT

Table 4: Breakdown of Domestic Mobile Traffic Minutes 2013-2014

	2013 (Millions)	2014 (Millions)
On-net Mobile Traffic	3,624.2	3,363.7
Off-net Mobile Traffic:-	824.6	805.3
Mobile-to-Mobile Traffic on different network	560.5	551.8
Mobile-to-Fixed Traffic	264.1	253.5
Total Domestic Mobile Traffic	**4,448.8**	**4,169.0**

The percentage of total domestic mobile voice minutes terminating on a domestic mobile network was estimated to be 93.9 percent, while 6.1 percent represented the number of domestic mobile minutes terminating on a domestic fixed network. Figure 42 below gives a representation of this percentage contribution.

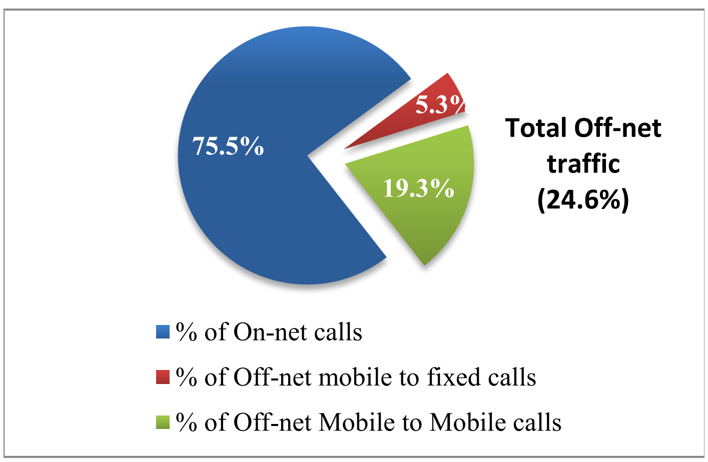
Figure 42: Percentage of Mobile to Mobile and Mobile to Fixed Minutes - 2014



3.3.2. ANNUAL DOMESTIC MOBILE VOICE CALL VOLUMES

In 2014, 3,583.9 million domestic mobile voice calls were recorded. Down by 3.2 percent when compared to 2013, domestic mobile voice calls comprised 2,616.7 million on-net calls, representing 75.5 percent of total domestic mobile calls. Off-net traffic recorded 851.3 million calls, accounting for 24.6 percent of total domestic mobile calls. Of 851.3 million off-net traffic, approximately 182.7 million were mobile to fixed calls, which represented 5.3 percent of total

Figure 43: Breakdown of Domestic Mobile Calls -2014



domestic mobile calls, while the remaining 668.6 million mobile to mobile off-net traffic accounted for 19.3 percent of total domestic mobile calls. While the number of domestic mobile calls for each subcategory decreased minimally, there was no major change in the ratios when compared to 2013. A breakdown of the subcategories of traffic by number of calls is shown in Figure 43 while Table 5 compares 2013-2014 domestic mobile call volumes.

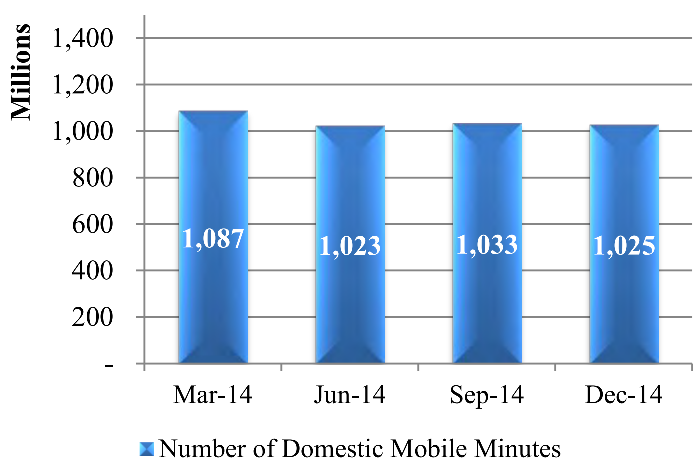
Table 5: Breakdown of Domestic Mobile Calls 2013-2014

	2013 (Millions)	2014 (Millions)
On-net Mobile Voice Calls	2,705.4	2,616.7
Off-net Mobile Voice Calls:-	878.4	851.3
Off-net Mobile-to-Fixed Calls	192.2	182.7
Off-net Mobile-to-Mobile Calls	686.1	668.6
Total Domestic Mobile Voice Calls	**3,583.9**	**3,468.1**

3.3.3. QUARTERLY DOMESTIC MOBILE VOICE MINUTES

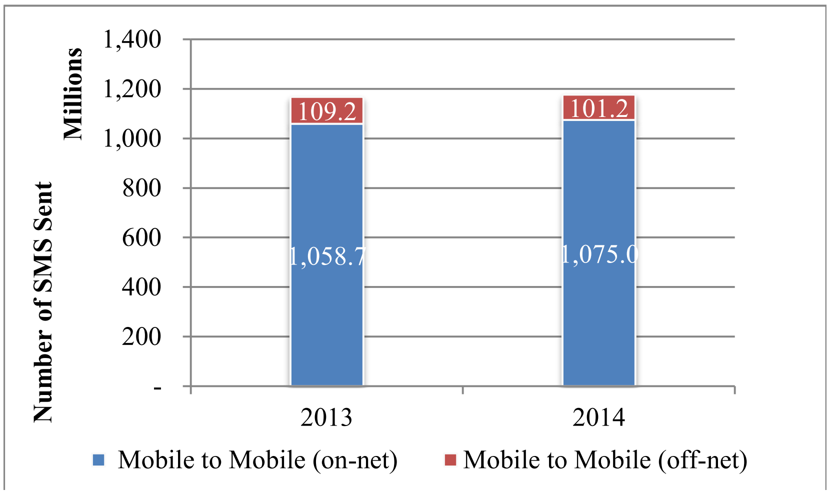
Domestic mobile voice minutes fluctuated for each quarter in 2014 as shown in Figure 44. Total domestic mobile voice traffic decreased significantly by 5.9 percent in the second quarter (from 1,087 million minutes to 1,023 million minutes). In the third quarter, traffic rose by 1.0 percent to 1,033 million minutes. Mobile minutes subsequently decreased again in the fourth quarter by 0.7 percent to record 1,025 million minutes. There was an overall decrease in minutes during 2014.

Figure 44: Quarterly Mobile Voice Minutes 2014



As Figure 45 illustrates, these fluctuations did not significantly change the ratio of mobile to fixed minutes and mobile to mobile minutes, as this remained relatively stable despite the small percentage change in the fourth quarter.

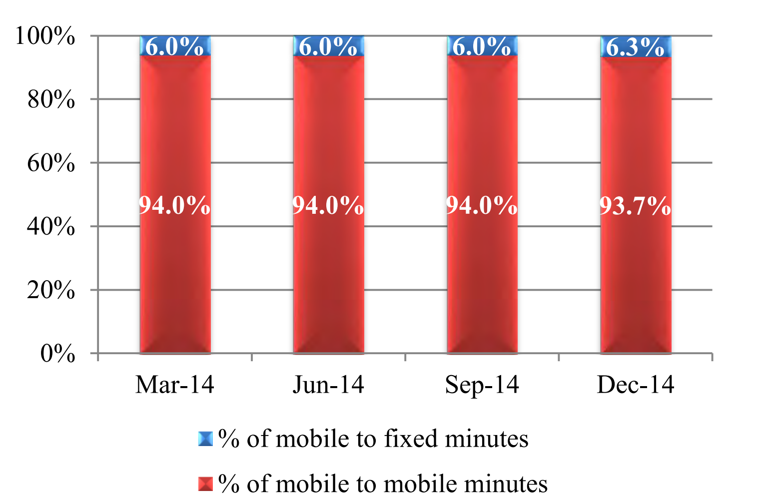
Figure 45: Number and Percentage of on-net and off-net SMS sent in 2014



3.3.4. DOMESTIC MOBILE SHORT MESSAGING SERVICE (SMS)

Following a marked increase in the total number of domestic SMS in 2013, there was a minimal increase of 0.7 percent in 2014. There was a total of 1,176.1 million SMS in 2014. Of this, 1,075.0 million SMS were on-net and 101.2 million off-net, as depicted in Figure 46. On-net SMS increased by 1.5 percent, while off-net SMS decreased by 7.4 percent.

Figure 46: Quarterly Mobile Voice Minutes by Type 2014



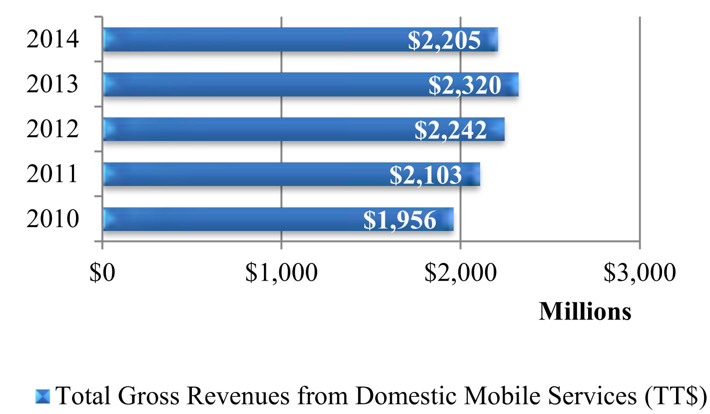
MOBILE VOICE MARKET REVIEW

3.4. MOBILE VOICE[33] REVENUES

3.4.1. ANNUAL REVENUES FROM MOBILE VOICE SERVICES[34]

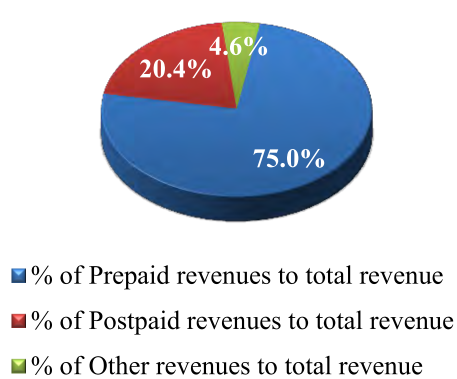
The annual revenue trend in mobile voice services from 2010 to 2014 is illustrated in Figure 47. In 2014, total revenues from mobile voice services amounted to TT$2,205 million; a 5.0 percent decrease over the previous year. Preceding this 5.0 percent fall revenue, there was a steady increase in annual revenues from 2010 to 2013.

Figure 47: Annual revenues from Mobile Voice Services 2010-2014



Of the TT$2,205 million earned from the mobile voice market, prepaid, postpaid and other[35] services generated TT$1,654 million, TT$450.3 million and TT$100.6 million in revenues respectively. Prepaid and postpaid mobile voice revenues contributed 75 percent and 20.4 percent of the market, respectively. Other revenues accounted for 4.6

Figure 48: Percentage of Prepaid and Postpaid Revenues from Mobile Voice Services for 2014

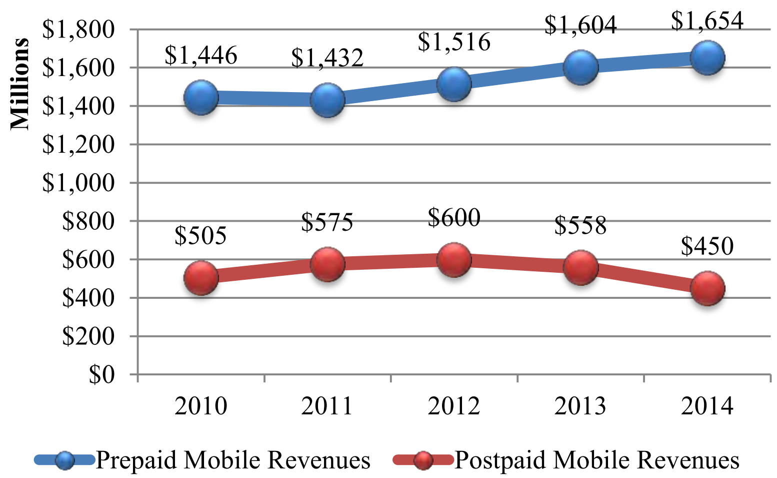


[33] Mobile voice revenues includes revenues from SMS services.
[34] These revenues exclude mobile Internet revenue which is reported within the Internet section of this report.

[35] Other revenues comprise earnings generated from equipment sales, SIM card sales and administrative charges.

percent. Figure 48 illustrates the percentage breakdown of revenues from mobile voice services while Figure 49 shows the five (5) year trend in prepaid and postpaid revenues.

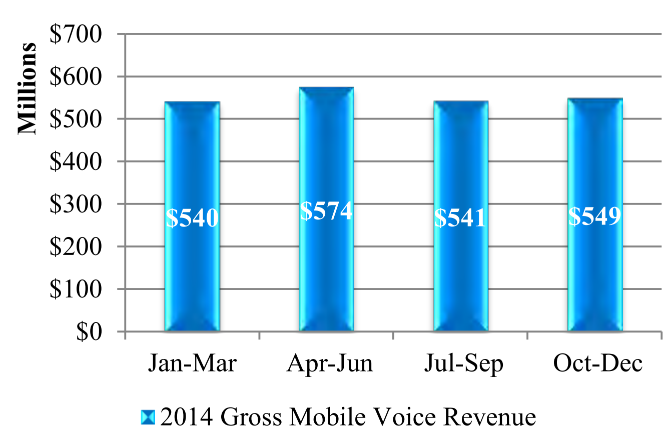
Figure 49: Revenues from Mobile Voice Services-Prepaid and Postpaid 2010-2014



3.4.2. QUARTERLY REVENUES FROM MOBILE VOICE SERVICES

Similar to 2013, quarterly fluctuations in mobile voice revenues were observed for 2014. Revenues increased from TT$540 million in the first quarter to TT$574 million in the second quarter; notably the highest earning quarterly revenue for 2014. Subsequently, revenues decreased by TT$33 million in the third quarter and increased in the fourth quarter by TT$8 million, where quarterly revenues stood at TT$549 million. Figure 50 illustrates these quarterly changes in revenues for 2014.

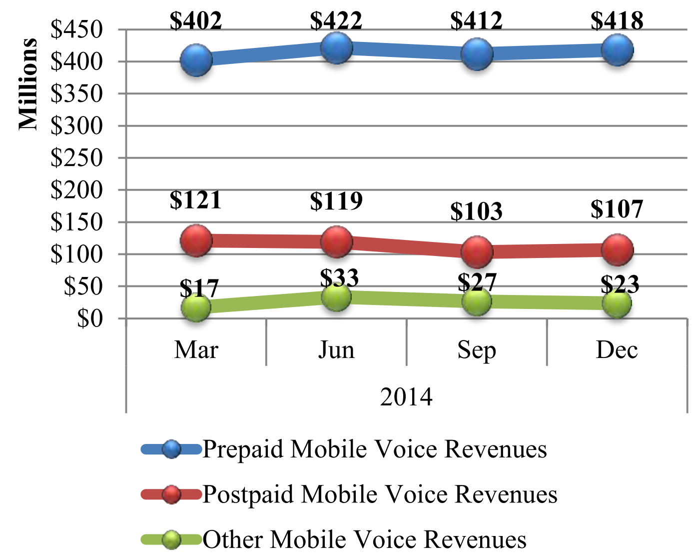
Figure 50: Quarterly revenues from mobile voice services 2014



MOBILE VOICE MARKET REVIEW

Prepaid revenues remained relatively stable throughout the year, with marginal quarter on quarter fluctuations. The second quarter recorded an increase of TT$20 million moving from TT$402 million to TT$422 million. Revenues decreased to TT$412 million and then increased to TT$418 million at the end of the third and fourth quarters respectively.

Figure 51: Quarterly Prepaid and Postpaid Mobile Voice Revenues – 2014

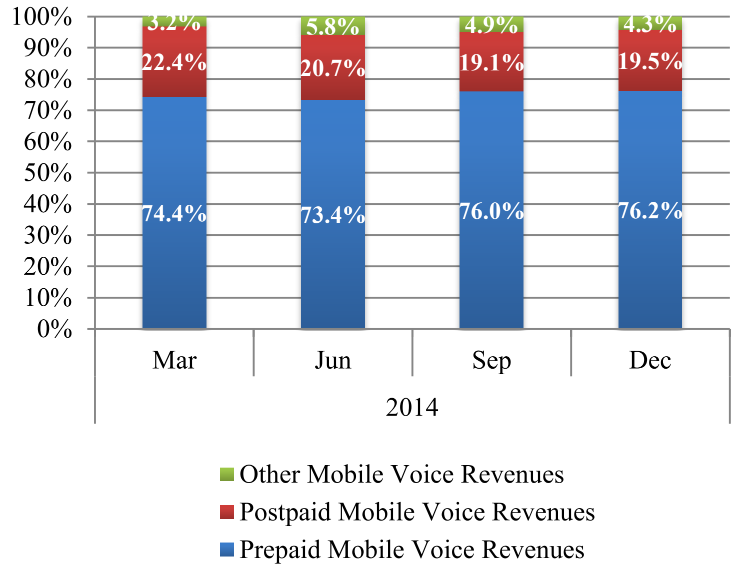


Postpaid revenues depicted a gradual downward trend recording TT$121 million in the first quarter to TT$103 million in the third quarter. Up by TT$4 million, postpaid mobile revenues totalled TT$107 million in the fourth quarter. Figure 51 above illustrates.

MOBILE VOICE MARKET REVIEW

Prepaid subscriptions comprised the majority of the revenues in the mobile voice market with a quarterly average of 75 percent, while postpaid averaged 20.4 percent during the 2014 period. Other mobile voice revenues accounted for an average of 4.7 percent. As Figure 52 illustrates, the proportion of prepaid, postpaid and other revenues were relatively stable during 2014.

Figure 52: Percentage of Revenues Contributed by Prepaid and Postpaid Mobile Voice Subscriptions - 2014

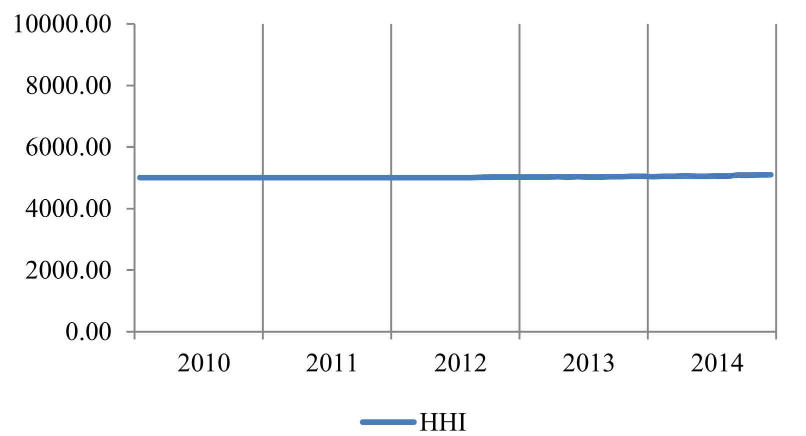


MOBILE VOICE MARKET REVIEW

3.5. MOBILE MARKET CONCENTRATION

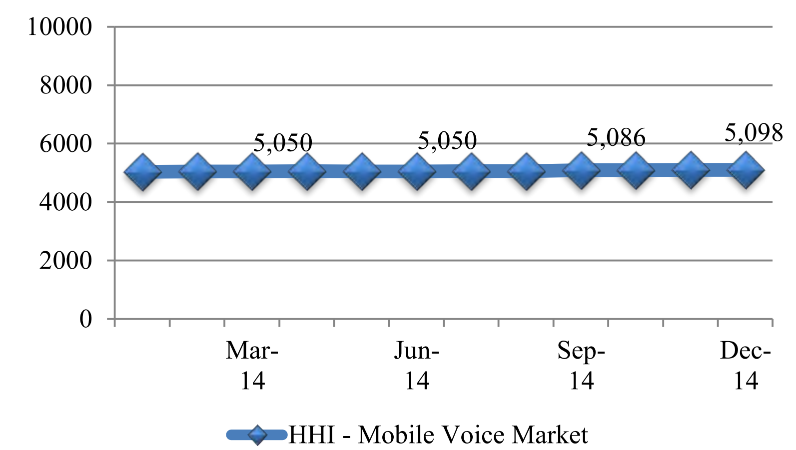
Using the Hirschman-Herfindahl Index (HHI)[36], the Authority calculated the level of concentration in the mobile voice market of Trinidad and Tobago for the year ending December 2014. On comparing the last five years, Figure 53 shows that the HHI has been relatively stable with roughly 5000 points being achieved over the period.

Figure 53: Hirschman-Herfindahl Index for the Mobile Voice Market 2010-2014



The domestic mobile voice market showed minimal changes in the level of concentration in 2014. As illustrated in Figure 54, the HHI in the mobile voice market increased in the third and fourth quarters to record 5,086 and 5,098, respectively.

Figure 54: Hirschman-Herfindahl Index for the Mobile Voice Market – 2014



[36] 'Number of subscriptions' was used to determine market share for the service providers.

3.6. AVERAGE REVENUE PER USER

The average revenue per user (ARPU) decreased by TT$96 (8.0 percent) as mobile customers spent an average of TT$1,113 for mobile voice services[37] during 2014. The ARPU generated for prepaid mobile subscriptions stood at TT$969; an increase of TT$23 (2.4 percent) when compared to 2013. The ARPU generated for postpaid subscriptions was TT$1,648; a marked decrease of TT$603 (26.8 percent). Figure 55 highlights total ARPU for mobile services while Figure 56 compares the ARPU earned for prepaid and postpaid subscriptions over the past five years.

Figure 55: ARPU for Mobile Voice Services 2014-2014

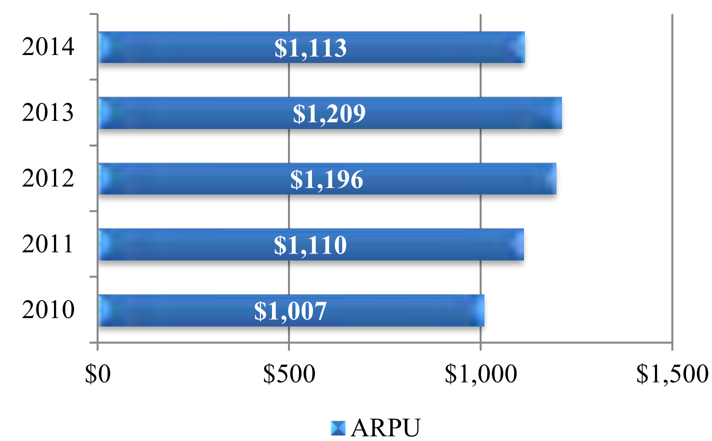
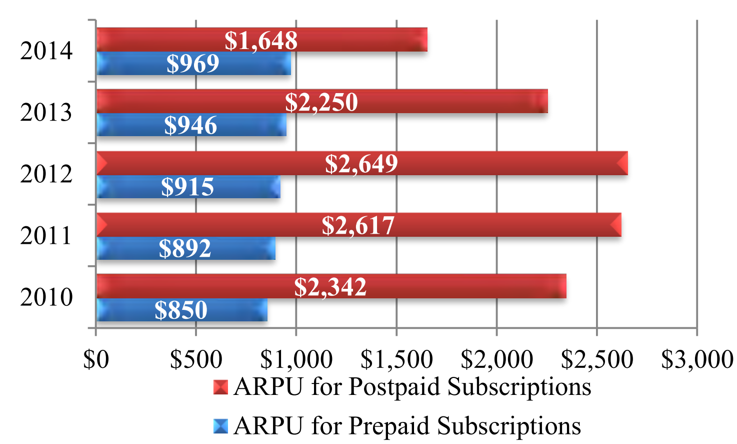


Figure 56: ARPU for Prepaid and Postpaid Mobile Voice Subscriptions – 2014



[37] ARPU from mobile voice services includes Mobile voice and SMS.

INTERNET MARKET REVIEW

Key Market trends and Observations in the Internet Market

- **The Internet market continued its favourable growth, increasing by 7.8% in 2014 to record approximately 250 thousand subscriptions.**
- **48% of residential broadband customers subscribe to fixed Internet speeds equal to or above 10Mbit/s**
- **65% of mobile Internet users use Mobile broadband**
- **It is estimated that 74 out of every 100 persons use the Internet in Trinidad and Tobago**
- **Mobile revenues continue to soar, increasing by 61% in 2014.**

4. INTERNET MARKET DATA

This section reviews the performance of Trinidad and Tobago's Internet market for the 2014 reporting period. The delivery of Internet services over fixed (wired or wireless) and mobile domestic public telecommunications networks were compiled and presented. Of the seventeen (17) authorised fixed domestic telecommunications services concessionaires, seven (7) provided fixed Internet services:-

- Telecommunications Services of Trinidad and Tobago (TSTT);
- Columbus Communications Trinidad Limited (CCTL);
- Green Dot Limited;
- Massy Technologies Limited;
- Lisa Communications Limited;
- Open Telecom Limited;
- Air Link Communications.

These operators used 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 utilising DOCSIS 3.0 technology, as well as a mix of

Fibre to the Curb (FTTC), Fibre to the Business (FTTB) or Home (FTTH) topologies. On the other hand, fixed wireless Broadband Internet operators employ WiMAX technologies to support the need for services demanding ever higher speeds on the access network and, more recently, LTE technologies to offer an alternative means of broadband Internet access and to augment the wired access network.

Two (2) mobile operators were authorised to provide domestic mobile telecommunications services, including the provision of Internet services to the public:-

- Telecommunications Services of Trinidad and Tobago (bmobile)[38];
- Digicel (Trinidad and Tobago) Limited.

Mobile Internet operators offered customers mobile broadband Internet services utilising Evolved High Speed Packet Access (HSPA+). Mobile Internet services via 2.5G technology (i.e. Enhanced Data Rates for GSM Evolution (EDGE)) were also offered during this reporting period.

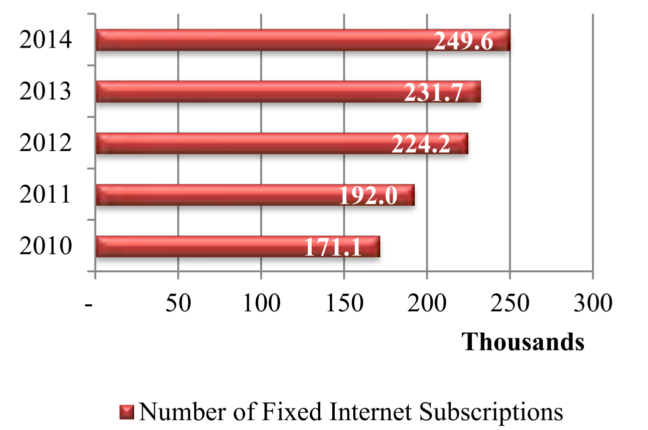
[38] bmobile is the mobile services division of TSTT, therefore their Internet services are recorded as one concessionaire.

INTERNET MARKET REVIEW

4.1. FIXED INTERNET SUBSCRIPTIONS

Subscriptions to fixed Internet services in Trinidad and Tobago continued to show favourable growth in 2014. Figure 57 illustrates this increasing trend for fixed Internet subscriptions over the last five years. Approximately 249.6 thousand fixed Internet subscriptions were recorded as at December 2014. Subsequent to consecutive double digit growth observed from 2010 to 2012, this market increased by 3.3 percent in 2013 and 7.8 percent in 2014.

Figure 57: Total Number of Fixed Internet Subscriptions – 2010 to 2014



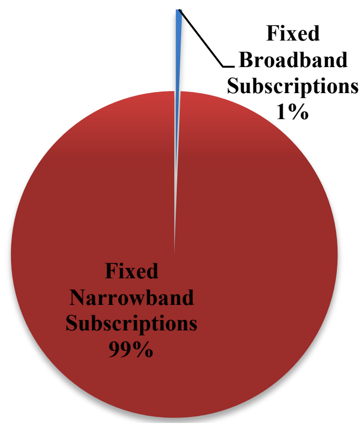
4.1.1. FIXED BROADBAND AND FIXED NARROWBAND INTERNET SUBSCRIPTIONS

Fixed broadband Internet subscriptions continue to constitute the majority of subscriptions in the fixed Internet market. As illustrated in Figure 58 below, fixed broadband[39] Internet subscriptions

[39] Broadband can be defined as speeds > 256 kbits per second.

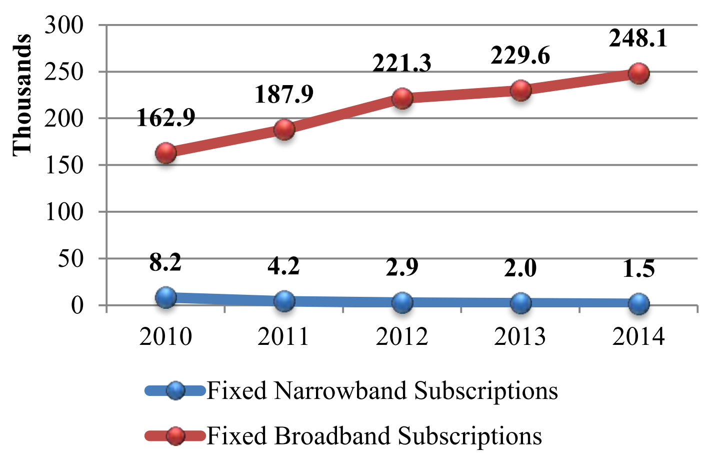
accounted for 99 percent of total fixed Internet subscriptions in 2014, while fixed narrowband[40] Internet subscriptions represented a mere 1 percent.

Figure 58: Percentage of Broadband and Narrowband Fixed Internet Subscriptions 2014



The percentage fall in fixed narrowband subscriptions was again significantly higher than the growth in fixed broadband subscriptions. Up by 8 percent or 18.4 thousand subscriptions when compared to 2013, broadband subscriptions stood at 248.1 thousand as at December 2014. Narrowband subscriptions stood at a low of 1.5 thousand subscriptions; a 25 percent or 0.5 thousand decrease in subscriptions from last year. Figure 59 illustrates a five year line graph of the increasing trend for fixed broadband subscriptions and the contrasting, drastic decline in fixed narrowband subscriptions.

Figure 59: Fixed Narrowband and Broadband Subscriptions – 2010 to 2014



[40] Narrowband can be defined as speeds ≤ 256 kbits per second

The number of fixed Internet subscriptions can be further subdivided into residential and business categories.

Of the 1.5 thousand narrowband subscriptions, approximately 1.1 thousand were residential while 0.4 thousand were business. Noticeably, business narrowband subscriptions remained unchanged when compared to 2013, while residential fell by 0.5 thousand subscriptions. The subdivision of fixed narrowband Internet subscriptions into residential and business is illustrated in Figure 60.

Figure 60: Residential and Business Fixed Narrowband Internet Subscriptions – 2010 to 2014

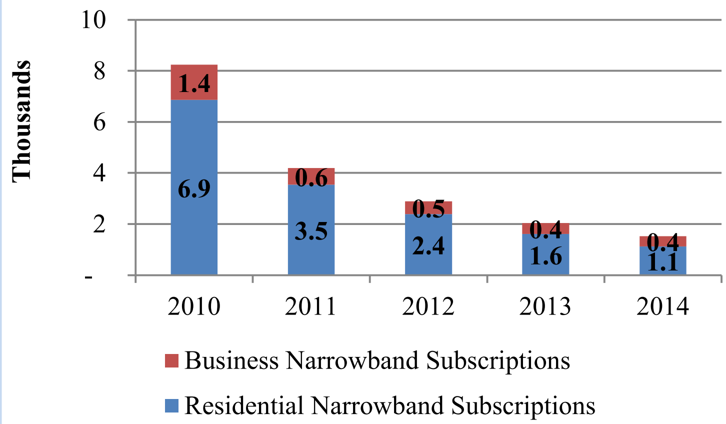
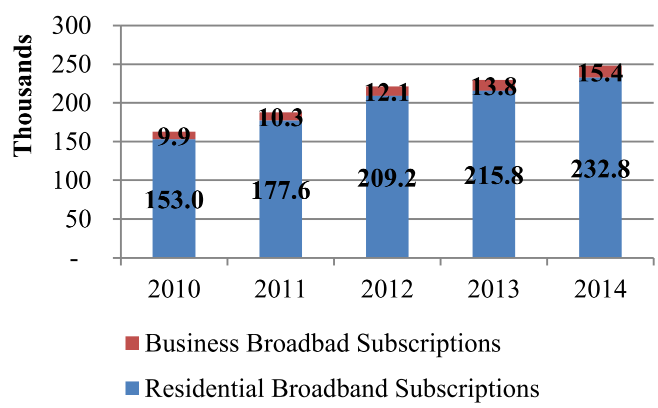


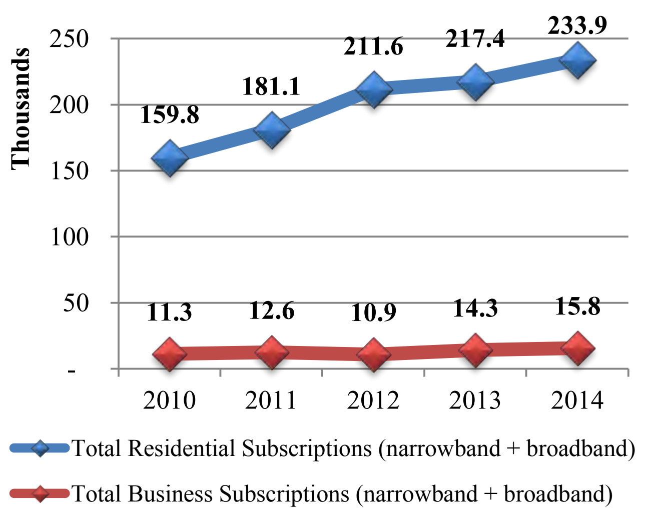
Figure 61: Residential and Business Fixed Broadband Internet Subscriptions – 2010 to 2014



Similarly, Figure 61 illustrates the proportion of business and residential subscriptions for broadband Internet. When both are compared to 2013, business subscriptions increased by 8 percent, recording 15.4 thousand in 2014. Up by 11 percent, residential broadband subscriptions stood at 232.8 thousand.

Figure 62 depicts a five year trend of total residential and business subscriptions for fixed Internet. Total residential subscriptions, including narrowband and broadband, amounted to approximately 233.9 thousand, growing by 7.6 percent or 16.5 thousand subscriptions from 2013. Total business subscriptions measured close to 15.8 thousand, increasing by 10.4 percent or 1.5 thousand subscriptions.

Figure 62: Total Residential and Business Fixed Internet Subscriptions – 2010 to 2014



4.1.2. RESIDENTIAL FIXED BROADBAND INTERNET SUBSCRIPTIONS BY SPEED

Residential broadband customers subscribed to Internet speeds from 256kbit/s up to 100Mbit/s. This section summarises residential broadband subscriptions into the following Internet speed categories:

- equal to or above 10 Mbit/s
- 2Mbit/s to less than 10Mbit/s
- 256kbit/s to less than 2Mbit/s

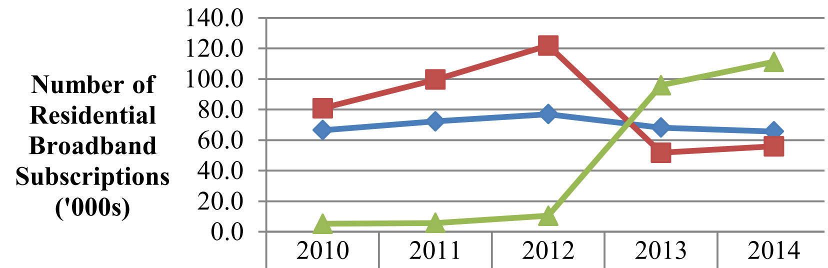
Broadband Internet speeds equal to or above 10 Mbit/s remained the most favourable choice for residential customers, as similarly observed in 2013. In this speed category, subscriptions experienced a significant increase of 16.0 percent, to record 111.3 thousand subscriptions at the end of 2014. This increase is subsequent to a sharp increase observed in 2013 (from 10.5 thousand in 2012 to 95.9 in 2013).

Internet speeds between 2Mbit/s to less than 10Mbit/s were the least popular among residential customers. Following a sharp fall from 121.8 thousand subscriptions in 2012 to 51.8 thousand subscriptions in 2013, subscriptions in this Internet speed category increased marginally by 8.0 percent to record 55.9 thousand subscriptions at the end of 2014.

The speed category between 256kbit/s to less than 2Mbit/s ranked second among the residential speed categories reviewed for 2014. Representing approximately 28 percent of total residential broadband subscriptions, this category recorded 65.6 thousand subscriptions as at December 2014, a 3.7 percent decrease from last year.

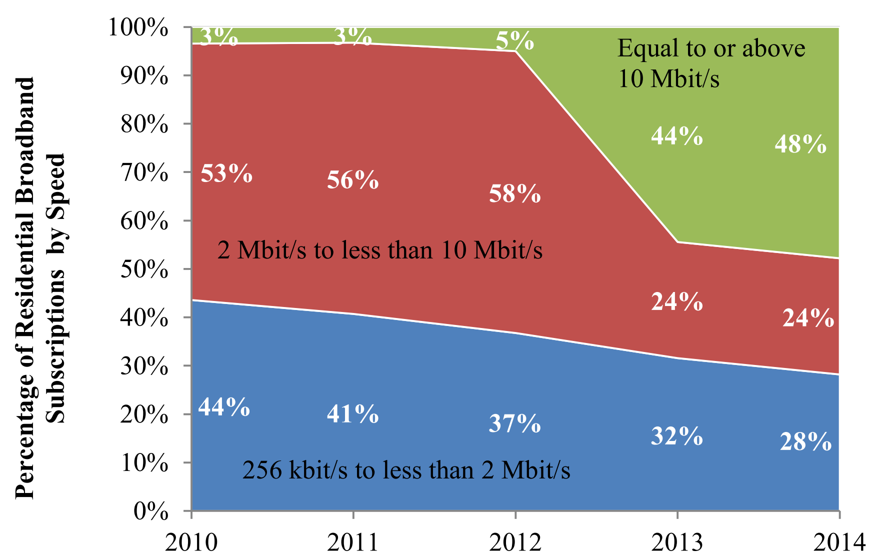
In addition to the noticeable increase in the uptake in speeds equal to or above 10 Mbit/s by residential broadband customers, the data also showed a likely movement of subscribers in the 256 kbit/s to less than 2 Mbit/s speed category to speeds equal to or above 10 Mbit/s. Accordingly, the proportion of customers in 256 kbit/s to less than 2 Mbit/s decreased to 28 percent when compared to 2013, while the speed category equal to or above 10 Mbit/s increased to 48 percent. The 2 Mbit/s to less than 10 Mbit/s speed category remained the same at 24 percent. Figure 63 below shows data for residential broadband customers, while Figure 64 depicts the proportion of same.

Figure 63: Number of Residential Broadband Subscriptions by Download Speed – 2010 to 2014



	2010	2011	2012	2013	2014
256 kbit/s to less than 2 Mbit/s	66.5	72.3	76.9	68.1	65.6
2 Mbit/s to less than 10 Mbit/s	80.8	99.5	121.8	51.8	55.9
Equal to or above 10 Mbit/s	5.3	5.8	10.5	95.9	111.3

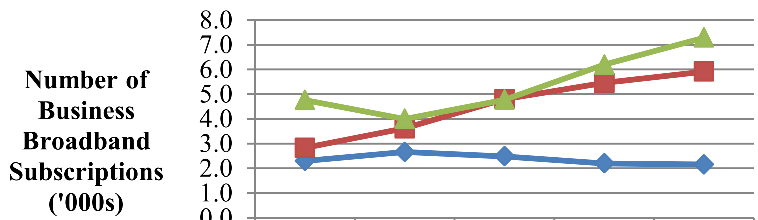
Figure 64: Proportion of Residential Broadband Subscriptions by Download Speed – 2010 to 2014



4.1.3. BUSINESS FIXED BROADBAND INTERNET SUBSCRIPTIONS BY SPEED

The number of business broadband customers subscribing to Internet speeds between 2 Mbit/s to less than 10Mbit/s, and to Internet speeds equal to or above 10Mbit/s, continued to rise gradually. The demand for these Internet speeds increased by 8.4 percent and 17.7 percent; recording 5.9 thousand and 7.3 thousand subscriptions, respectively. Broadband Internet speeds of 256kbit/s to less than 2Mbit/s were the least popular among business customers and remained constant when compared to 2013. Figure 65 shows the number of business broadband subscriptions by download speed.

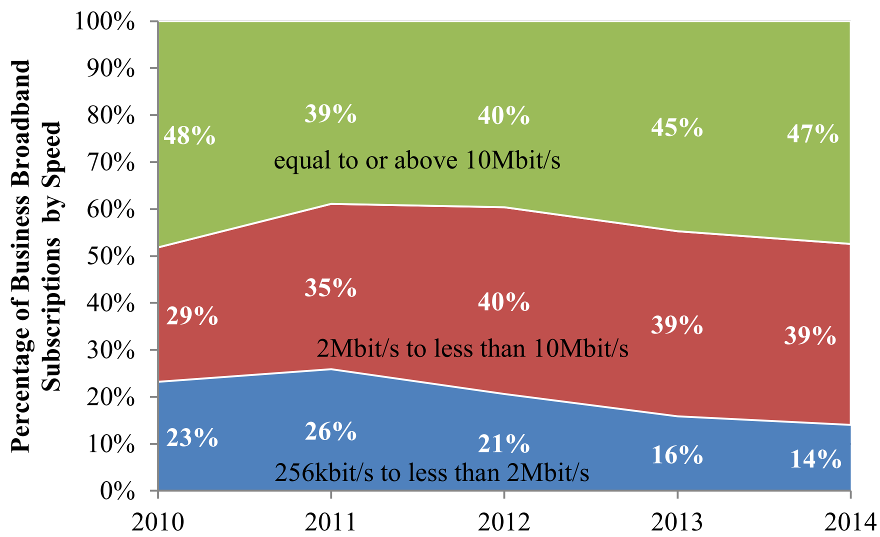
Figure 65: Number of Business Broadband Subscriptions by Download Speed – 2010 to 2014



	2010	2011	2012	2013	2014
256 kbit/s to less than 2 Mbit/s	2.3	2.7	2.5	2.2	2.2
2 Mbit/s to less than 10 Mbit/s	2.8	3.6	4.8	5.5	5.9
Equal to or above 10 Mbit/s	4.8	4.0	4.8	6.2	7.3

In 2014, the proportion of business broadband customers who utilised speeds between 2Mbit/s to less than 10Mbit/s and speeds equal to or above 10Mbit/s was approximately 39 percent and 47 percent respectively, as Figure 66 below illustrates. Cumulatively, it is noted that 86 percent of business broadband customers subscribed to speeds between 2Mbit/s to above 10Mbit/s.

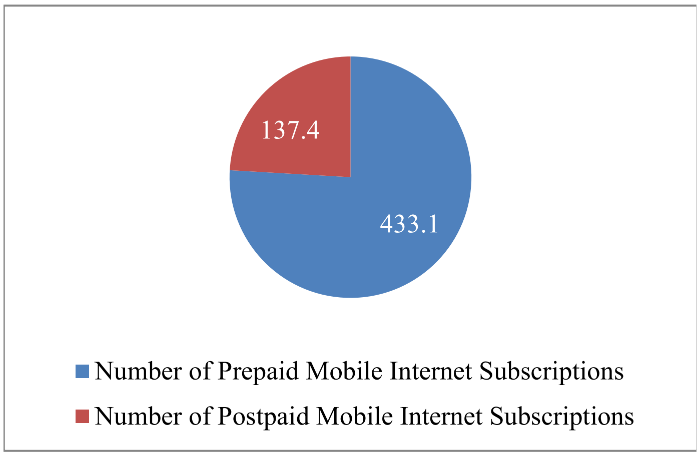
Figure 66: Proportion of Business Broadband Subscriptions by Download Speed – 2010 to 2014



4.2. MOBILE INTERNET USERS

With 1.98 million mobile voice subscriptions in 2014, approximately 1.43 million had the potential to use mobile data services on their handsets. However, only 570.5 thousand used mobile Internet services via their handset devices. Consistent with the proportion of prepaid mobile voice subscriptions, the number of prepaid mobile Internet users exceeded that of postpaid.

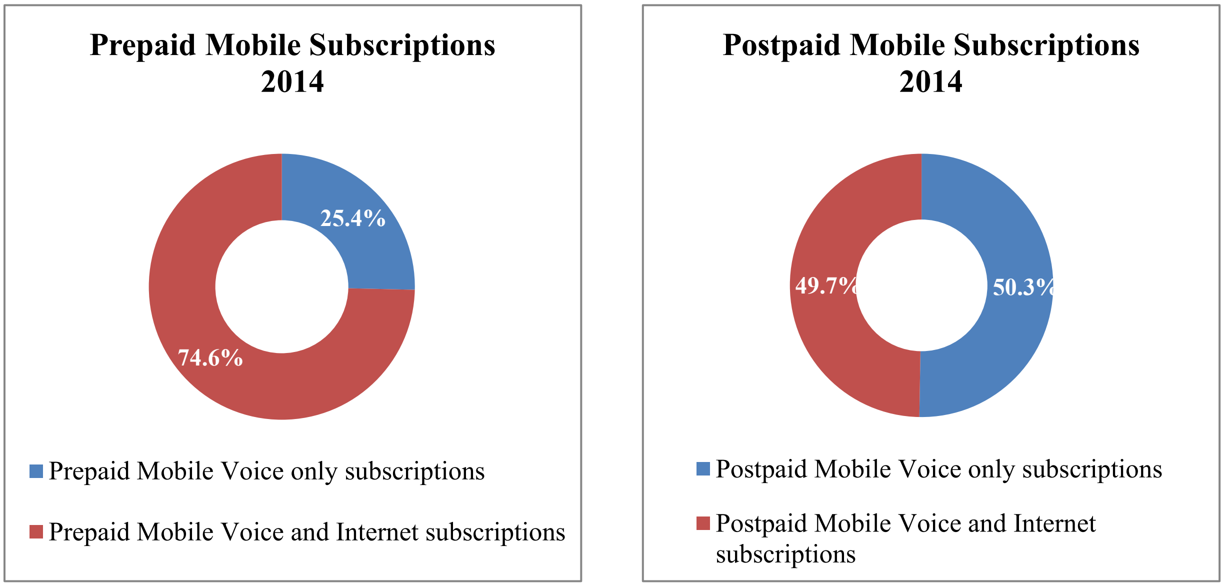
Figure 67: Mobile Internet Subscriptions by Prepaid and Postpaid – 2014



As shown in Figure 67, there were 433.1 thousand prepaid mobile Internet users compared to 137.4 thousand postpaid mobile Internet users at the end of 2014.

Although there were more prepaid mobile Internet users, it was noted that a greater proportion of postpaid subscriptions used mobile Internet in 2014. Out of the 1,707 thousand prepaid subscriptions (see Figure 32); only 25.4 percent used mobile Internet services. In contrast, out of the 273 thousand postpaid subscriptions (see Figure 32), 50.3 percent used mobile Internet services. This is illustrated in Figure 68 below, which compares prepaid and postpaid mobile subscriptions sub-divided by mobile voice only users and mobile voice and Internet users, for 2014.

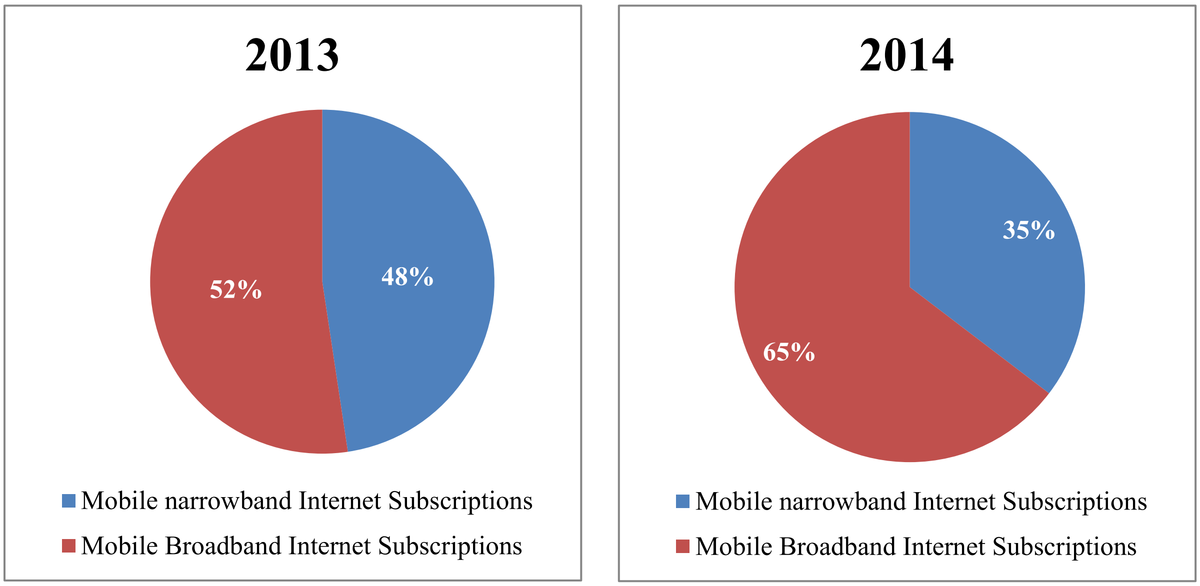
Figure 68: Comparison of Prepaid and Postpaid mobile Internet subscriptions 2014



Source: TATT

Reviewing the growth pattern of the mobile Internet market subsequent to the launch of mobile broadband Internet services to the public in 2012, it is anticipated that the demand for mobile broadband service by both prepaid and postpaid customers would continue to be favourable, with narrowband (2.5G) subscriptions remaining marginal. Mobile broadband Internet users now account for 65 percent of all mobile Internet users, as compared to the 52 percent recorded last year. At 48 percent in 2013, the proportion of narrowband internet users declined, now accounting for 35 percent of the market in 2014. Figure 69 illustrates below.

Figure 69: Percentage of 2G and Mobile broadband Internet 2013 - 2014



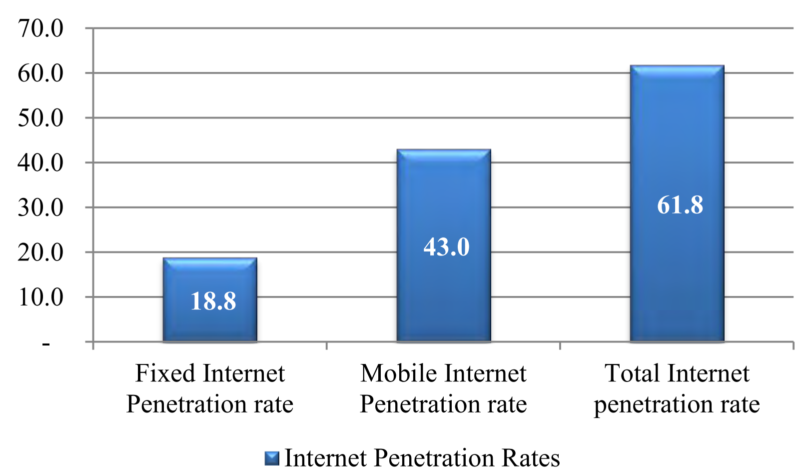
Source: TATT

4.3. INTERNET PENETRATION

In Trinidad and Tobago, approximately 18 out of every 100 persons had a fixed Internet subscription and 43 out of every 100 persons were using mobile Internet services at the end of 2014. For this period, fixed Internet penetration[41] and mobile Internet penetration[42] measured 18.8 and 43.0 respectively.

The above suggests that a consolidated Internet penetration rate of 61.8 was achieved. This implies that approximately 61 out of every 100 persons in Trinidad and Tobago had either a fixed Internet subscription and/or a mobile Internet subscription at the end of 2014. Figure 70 below highlights the Internet penetration in 2014.

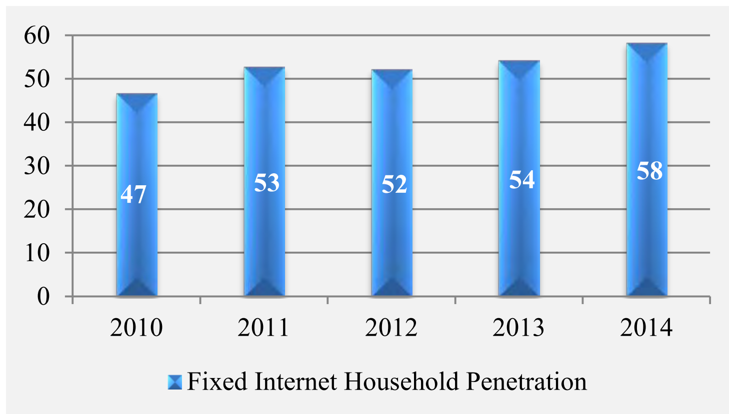
Figure 70: Fixed and Mobile Internet Penetration in 2014



[41] Fixed Internet penetration is calculated: (total number of Fixed Internet Subscriptions / Total Population) * 100
[42] Mobile Internet penetration is calculated: (total number of Prepaid and Postpaid Mobile Internet Subscriptions / Total Population number) * 100.

Conversely, Internet household penetration[43] is used to measure the proportion of households with a fixed Internet subscription. For 2014, Internet household penetration measured approximately 58.2. This indicated that approximately 58 out of every 100 households in Trinidad and Tobago subscribed to a fixed Internet service. Figure 71 depicts Internet household penetration for the period 2010 to 2014.

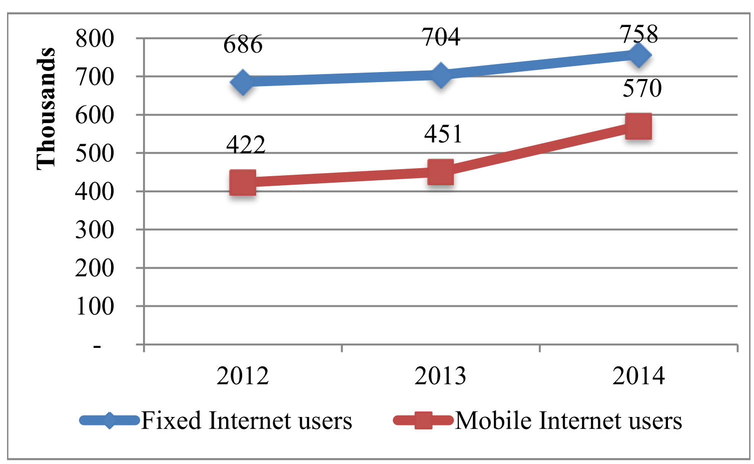
Figure 71: Internet Household Penetration – 2010 to 2014



4.3.1. INTERNET USERS

The number of Internet users[44] is another useful indicator to measure progress towards an Information society with universal access. The Authority estimates the number of fixed Internet users as the number of residential fixed Internet subscriptions for the year, multiplied by the average number of persons residing within a household[45]. For 2014, this approximates to 758 thousand

Figure 72: Fixed and Mobile Internet Users - 2010 to 2014

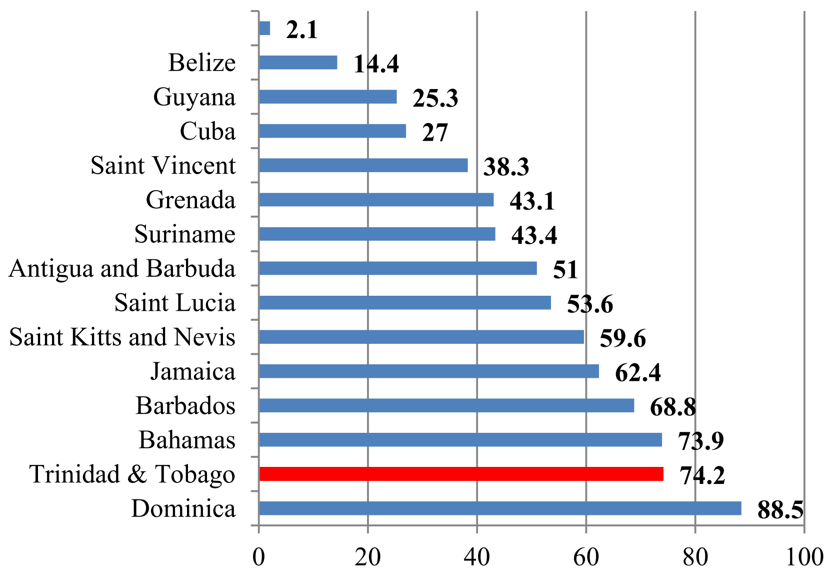


[43] Internet household penetration = (number of residential fixed Internet subscriptions / total number of households) * 100. The number of households increased from 343,180 in 2000 to 406,198 in 2012.
[44] Internet users are persons who regularly used Internet services. A person does not have to have a personal Internet subscription to be considered an Internet user. This indicator has been revised for the period 2010 to 2014.
[45] The Central Statistical Office estimated that an average of 3.24 persons reside within a household in its 2011 Census Report.

fixed Internet users. Additionally, there were 570 thousand mobile Internet users. It is noted that fixed Internet users may also be mobile Internet users. Figure 72 above shows the growth in number of the Fixed and Mobile Internet users over the last three years.

Compared regionally, Trinidad and Tobago ranked second in terms of Internet users per 100 inhabitants. According to data from Business Monitor International, approximately 74 out of every 100 persons in Trinidad and Tobago use the Internet. Dominica ranked first with 88 Internet users per 100 inhabitants. Bahamas and Barbados followed behind with 73.9 and 68.8 respectively. Figure 73 illustrates.

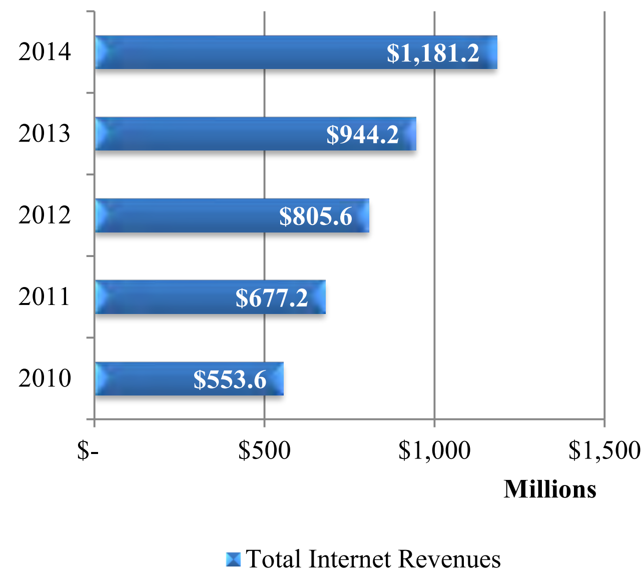
Figure 73: Internet users per 100 inhabitants among CARICOM Countries - 2014



Source: Business Monitor International.

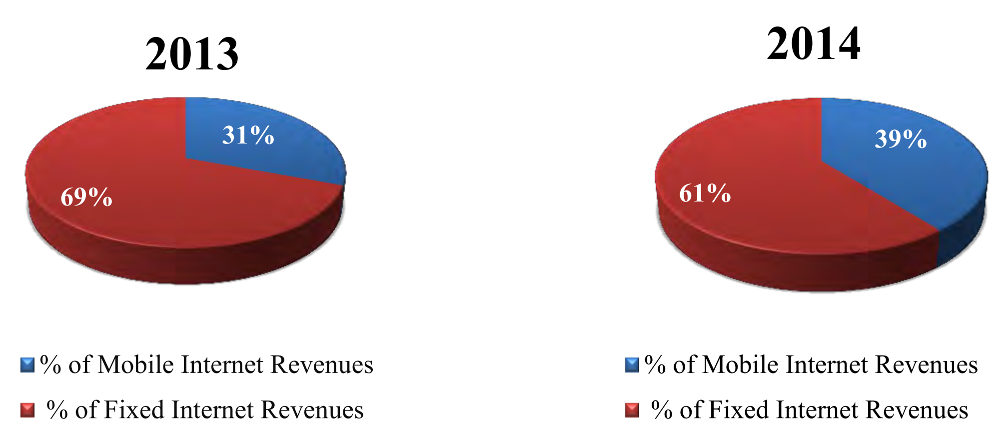
4.4. TOTAL INTERNET REVENUES

Figure 74: Total Internet Revenues 2010-2014



Fixed and mobile (prepaid and postpaid) Internet services generated TT$1,181.8 million in revenues for 2014. The continued rise in revenues is attributed to the favourable growth in both fixed and mobile Internet subscriptions. Revenues increase by TT$237.0 million or 25.1 percent, when compared to 2013. Figure 74 shows the upward trend in Internet revenues from 2010 to 2014, while Figure 75 depicts the proportion of fixed and mobile contribution to total Internet revenue over the last two years. Mobile Internet revenues contributed 39 percent to total Internet revenues in 2014, up from 31 percent in 2013. This may be attributed to the significant increase in the number of mobile Internet subscriptions.

Figure 75: Percentage of Fixed and Mobile Contributions to Internet Revenues 2012 - 2013



Source: TATT

4.4.1. FIXED INTERNET REVENUES

For the period under review, the total estimated gross revenues for the fixed Internet market amounted to TT$715.5 million; an increase of TT$60.5 million or 9.2 percent from the previous year. Of this total, narrowband Internet accounted for TT$4.2 million while broadband Internet contributed TT$711.3 million. As the migration of subscriptions from narrowband to broadband services continues, fixed narrowband revenues fell by TT$0.7 million or 15.7 percent. Fixed broadband revenues remained the main revenue generator in this market, growing steadily by TT$61.2 million or 9.4 percent when compared to the 2013 period. Figure 76 shows the annual revenue trend in the fixed Internet market over the last five years, while Figure 77 compares narrowband and broadband revenues for the same period.

Figure 76: Fixed Internet Revenues – 2010 to 2014

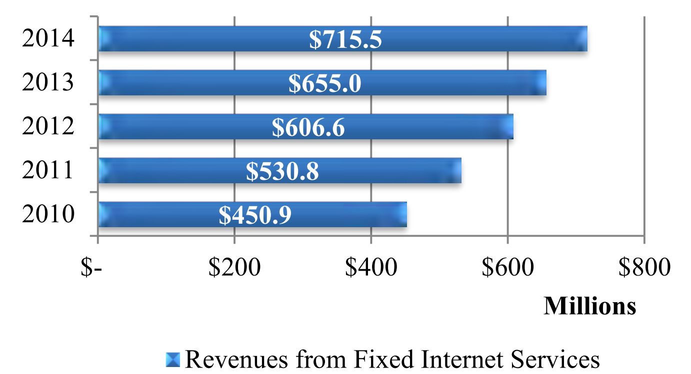


Figure 77: Revenues from Fixed Narrowband and Broadband Subscriptions – 2010 to 2014

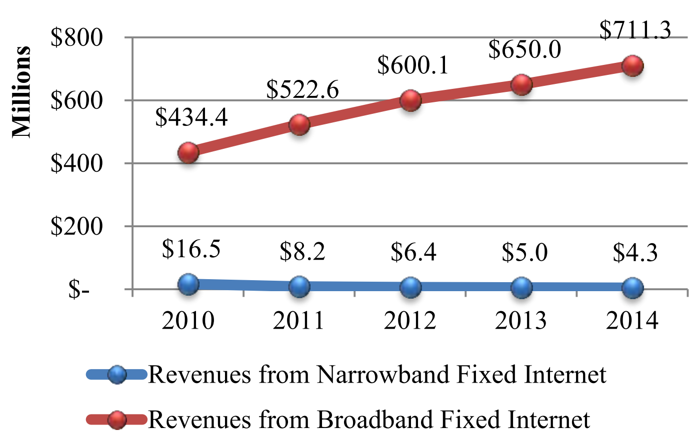
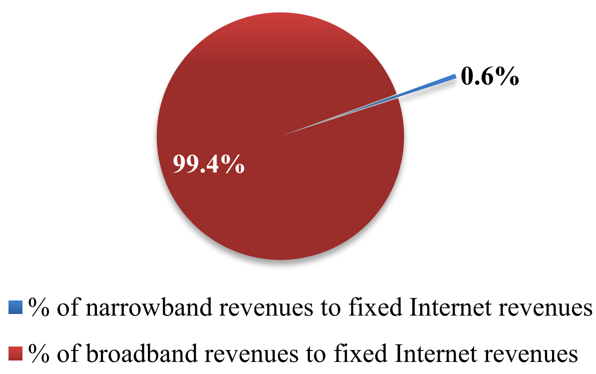
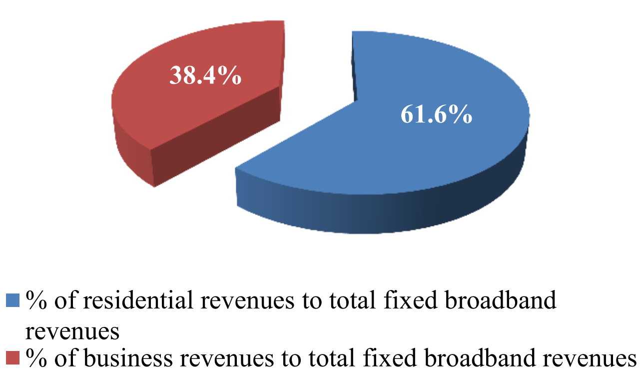


Figure 78: Percentage of Narrowband and Broadband Revenues 2014



Conclusively, broadband Internet is the predominant choice of service in the market, contributing almost 100 percent of total fixed internet revenues. Of these revenues, broadband Internet and narrowband Internet contributed 99.4 percent and 0.6 percent respectively in 2014. This is portrayed in Figure 78.

Figure 79: Broadband Revenues by Residential and Business 2014

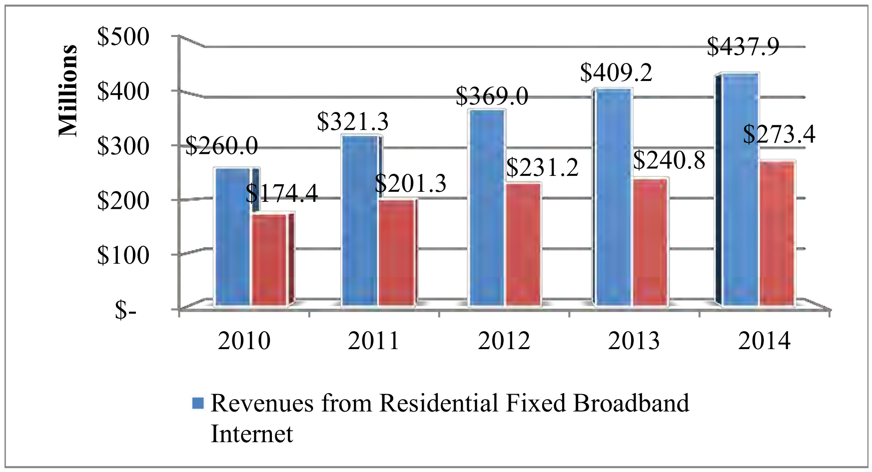


As shown in Figure 79, revenues generated from residential fixed broadband Internet subscriptions accounted for the majority of fixed broadband revenues. Of these revenues, residential broadband subscriptions contributed 61.6 percent (TT$437.8 million), while revenues from business broadband subscriptions totalled 38.4 percent (TT$ $273.4 million).

INTERNET MARKET REVIEW

Over the five year period 2010-2014, a steady upward trend was observed for both residential and business fixed broadband Internet. In 2013, residential fixed broadband revenues experienced a higher growth rate than business fixed broadband revenues. However in 2014, the growth in business fixed broadband revenues was higher than that of residential fixed broadband. Business fixed broadband revenues increased by 13.5 percent, while residential fixed broadband revenues increased by 7.0 percent in 2014. Figure 80 shows the upward trend in fixed broadband revenues for both categories over the last five years.

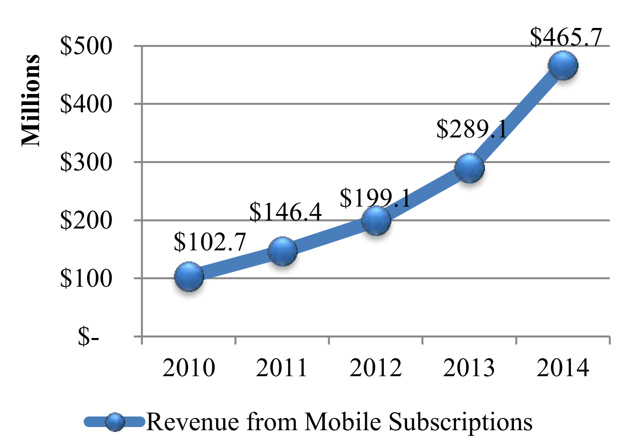
Figure 80: Revenues from Residential and Business Fixed Broadband Subscriptions – 2010 to 2014



4.4.2. MOBILE INTERNET REVENUES

The revenue generated from mobile Internet service has become a significant contributor to revenues in the Internet market. Continuing with its trend of double digit growth over the past four years, total gross revenues from mobile Internet services maintained its strong growth rate in 2014. Mobile Internet revenues rose sharply from TT$289 in 2013 to TT$465.7 in 2014; a 61.1 percentage growth. Figure 81 highlights the annual trend for total revenues generated by mobile Internet users.

Figure 81: Total Mobile Internet Revenues – 2010 to 2014



Of total mobile Internet revenues, prepaid and postpaid mobile Internet subscriptions totalled TT$127.2 million (27.3 percent) and TT$338.5 million (72.7 percent), respectively. Although there was a greater number of prepaid mobile internet users, the revenue generated from postpaid mobile internet users exceeded that of prepaid. Figure 82 shows the prepaid and postpaid revenues earned from 2010 to 2014, while Figure 83 depicts the proportion of prepaid and postpaid mobile Internet revenues for 2014.

Figure 82: Revenues from Prepaid and Postpaid Mobile Internet Subscriptions – 2010 to 2014

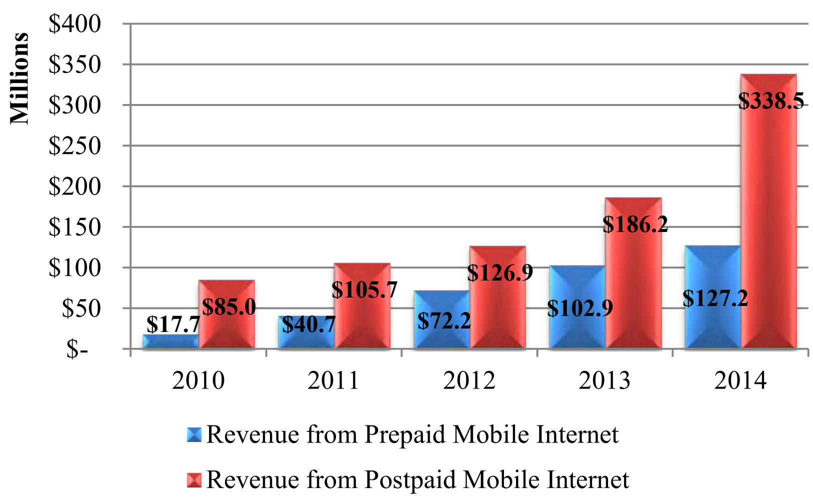
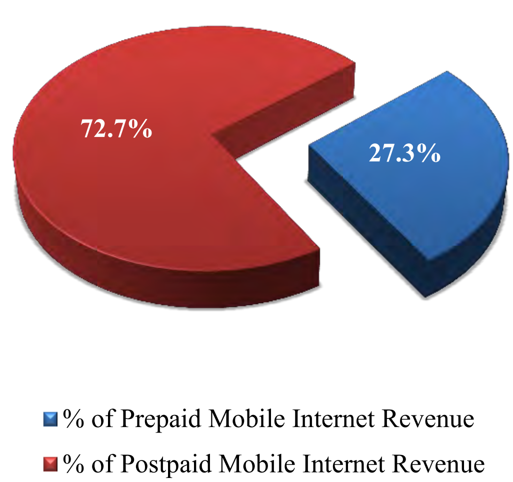


Figure 83: Percentage of Prepaid and Postpaid Mobile Internet Revenues in 2014



4.5. FIXED INTERNET MARKET CONCENTRATION

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration in the fixed Internet market[46] of Trinidad and Tobago for 2014. The level of concentration at the end of the year stood at 4,874.2 with an average of 4,851 for the entire year. This represented a 1.4 percent decrease over the previous year. As reflected in Figure 84, the HHI decreased slightly during the year and subsequently peaked in the last quarter.

Figure 85: Hirschman-Herfindahl Index of Fixed Internet Market January–December 201

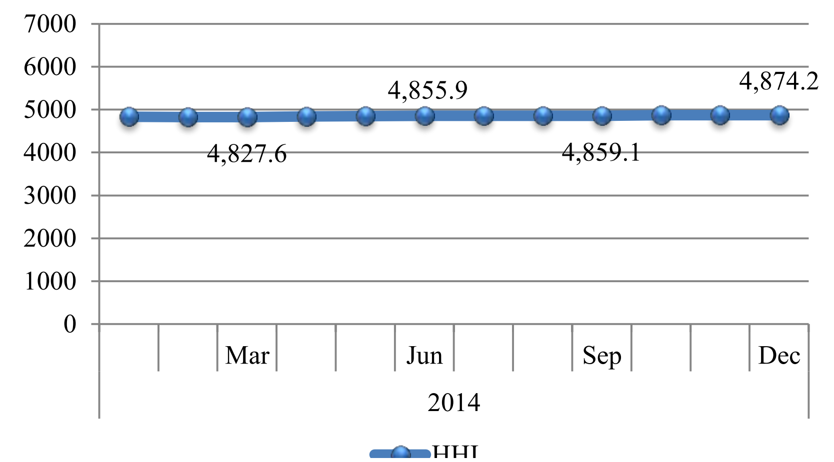
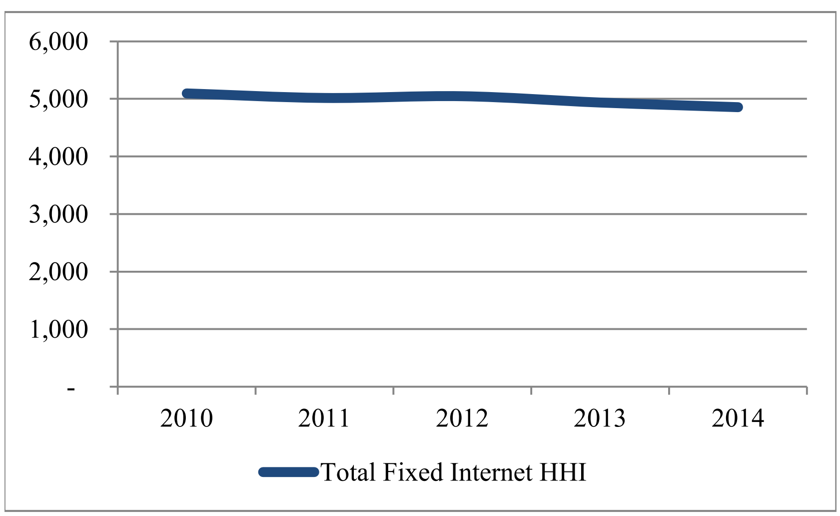


Figure 84: 4 HHI of Total Fixed Internet Services – 2010 to 2014



Annual fixed Internet HHI has been fairly stable with marginal movements being observed during the 2010 to 2014 period. Overall, a slight downward trend in the level of concentration was observed over the five year period; Figure 85 illustrates.

[46] Subscriber market share was used in the calculation of the HHI.

4.5.1. HHI FOR BROADBAND AND NARROWBAND SERVICES

The HHI for the fixed broadband market and the fixed narrowband market was separately examined to determine the level of concentration in both types of service. The results showed that the fixed narrowband market is more concentrated than the fixed broadband market. The calculation for fixed broadband services showed an average HHI of 4,867.6 during 2014. The level of concentration in this market decreased minimally during the first half of 2014, with steady quarter on quarter increases being observed for the rest of the year. As Figure 86 shows, the HHI peaked at 4,883.5 in December 2014.

Figure 86: HHI for Fixed Broadband Services 2014

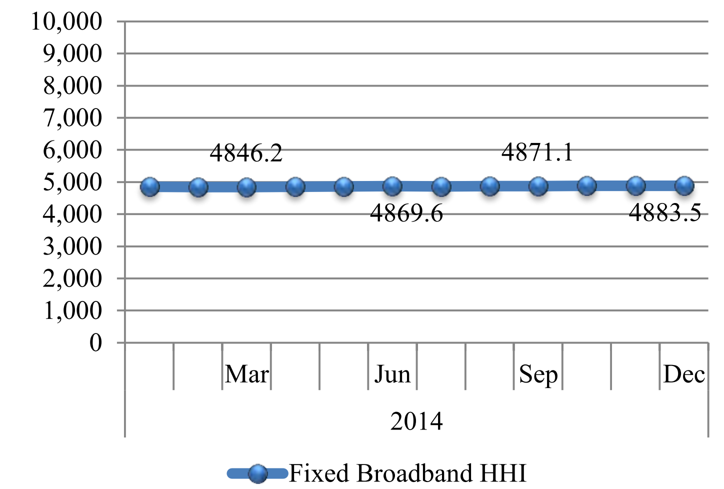
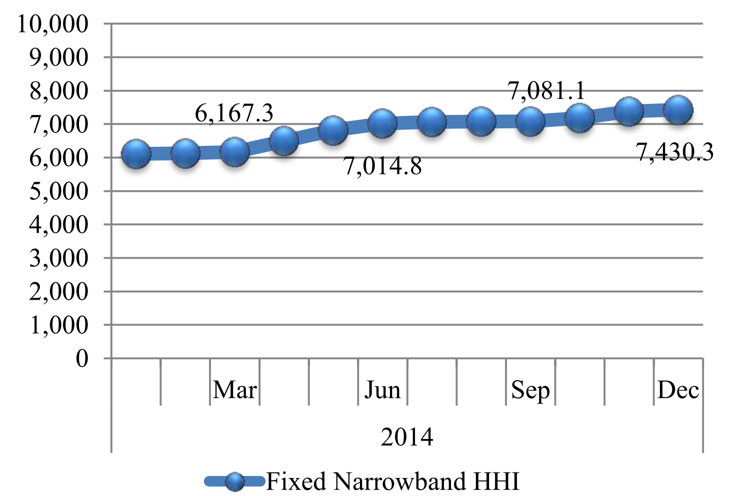


Figure 87: HHI for Fixed Narrowband Services 2014



The fixed narrowband Internet market recorded an average HHI of 6,923.3 in 2014. The level of concentration, as measured by the HHI, fluctuated during the year; peaking at 7,430.3 in the fourth quarter. Figure 87 illustrates the fixed narrowband HHI throughout the year.

The HHI in the fixed broadband Internet market has been relatively stable over the last five years, but with a slight decrease observed over the period, as illustrated in Figure 88 below. The level of concentration in the fixed narrowband market was relatively stable from 2010 to 2012. Thereafter, a marked increase was observed in the level of concentration from 2013 to 2014, as illustrated in Figure 89 below.

Figure 88; HHI of Fixed Broadband Services - 2010 to 2014

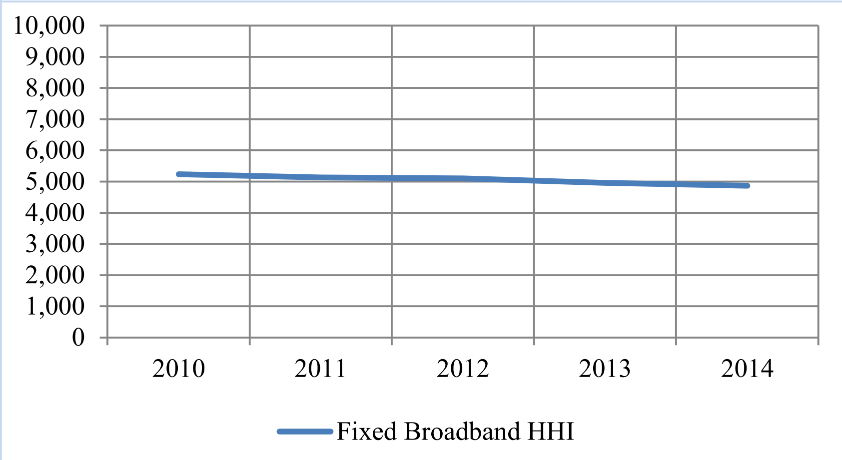
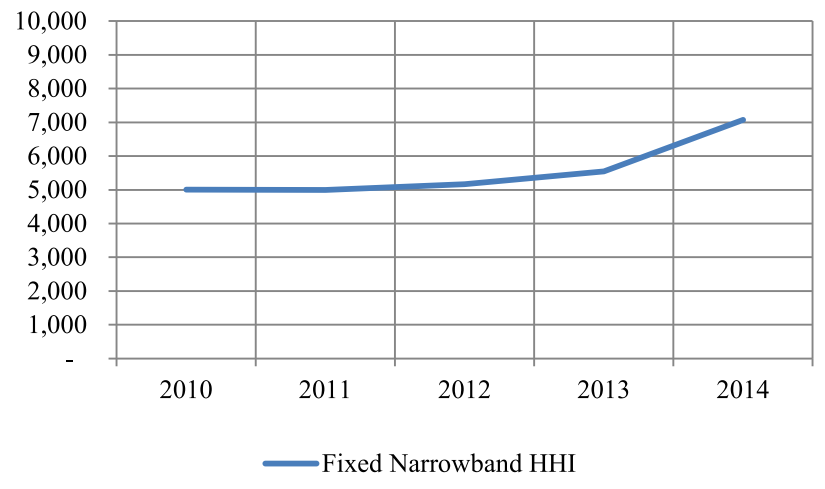


Figure 89: HHI of Fixed Narrowband Services – 2010 to 2014



4.6. AVERAGE REVENUE PER USER (ARPU)

Figure 91: ARPU for Total Internet Services – 2010 to 2014

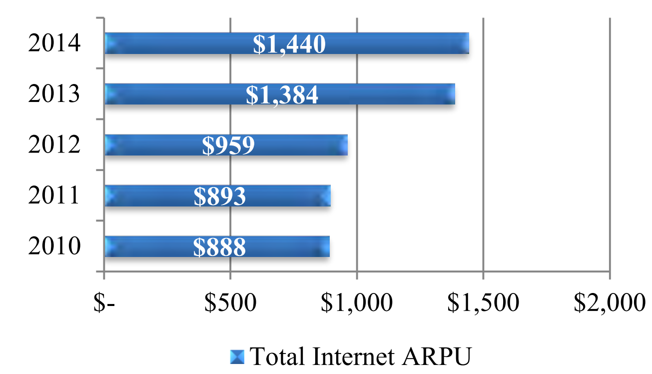
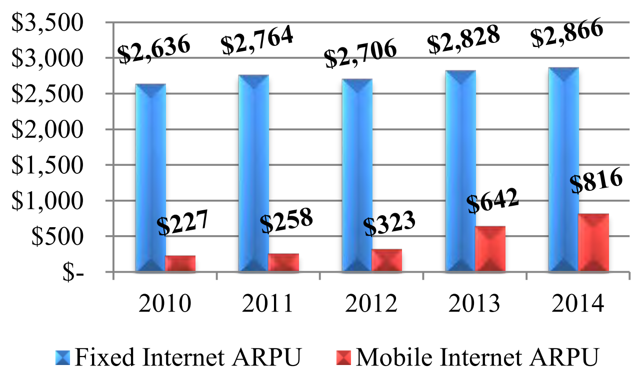


Figure 90: ARPU for Fixed and Mobile Internet Services – 2010 to 2014



Average revenue per user[47] in the Internet market increased, as the growth in total Internet revenues exceeded the growth in total Internet subscriptions in 2014. During the review period, customers with Internet (fixed and mobile) subscriptions spent an average of TT$1,440 for Internet services; an increase of $56.25 or 4.1 percent when compared to 2013. A significant proportion of this increase is the ARPU for mobile Internet. Fixed Internet ARPU saw a marginal increase of TT$39, with customers spending approximately TT$2,866[48] during 2014. For mobile Internet services, customers spent an average of TT$816[49] in 2014, a sharp increase of TT$174.73. This may be attributed to the marked increase in mobile Internet users and consequently mobile Internet revenues observed in this period. Figures 90 and 91 show the ARPU trends for the individual categories over the last five years.

[47] ARPU for fixed and mobile Internet subscriptions combined.
[48] 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)
[49] 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)

INTERNATIONAL MARKET REVIEW

Key Market trends and Observations in the International Voice Market

- **Minimal decrease in incoming International voice minutes by 0.3%.**
- **3.5% increase in outgoing international voice minutes.**
- **Total International voice revenues decrease by 5%.**

5. INTERNATIONAL VOICE TRAFFIC DATA

Ten (10) concessionaires were authorised to provide international telecommunications services to the public in 2014, which included the provision of international voice services. These operators included:

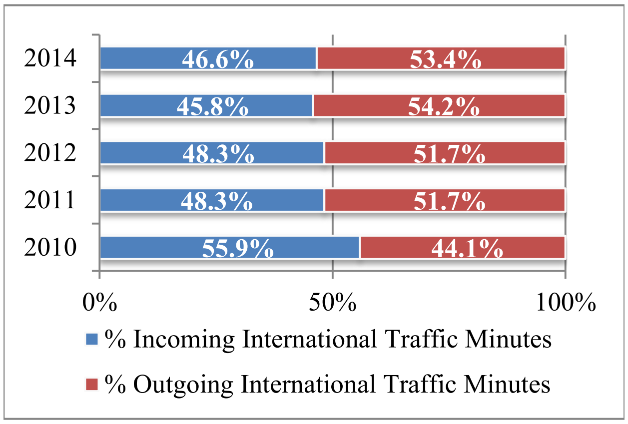
- Telecommunications Services of Trinidad and Tobago, TSTT;
- Digicel (Trinidad and Tobago) Limited;
- Open Telecom;
- Massy Communications Limited;
- Lisa Communications Limited;
- Columbus Communications Trinidad Limited;
- Windward Telecoms Limited;
- Green Dot Limited;
- Laqtel Limited; and
- Massy Technologies Limited.

However, Green Dot Limited, Massy Technologies Limited, Windward Telecoms Limited and Laqtel Limited were not operational in the international voice market for the review period. The Authority had not received any information from Open Telecom.

INTERNATIONAL MARKET REVIEW

5.1. INTERNATIONAL VOICE TRAFFIC (INCOMING AND OUTGOING MINUTES)

Figure 92: Incoming and Outgoing International Traffic (Minutes) - 2010 to 2014



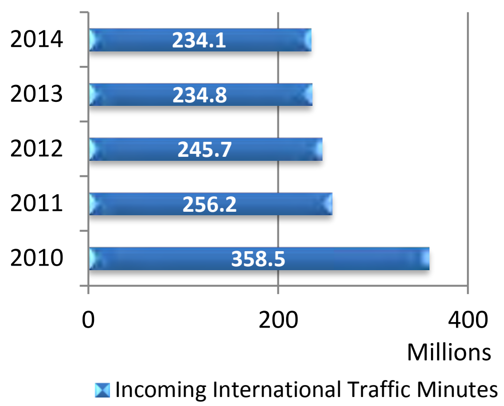
Source: TATT

In 2014, the proportion of minutes generated by outgoing international calls surpassed the proportion of minutes generated by incoming international calls. Outgoing traffic (minutes) accounted for 53.4 percent of total international minutes while incoming minutes comprised the remaining 46.6 percent. Figure 92 illustrates the proportion of incoming traffic compared to outgoing traffic over the past five years.

As shown in Figure 93, incoming traffic volumes continued its downward trend over the period 2010-2014, and, albeit the percentage decrease observed in 2014, was significantly less than that experienced in previous years. Down by only 0.3 percent (724 thousand minutes), incoming minutes recorded 234.1 million minutes in 2014.

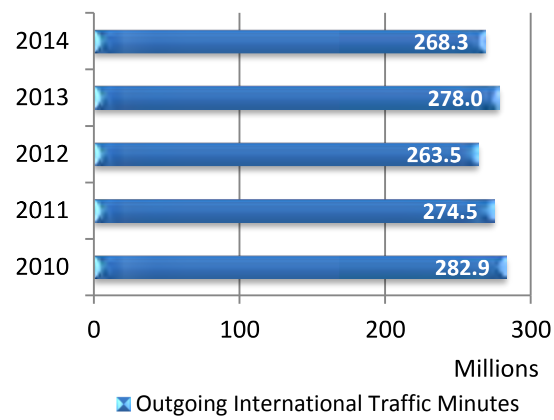
Outgoing international minutes fluctuated over the period; Figure 94 highlights the increases and decreases in these minutes. Subsequent to an increase in minutes from 263.5 minutes in 2012 to 278.0 in 2013, outgoing minutes decreased by 3.5 percent (9.6 million minutes) to record 268.3 million minutes in 2014. The decrease in the volume of international outgoing minutes may be indicative, inter alia, of consumers increasing use alternative technologies to conduct international communications with persons outside Trinidad and Tobago.

Figure 93: Outgoing International Traffic (Minutes) – 2010 to 2014



Source: TATT

Figure 94: Incoming International Traffic (Minutes) – 2010 to 2014

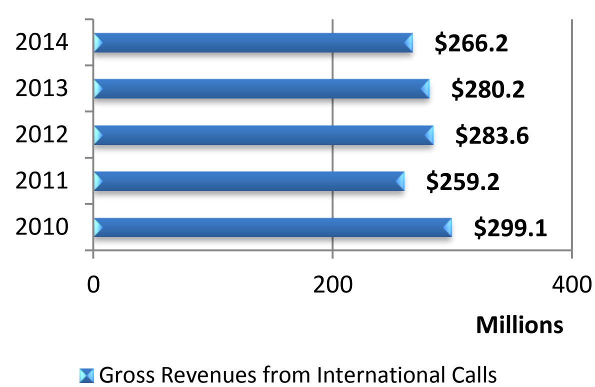


Source: TATT

5.2. INTERNATIONAL TRAFFIC REVENUES

Gross revenues [50] generated by incoming and outgoing international telecommunications voice services decreased in 2014. Revenues in this market fell by approximately TT$14 million or 5.0 per cent when compared to the previous year, recording TT$266.2 million in 2014. Figure 95 depicts the trend in revenues generated by the international voice market from 2010 to 2014.

Figure 95: Gross Revenues from International (incoming and outgoing) voice services – 2010 to 2014

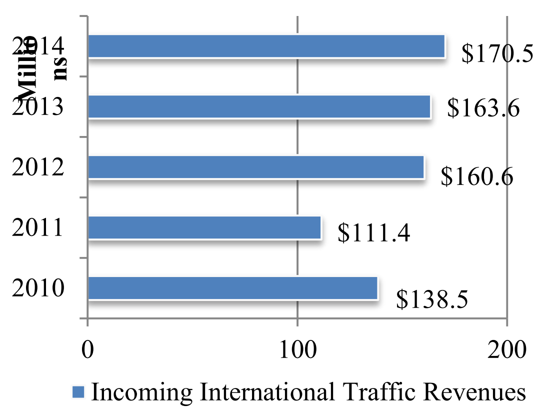


[50] Gross revenues refer to the total amount of money earned from international calls. Outgoing international call revenues are revenues earned from residents making calls from the domestic network to persons abroad. Incoming international revenues are the settlement revenues earned from foreign exchange carriers who pay service providers to terminate calls locally.

INTERNATIONAL MARKET REVIEW

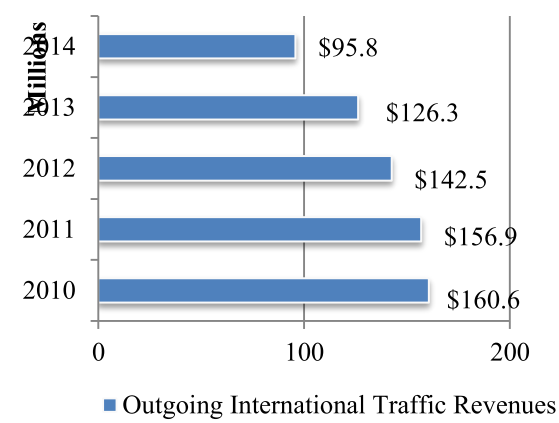
In reviewing the composition of international revenues, incoming international revenues increased to record TT$170.5, while outgoing international revenues decreased, recording TT$95.8. Notably, the fall in outgoing international revenues significantly outweighed the marginal increase in incoming international revenues from 2013 to 2014. While revenues earned from outgoing international revenues fell by 24.2 percent (TT$30.5 million), incoming international revenues increased by only 4.2 percent (TT$6.9 million). Incoming and Outgoing international voice revenues over the past five years are illustrated below in Figure 96 and 97 respectively.

Figure 96: Revenues from Incoming International Traffic (Minutes) – 2010 to 2014



Source: TATT

Figure 97: Revenues from Outgoing International Traffic (Minutes) – 2010 to 2014

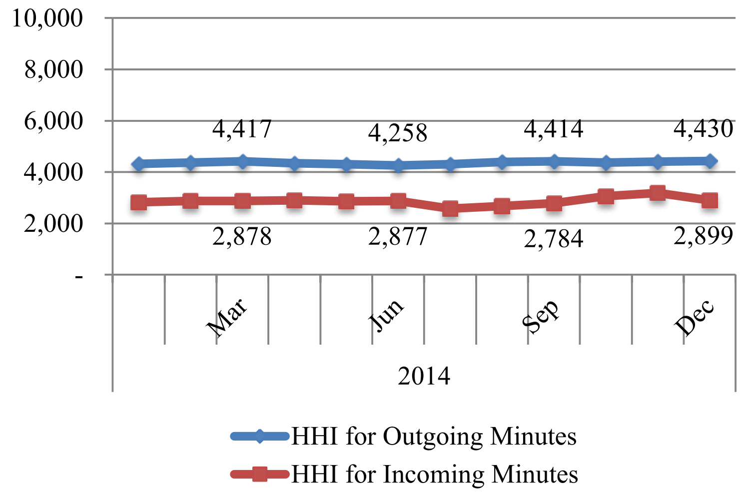


Source: TATT

5.3. INTERNATIONAL VOICE MARKET CONCENTRATION

The Authority calculated the level of concentration for the international voice market of Trinidad and Tobago. The market share used in the calculation of the Hirschman-Herfindahl Index (HHI) was defined in terms of the number of international outgoing and incoming minutes generated by the service providers. The HHI for the outgoing market stood at 4,430 at the end of the fourth quarter of 2014, while the incoming market computed a HHI of 2,899; evidently smaller than the outgoing value. This inferred that the international outgoing minutes' market was more concentrated than that of the incoming market. During the period, there was minimal variation in these HHI values. Figure 98 below shows the HHI values for outgoing and incoming minutes in the year 2014.

Figure 98: HHI of International Outgoing and Incoming Minutes – 2014



Key Market Trends and Observations in the Broadcasting Market

- **Free-to-Air Television and Radio revenues decreased by 3.0% and 2.1 % respectively**
- **Pay TV Subscriptions increased by 9.3%**
- **There are 2228.8 thousand subscribers to Pay TV services**
- **17 out of every 100 persons and 56 out of every 100 households subscribe to Pay TV.**

6. BROADCASTING MARKET DATA

Reviewing Trinidad and Tobago's Broadcasting Market for 2014, there were eight (8) concessions granted in the Free-to-Air television market, thirteen (13) in the subscription television market, thirty-nine (39) in the Free-to-Air radio market and seven (7) concessions granted to provide television broadcasting services via cable. Table 4 below gives a breakdown of the number of concessions in the broadcasting market from 2010 to 2014.

Table 6: Number of Concessions in the Broadcasting Market – 2010 to 2014

	Number of Concessions				
Types of Broadcasting Concessions	**2010**	**2011**	**2012**	**2013**	**2014**
Free-to-Air Television	**9**	**9**	**9**	**9**	**8**
National[51]	6	6	6	6	6
Major Territorial[52]	3	3	3	3	2
Subscription Television	**9**	**9**	**10**	**11**	**13**
National[53]	4	4	4	5	7
Major Territorial	1	1	1	1	1
Niche[54]	3	3	4	4	4
Minor Territorial	1	1	1	1	1
TV Broadcasting via Cable	**1**	**1**	**2**	**6**	**7**
National	1	1	2	6	6
Major Territorial					1
Free-to-Air Radio	**37**	**37**	**38**	**39**	**39**
National	30	30	30	31	31
Major Territorial	6	6	6	6	6
Minor/ Niche Territorial	1	1	2	2	2
Total	56	56	59	65	67

Source: TATT

[51] A national operator provides its network and/or service to 100% of the geographical area of both Trinidad and Tobago.
[52] A major territorial operator provides its network and /or service to 100% of the geographical area of the island of Trinidad.
[53] A minor territorial operator provides its network and/ or service to 100% of the geographical area of the island of Tobago.
[54] A niche operator provides its services to specific groups of subscribers identified by the Authority in either island of Trinidad or Tobago.

BROADCASTING MARKET REVIEW

6.1. FREE-TO-AIR TELEVISION BROADCASTING MARKET

In 2014, the market for Free-to-Air TV broadcasting service comprised eight (8) operational concessionaires. They were:

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

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

- IETV Limited,
- IBN Communications Company Limited,
- Central Broadcasting Services Limited,
- Living Water Community,
- Darut Tarbiyah,
- Sankhya Television Limited, and
- Gayelle Limited.

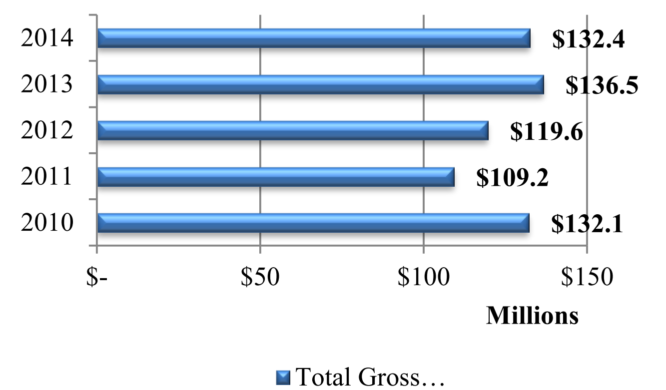
This section provides information on the performance of both the Free-to-Air and the television broadcasting services via cable markets. Thus, all references to Free-to-Air television below include the Free-to-Air market and the television broadcasting services via cable[55] market.

[55] At the time of publication, data was outstanding from WINTV and Central Broadcasting Services Limited (television division) for the period January to December 2014.

6.1.1. FREE-TO-AIR TELEVISION REVENUES

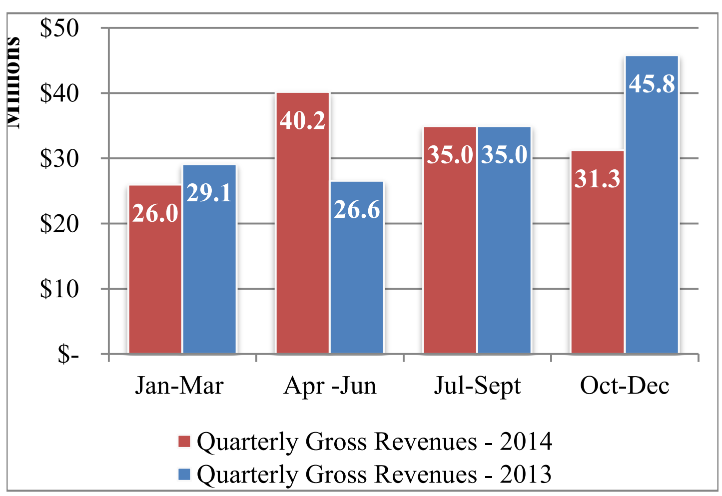
Following two consecutive years of growth, gross revenues in the Free-to-Air television market decreased in 2014. Down by 3.0 percent when compared to 2013, total gross revenues for this market amounted to TT$132.4 million in 2014. As illustrated in Figure 99, revenues for the Free-to-Air television broadcasting market fluctuated over the past five years.

Figure 99: Gross Revenues for Free-to-Air Television Broadcasting Service Providers – 2010 to 2014



Quarterly gross revenues earned in the Free-to-Air television market for 2013 and 2014 are compared in Figure 100 below. When quarterly earnings for 2013 and 2014 were compared, it was observed that quarter on quarter increases and decreases in revenues were relatively small with the exception of the second and fourth quarters. Compared to the previous year, revenues generated in the second quarter of 2014, increased by TT$13.6 million; a 34 percent growth in revenues for this quarter. A similar comparison of revenues generated in the fourth quarter of 2014, revealed a decrease by TT$14.5 million; a 32 percent reduction in revenues for this

Figure 100: Quarterly Gross Revenues Free-to-Air Television Service Providers 2013 and 2014

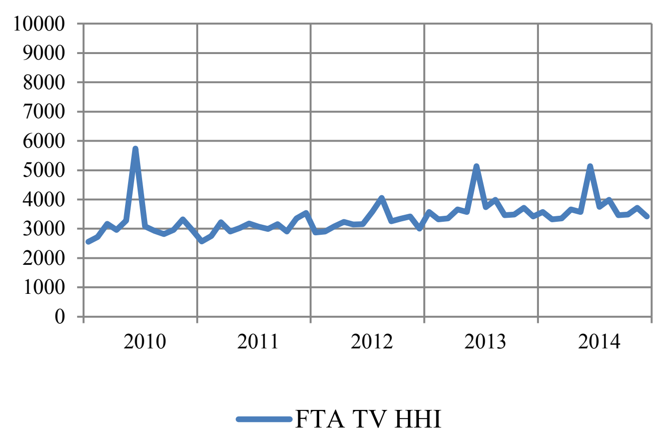


quarter.

6.1.2. MARKET CONCENTRATION FREE-TO-AIR TELEVISION

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the Free-to-Air television broadcasting market[56] based on revenues generated in this market. Subsequent to the sharp increase in the HHI for Free-to-Air television in 2010, this market continued to experience small fluctuations with two smaller peaks being observed in 2013 and 2014. Figure 101 illustrates these fluctuations over the last five year period.

Figure 101: HHI for Free-to-Air Television Market 2010 to 2014

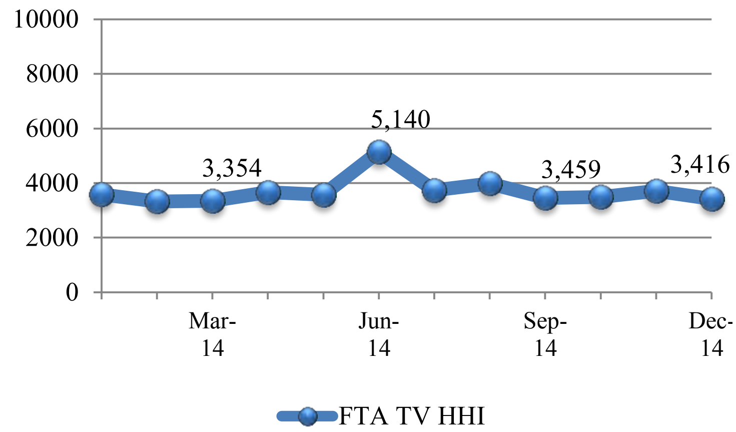


As at December 2014, this market had an HHI value of 3,416 points; 707 points less than the HHI calculated for the same period of 2013. During 2014, the Free-to-Air television market recorded a twelve month average HHI of 3,703; an increase of 228 points when compared to the average HHI in 2013. Overall, this suggests that the Free-to-Air television market was more concentrated in 2014 when compared to 2013.

[56] The revenue market share was used in the calculation of the HHI.

The HHI, as depicted in Figure 102, peaked noticeably in the second quarter while the level of concentration in the market was relatively stable in the other quarters.

Figure 102: HHI for Free-to-Air Television Broadcasting Market – 2014



6.2. FREE-TO-AIR RADIO BROADCASTING MARKET

In 2014, the Free-to-Air radio broadcasting market consisted of one (1) AM and thirty-eight (38) FM concessions. Two (2) concessionaires, Trico Industries and Sidewalk Radio Limited[57] were not operational during this period. It is noted that some concessionaires held more than one concession, and as a result, operated more than one radio station.

During 2014, the Free-to-Air radio broadcasting market earned an estimated TT$181.8 million[58] in gross revenues. This represented a 2.5 percent or TT$4.2 million decrease, when compared to gross revenues generated in 2013. Revenue earnings in the Free-to-Air radio market for the past five years are compared in Figure 103.

Figure 103: Gross Revenues for Free-to-Air Radio Service Providers – 2010 to 2014

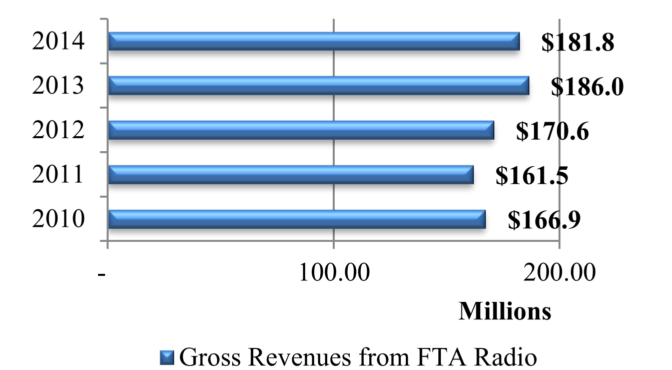
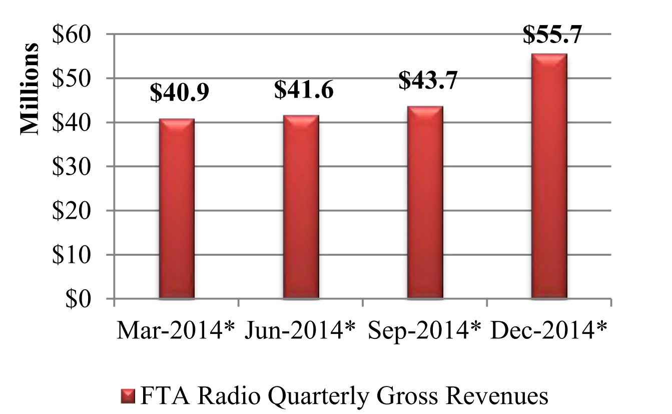


Figure 104 highlights the quarterly gross revenues earned by concessionaires in the Free-to-Air radio market during 2014. Gross revenues generated increased steadily during the first three quarters of 2014, increasing sharply by 27 percent in the fourth

Figure 104: Quarterly Gross Revenues for Free-to-Air Radio Service Providers – 2014



[57] Concessions obligations to Sidewalk Radio Limited have been novated to Radio Five Limited
[58] At the data publication, the following concessionaires did not submit data for several quarters during 2014: Upward Trend Entertainment Limited, Neil "Iwer" George, Mohan Jaikaran, Kaisoca Productions Limited and 21st Century Arts and Entertainment Limited. Data for these operators were thus estimated based on historical data.

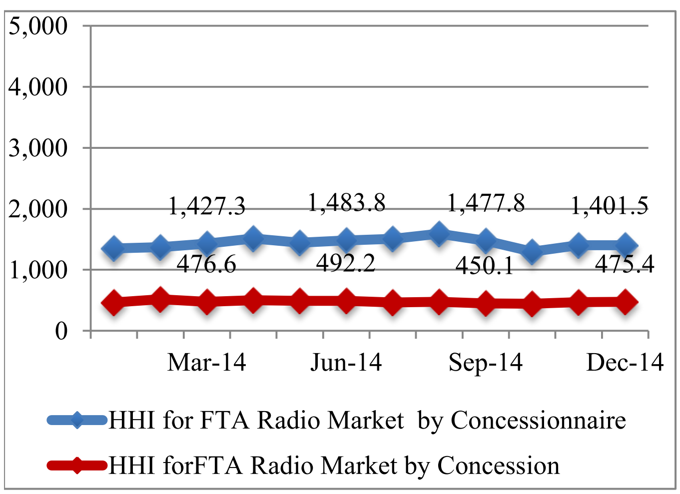
quarter to record TT$55.7 million. In the first quarter, gross revenues fell significantly by TT$14.1 million or 26 percent when compared to the fourth quarter of 2013. On average, gross revenues generated by the Free-to-Air radio market in 2014 were less than that generated in 2013. Down by approximately TT$1 million, gross revenues averaged approximately TT$47 million per quarter in 2014.

6.2.1. MARKET CONCENTRATION FREE-TO-AIR RADIO

Using the number of concessions and concessionaires in the market, the Authority calculated the level of concentration for the Free-to-Air radio broadcasting market[59].

Quarterly Hirschman-Herfindahl Index (HHI) values for 2014 are illustrated in Figure 105. At the end of 2014, the HHI based on the number of concessionaires increased, while the HHI based on the number of concessions decreased. As at the end of 2014, the former moved from 485.9 to 475.4 (a 2 percent decrease) and the latter moved from 1,282.8 to 1401.5 (a 9 percent increase).

Figure 105: HHI in the Free-to-Air Radio Broadcasting Market – 2014



[59] The revenue market share was used in the calculation of the HHI.

The average HHI values for 2014, based on the number of concessions and concessionaires in the market, were 478 and 1,439, respectively. A comparison of these two HHI values indicated that the market based on the number of concessionaires was more concentrated than the market based on the number of concessions.

Figure 106: HHI in the Free-to-Air Radio Broadcasting Market – 2010 to 2014

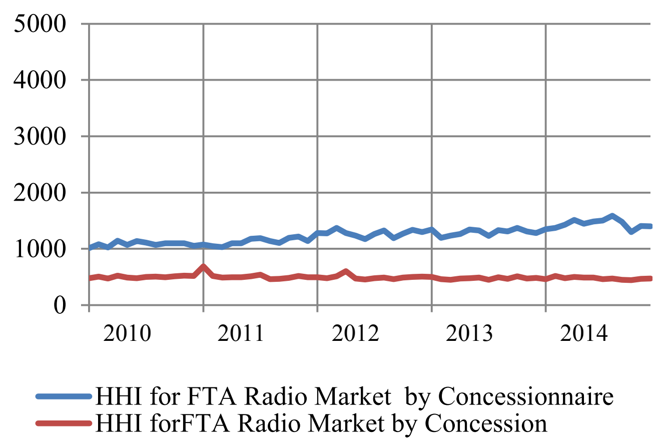


Figure 106 depicts the HHI trend in the Free-to-Air Radio Broadcasting Market for concessions and concessionaires over the past five years.

6.3. PAY TELEVISION ('SUBSCRIPTION TV') BROADCASTING MARKET

For the 2014 period the Pay TV market comprised thirteen (13) authorised service providers, eleven (11) of which were operational as at December 2014. These operators provided Pay TV services to varying coverage areas within Trinidad and Tobago, as listed in Table 7 below. Of these eleven (11) operators, seven (7) used Analogue technology to provide their services, three (3) used digital and one (1) used both analogue and digital. While Open Telecom Limited and Massy Communications Limited were granted concessions to provide Pay TV broadcasting services in October 2013 and August 2014 respectively, these concessionaires had not yet launched said services in 2014.

Table 7: List of Pay TV Providers in 2014

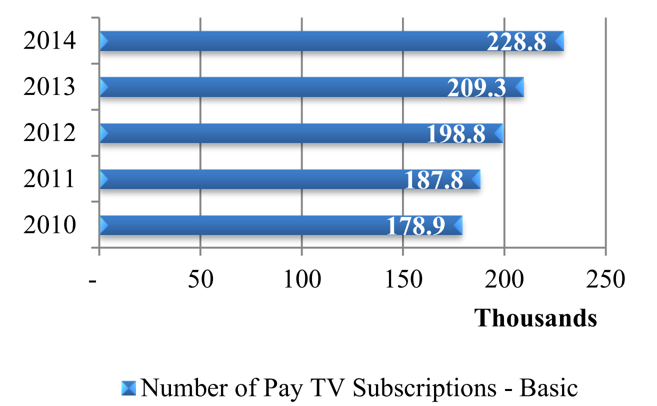
Name of Provider	Technology Used	Authorised Coverage Area
Columbus Communications Trinidad Limited (CCTL)	Analogue and Digital cable	National
DirecTV Trinidad Limited	Digital Satellite	
Telecommunication Services of Trinidad and Tobago (TSTT)	Digital cable	
Green Dot Limited	Digital cable	
RVR International Limited	Analogue cable	
Independent Cable Network of Trinidad and Tobago (ICNTT)	Analogue cable	Major Territorial
TRICO Industries Limited	Analogue cable	Minor Territorial
Network Technologies Limited	Analogue cable	Niche - Mayaro and Guayaguayare
Air Link Communications Limited	Analogue cable	Niche - Mayaro and Rio Claro
Diversified Technologies Limited	Analogue cable	Niche - Penal and Environs
Santa Flora Cable Network Limited	Analogue cable	Niche – Santa Flora and Environs

6.3.1. TOTAL PAY TV (SUBSCRIPTION TV) SUBSCRIPTIONS

In order to distinguish their products and services, each operator in the Pay TV market offered a different bundle of channels as part of their basic package. Customers were required to first subscribe to this basic package before subscribing to an additional package, including premium packages offered by the operator.

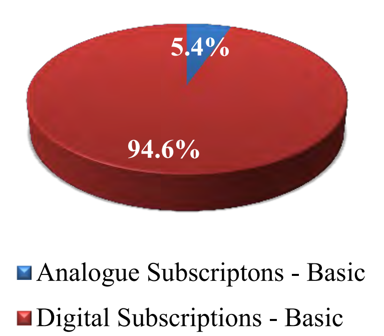
The Pay TV market experienced significant growth over the past five years as evidenced by the steady growth in the number of subscriptions. Up by 9.3 percent, the number of subscriptions recorded approximately 228.8 thousand subscriptions at the end of December 2014. Figure 107 depicts the trend in the number of subscriptions in the Pay TV market for the period 2010 to 2014.

Figure 107: Number of Pay TV Subscriptions (Basic) – 2010 to 2014



Digital subscriptions continued to comprise the majority of the Pay TV market in 2014, as illustrated in Figure 108 below. Of the total number of subscriptions, analogue subscriptions represented 5.4 percent (12.3 thousand) while digital subscriptions contributed 94.6 percent (216.5 thousand).

Figure 108: Pay TV Subscriptions (Basic Package Subscriptions) by Platform for 2014



Similar to the past five (5) years, digital subscriptions continued to increase while the number of analogue subscriptions decreased in 2014. There were 216.5 and 12.3 thousand digital and analogue Pay TV subscriptions respectively as at December 2014. Digital subscriptions increased by 22.8 thousand (11.8 percent) from 2013 to 2014, as it continued to comprise the majority of subscriptions in the market. Analogue subscriptions however, decreased by 3.2 thousand (20.8 percent) for the same period under review. This noticeable trade-off between digital and analogue subscriptions may be attributed to digital Pay TV providers' continued expansion of their services. The annual trend in the number of subscriptions by platform is illustrated in Figure 109, while Table 8 highlights the change in subscribership over the past two (2) years.

Figure 109: Pay TV Subscriptions by Platform – 2010 to 2014

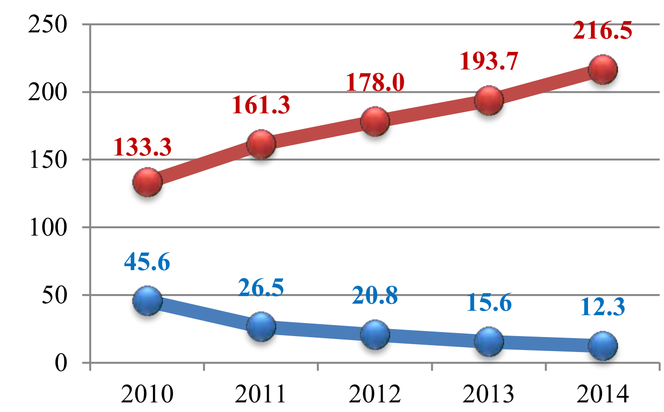


Table 8: Growth Rate of Pay TV Subscriptions by Platform 2014

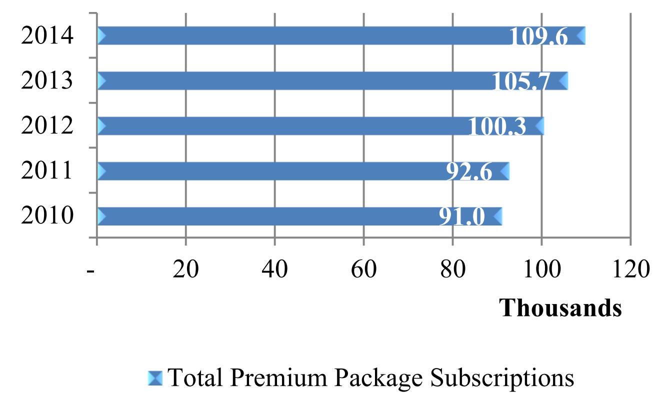
Type of Platform	Change in Basic Pay TV Subscriptions – 2014 ('000)	Percentage change between 2013 and 2014
Analogue	(3.2)	(20.8 %)
Digital	22.8	11.8 %

Source: TATT

6.3.2. PREMIUM PACKAGES SUBSCRIPTIONS

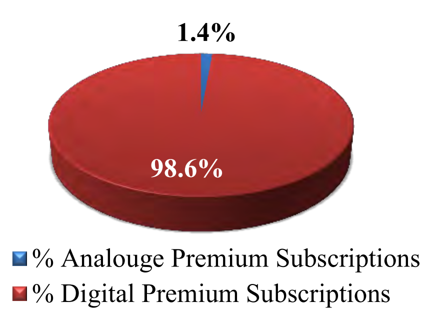
As mentioned in the previous section, all Pay TV customers are required to first subscribe to a basic package. As a result, premium package subscriptions represent a subset of total Pay TV subscriptions, where a subscriber may subscribe to more than one premium package. As at December 2013, there were approximately 109.6 thousand premium package subscriptions, an increase of 3.9 thousand subscriptions (3.7 percent) over the prior year. As illustrated in Figure 110, the demand for premium packages has grown steadily from 2010 to 2014.

Figure 110: Number of Premium Package Subscriptions 2010 – 2014



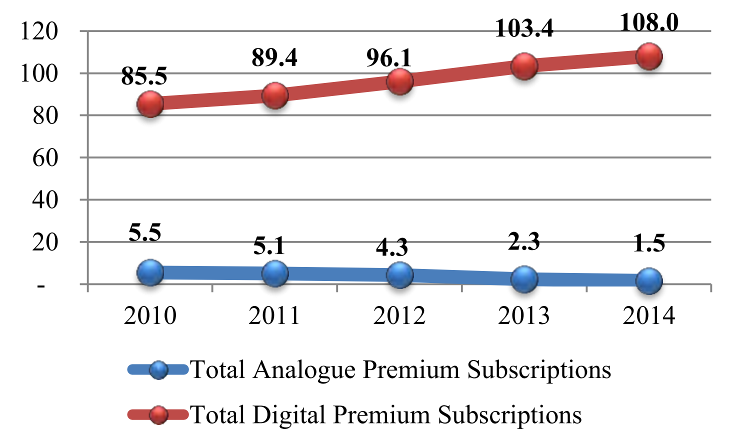
Consistent with the proportion of digital basic subscriptions, digital premium packages comprised the majority of all premium package subscriptions. Subscriptions to digital premium packages accounted for 98.6 percent (108.1 thousand) of total premium package subscriptions while analogue premium packages contributed the remaining 1.4 percent (1.5 thousand). Figure 111 presents a percentage breakdown of the number of premium package subscriptions by platform for 2014.

Figure 111: Number of Premium Package Subscriptions by Platform - 2014



Similar to the five year trend in basic subscriptions, digital premium package subscriptions experienced steady growth while analogue premium package subscriptions continued to decrease. In 2014, subscriptions to digital premium packages increased by 4.5 percent while subscriptions to analogue premium packages decreased by 34.8 percent. The trend in subscriptions to digital and analogue premium packages over the last five years is illustrated in Figure 112 below.

Figure 112: Subscriptions to Premium Packages by Platform - 2010 to 2014



6.3.3. PAY TV PENETRATION

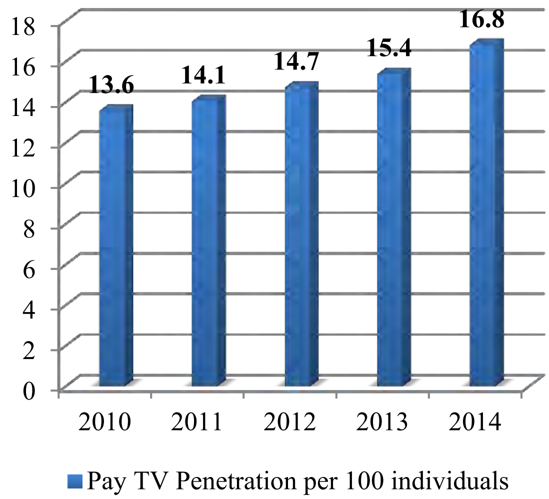
The market for Pay TV services has shown favourable growth as evidenced by increases in the proportion of persons and households subscribing to these services over the past five years. As at December 2014, the penetration of Pay TV services (the number of Pay TV subscriptions per 100 inhabitants[60]) was 16.8, up from 15.4 in 2013. This means that approximately 17 out of every 100 persons subscribed to these services in 2014.

Following a marginal increase in 2013, Pay TV household penetration (the number of subscriptions per 100 households[61]) increased significantly from 50.9 in 2013 to 55.7 in 2014. This means that approximately 56 out of every 100 households subscribe to these services.

Figures 113 and 114 below highlight the trend in Pay TV penetration over the last five years.

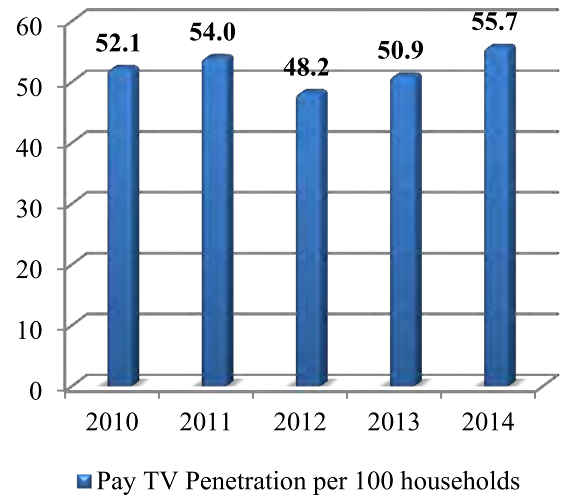
[60] Number of Pay TV subscriptions per 100 inhabitants = (number of Pay TV subscriptions / population) * 100
[61] Pay TV penetration per 100 households = (number of Pay TV subscriptions / number of households) * 100

Figure 113: Pay TV Penetration –2010 to 2014



Source: TATT

Figure 114: Pay TV Household Penetration - 2010 to 2014

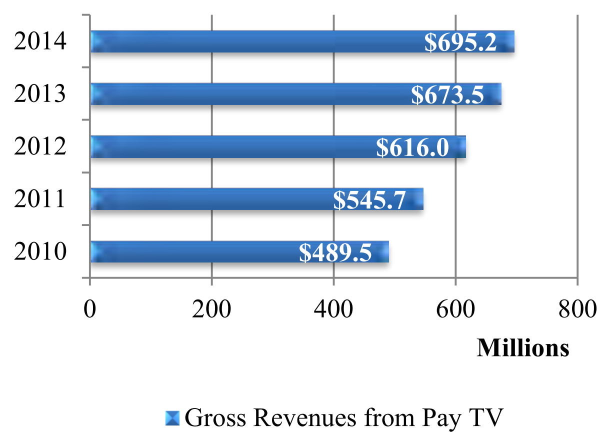


Source: TATT

6.3.4. PAY TV BROADCASTING REVENUES

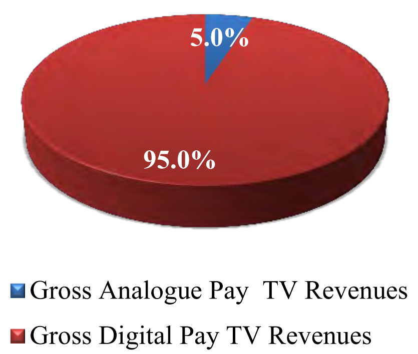
Although a smaller percentage increase was observed in 2014 compared to the previous year, gross revenues in the Pay TV broadcasting market continued to experience positive growth. The total estimated gross revenues from the Pay TV market was TT$695.2 million; an increase of TT$21.85 million (3.2 percent). Figure 115 illustrates the positive growth in revenues in this market over the last five years.

Figure 115: Pay TV Gross Revenues - 2010 to 2014



The majority of revenues in this market was generated from digital pay TV services in 2014; accounting for 95 percent (TT$660.2 million). Analogue Pay TV subscriptions contributed 5.0 percent (TT$31.6 million) in revenues. The percentage breakdown of Pay TV revenues by platform is shown in Figure 116 below.

Figure 116: Breakdown of Pay TV Revenues for 2014



Source: TATT

6.3.5. PAY TELEVISION MARKET CONCENTRATION

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the Pay TV market[62]. Overall, the HHI in the Pay TV market has been decreasing over the past five years with several minor fluctuations being observed; Figure 119 illustrates. The average HHI for this market stood at 5,018 in 2014; a decrease of 5.3 percent from 2013. During 2014, the level of concentration in the Pay TV market decreased slightly, ending the year at 4,881 points as illustrated in Figure 120.

Figure 117: HHI for Pay TV Market 2010-2014

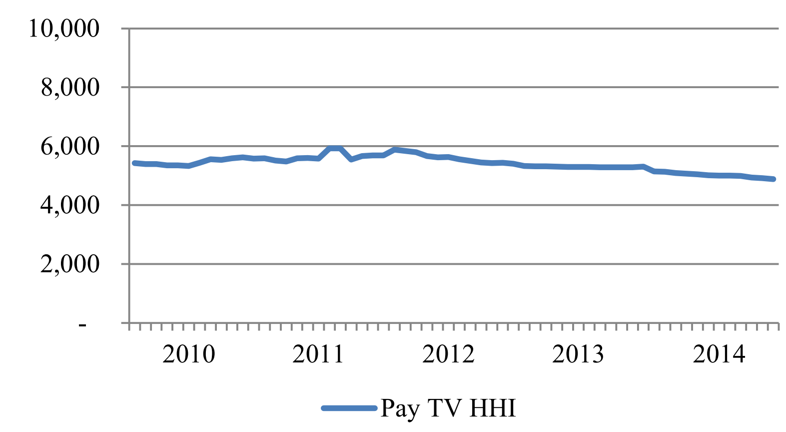
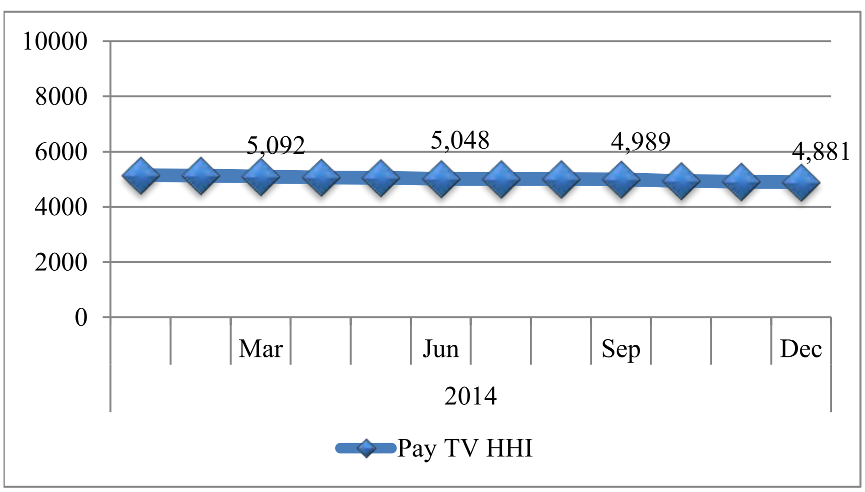


Figure 118: HHI for Pay TV Market January – December 2014

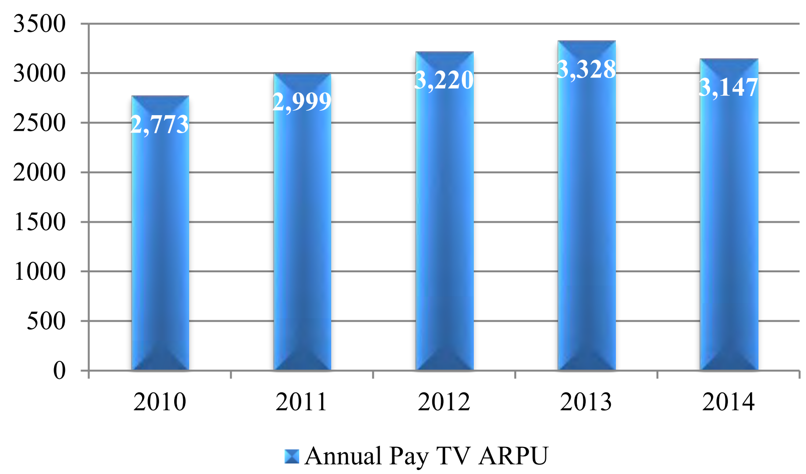


[62] Market share by subscriptions was used in the calculation of the HHI.

6.3.6. ANNUAL AVERAGE REVENUE PER USER (ARPU)

On average, each consumer spent TT$3,147 for Pay TV services in 2014. This represents a decrease in the annual average revenue per user (ARPU) over the amount recorded in 2013 by 5.5 percent (TT$181.4). This decrease was attributed to a 9.3 percentage growth in subscriptions, which outweighed the 3.2 percent increase in revenues. Figure 121 highlights the changes in ARPU over the last five years.

Figure 119: Pay TV Average Revenue per User (ARPU) 2010-2014



Source: TTAT

APPENDIX

APPENDIX I: DOMESTIC TELECOMMUNICATIONS STATISTICS

Table 9: Domestic Telecommunications Statistics

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
General	Population (millions)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	GDP per capita (US $ millions)[63]	6,891	7,166	8,246	8,470	11,560	14,576	16,683	21,408	15,067	15,924	17,042	19,018	27,855	28,183
	Telecom revenue (US $ million)	298.9	326.0	346.3	357.0	379.3	497.9	521.3	775.3	685.2	713.1	737.0	834	864.4	881.5
	Total telephone subscriptions ('000s)	453.3	592.2	683.3	849.3	1,246	1,844	1,817	2,121	2,150	2815	2118	2700	2,235	2270
	Total telephone penetration	34.9	45.5	52.4	65.0	95.2	140.8	138.7	163.1	165.3	167.2	160.7	164.7	168.3	171.4
	Average revenue per user[64] (ARPU) US $	659.4	550.4	506.8	420.3	304.3	239.5	286.9	365.6	318.7	322.5	348.0	384.4	386.7	388.3
Fixed Voice	Fixed Voice subscriptions('000s)	293.2	308.3	317.3	318.9	322.3	325.5	307.3	314.8	303.2	293.3	292.0	286.1	291.3	288.7
	Fixed Voice penetration	22.6	23.7	24.4	24.4	24.6	24.9	23.5	24.1	23.2	22.3	22.0	21.6	21.9	21.7
	Fixed Voice household penetration	-	-	-	-	-	77.4	71.5	73.3	70.1	67.5	67.1	55.3	56.2	56.6
	Average revenue per user (ARPU) US $	349.1	362.1	267.9	254.8	272.1	277.9	422.4	486.5	403.5	411.5	417.3	430.5	413.1	410.7
	Fixed Voice Subscription growth (%)	8.0	5.2	2.9	0.5	1.1	1.0	-5.6	2.4	-3.7	-3.3	-0.6	-1.9	1.6	-0.7

[63] GDP per capita is recorded at current market prices
[64] ARPU is calculated as the total revenues generated from the service divided by the total number of subscriptions to the service

APPENDIX

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mobile	Mobile subscriptions ('000s)	160	284	366	530	924	1,519	1,510	1,806	1,846	1,894	1,826	1,880	1,944	198.1
	Mobile penetration	12.3	21.8	28.1	40.6	70.5	116	115	138	141	144	139	142	146	149.1
	Average revenue per user (ARPU) US $	226	212	214	204	153	159	207	197	170	164	173	188	189	174.5
	Mobile subscription growth (%)	13	77	29	45	74	64	-0.6	20	2	2.6	-3.6	3.1	3.2	1.9
Internet	Total Internet subscriptions[65] ('000s)	34.8	39.9	44.2	55.2	62.3	73.3	93.3	129.7	238.3	309.9	325.2	342.8	682.3	820.1
	Fixed Internet subscriptions [66] ('000s)	34.8	39.9	44.2	55.2	62.3	73.3	82.6	114.1	145.0	171.1	192.0	224.1	231.7	249.6
	Mobile Internet subscriptions [67] ('000s)	-	-	-	-	-	-	10.7	15.6	93.3	138.8	133.2	422.5 [68]	450.6	570.5
	Fixed Broadband subscriptions [69] ('000s)	-	-	-	-	14.0	21.1	35.5	85.4	130.1	162.9	187.9	221.3	229.6	248.1
	Fixed Internet users[70] ('000s)	120.0	138.0	153.0	160.0	185	198.4	429	456	580	684	768	726	751	758
	Total Internet penetration	2.7	3.1	3.4	4.2	5.5	5.7	7.1	9.9	18.2	23.5	24.7	25.9	51.4	61.8
	Fixed Internet penetration	2.7	3.1	3.4	4.2	5.5	5.7	6.3	8.7	11.1	13.0	14.6	16.9	17.4	18.7
	Mobile Internet penetration	-	-	-	-	-	-	0.8	1.2	7.1	10.5	10.1	9.0	33.9	43.0
	Fixed Internet users penetration	9.2	10.5	11.7	12.2	14.1	15.2	32.8	34.9	44.3	51.9	58.3	54.8	57	57
	Fixed Internet household penetration	-	-	-	-	-	-	4.9	21.4	40.1	49.9	52.8	52.1	54	58
	Average revenue per user (ARPU) US $ for fixed Internet	-	-	-	-	-	392.3	552.3	491.8	433.2	409.9	431.9	422.8	440	449
	Internet subscription growth (%)	31.4	14.7	10.8	24.8	12.9	17.7	27.4	38.9	83.8	18.0	21.7	10.7	6	7.8

65 Total Internet subscriptions is the sum of fixed Internet subscriptions and mobile postpaid Internet subscriptions
66 Fixed Internet subscriptions – total number of subscriptions with fixed wired or fixed wireless Internet access
67 Mobile Internet subscriptions – postpaid mobile customers who subscribe to monthly Internet airtime and who are billed accordingly
68 Mobile Internet Subscriptions for 2012 includes prepaid and postpaid mobile Internet users
69 Fixed Broadband subscriptions –the number of Internet subscribers with access to download speeds of 256kbps or above
70 Fixed Internet users – the number of persons who regularly use fixed Internet services

APPENDIX

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Traffic	International -Outgoing (min. million)	81.7	84.1	91.9	117.2	160.2	203.2	265.9	304.3	259.2	282.9	274.5	263.5	277.9	268.3
	International -Incoming (min. million)	198.6	279.0	328.4	379.2	337.8	296.5	323.0	375.4	399.4	358.5	256.2	245.7	234.8	234.1
	Inbound/Outbound int'l traffic ratio	2.4	3.3	3.6	3.2	2.1	1.5	1.2	1.2	1.5	1.3	0.93	0.93	0.84	0.87
Pay TV	Pay TV subscriptions ('000s)	78.9	82.4	92.5	103.4	131.6	139.8	151.2	163.0	179.6	178.9	187.8	198.7	209.3	228.8
	Pay TV penetration	6.0	6.3	7.1	7.9	10.1	10.7	11.6	14.2	13.7	13.6	14.1	14.8	15.4	16.8
	Subscription TV household penetration	-	-	27.0	30.1	38.3	40.7	44.0	47.5	52.3	52.1	54.0	48.2	50.9	55.7
	Average revenue per user (ARPU) US $	376.7	395.3	380.9	376.5	337.3	318.9	344.9	337.0	404.9	431.2	468.6	505.5	520.8	493.2
	Pay TV subscription growth (%)		4.5	12.3	11.7	27.3	6.2	8.1	12.5	10.2	-0.4	5.0	5.8	5.3	9.3

APPENDIX

APPENDIX II: LIST OF CONCESSIONNAIRES AS AT DECEMEBER 2014

CONCESSIONS GRANTED (July 1, 2004 – December 31, 2014)

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
INTERNATIONAL TELECOMMUNICATIONS							
Columbus Communications Trinidad Limited	Public International Telecommunications Services	N/A	Type 4	DATE OF EXPIRY 04.01.2016	21 August 2009	4 January 2016	N/A
Columbus Communications Trinidad Limited [formerly Columbus Networks International (Trinidad) Limited]	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Columbus Communications Trinidad Limited [formerly 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 Network	N/A	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Green Dot Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Laqtel Limited	Public International 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
Massy Communications Limited (formerly Three Sixty Communications Limited)	Public International Telecommunications Network	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A

Massy Communications Limited (formerly Three Sixty Communications Limited)	Public International Telecommunications Services	N/A	Type 2	10 Years	4 April 2006	3 April 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
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 Broadcasting Systems and Services Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.5 FM
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
Family Focus Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	98.1 FM

Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air AM)	National	Type 5	10 Years	23 February 2006	22 February 2016	730 AM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	105.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	106.1 FM
Guardian Media Limited (formerly Trinidad Publishing Company Limited)	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	106.5 FM
[1]Guardian Media Limited (formerly Wonderland Entertainment Limited)	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	100.5 FM
Heritage Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.7 FM
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
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
[2]Radio Five Limited (formerly Citadel Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.5 FM
[2]Radio Five Limited (formerly Inner City Broadcasting Company Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.1 FM
[2]Radio Five Limited (formerly Sidewalk Radio Limited)	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	92.3 FM
[2]Radio Five Limited (formerly The Q Corporation Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.7 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
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
Trico Industries Limited	Broadcasting Services (Free to Air FM)	Minor Territorial	Type 5	10 Years	11 October 2012	10 October 2022	89.5 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 Radio Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.1 FM
[3]Trinidad and Tobago Radio Network Limited (formerly Marcel Mahabir)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.7 FM
[4]Trinidad and Tobago Radio Network Limited (formerly VL Communications Limited)	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.7 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
Winfield 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
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
Government Information Services Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	12 January 2010	11 January 2020	VHF 4, UHF 16
Guardian Media Limited [formerly known as Trinidad Publishing Company Limited] (CNC3)	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	14 April 2008	13 April 2018	VHF 12, UHF 14, 22
Mohan Jaikaran	Broadcasting Services (Free to Air 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
Diversified Technologies Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Penal and Environs	Type 5	10 Years	11 October 2012	10 October 2022	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

Massy Communications Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	24 August 2014	23 August 2024	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
Open Telecom Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	30 October 2013	29 October 2023	N/A
RVR International Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	20 May 2014	19 May 2024	N/A
Santa Flora Cable Network Ltd	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Santa Flora and Environs	Type 5	10 years	15 May 2014	14 May 2024	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							
Central Broadcasting Services Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	18 March 2013	17 March 2023	N/A
Darut Tarbiyah	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	7 May 2013	6th May 2023	N/A
Gayelle Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	N/A
IBN Communications Company Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	11 October 2012	10 October 2022	N/A
IETV Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5				N/A

Living Water Community	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	7 May 2013	6th May 2023	N/A
Sankhya Television Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	7 May 2013	6th May 2023	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
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Network (Wired)	National	Type 2	10 Years	3 October 2014	2 October 2024	N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Services (Wired)	National	Type 2	10 Years	3 October 2014	2 October 2024	N/A
Diversified Technologies Limited	Public Domestic Fixed Telecommunications Network	Niche - Penal and Environs	Type 2	10 Years	11 October 2012	10 October 2022	N/A
Diversified Technologies Limited	Public Domestic Fixed Telecommunications Services	Niche - Penal and Environs	Type 2	10 Years	11 October 2012	10 October 2022	N/A
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
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
Massy Communications Limited (formerly Three Sixty Communications Limited)	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
Massy Communications Limited (formerly Three Sixty Communications Limited)	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
Massy Technologies Infocom (Trinidad) Limited [formerly Illuminat (Trinidad & Tobago) Limited]	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020	N/A
Massy Technologies Infocom (Trinidad) Limited [formerly Illuminat (Trinidad & Tobago) 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
Prism Services (Trinidad) Limited	Public Domestic Fixed Telecommunications Services	National	Type 4	10 years	29 July 2013	28 July 2023	N/A
RVR International Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	20 May 2014	19 May 2024	N/A
RVR International Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	20 May 2014	19 May 2024	N/A
Santa Flora Cable Network Ltd	Public Domestic Fixed Telecommunications Network	Niche - Santa Flora and Environs	Type 2	10 years	15 May 2014	14 May 2024	N/A
Santa Flora Cable Network Ltd	Public Domestic Fixed Telecommunications Services	Niche - Santa Flora and Environs	Type 2	10 years	15 May 2014	14 May 2024	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
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
Wireless Telecommunications Ltd	Public Domestic Fixed Telecommunications Network	National	Type 2	10 years	27 November 2013	26 November 2023	N/A
Wireless Telecommunications Ltd	Public Domestic Fixed Telecommunications Services	National	Type 2	10 years	27 November 2013	26 November 2023	N/A

[1]Concession formerly held by Wonderland Entertainment has been transferred to Guardian Media Limited as of June 9, 2012.

[2]Concession obligations of Citadel Limited, Inner City Broadcasting Company Limited, Sidewalk Radio Limited and The Q Corporation Limited have been novated to Radio Five Limited as of September 7, 2012.

[3]Concession obligations of Marcel Mahabir have been novated to Trinidad and Tobago Radio Network Limited as of April 22, 2014.

[4]Concession obligations of VL Communications have been novated to Trinidad and Tobago Radio Network Limited as of March 18, 2014.

APPENDIX

APPENDIX III: TARIFFS

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

- TSTT: http://www.tstt.co.tt/
- bmobile: http://www.bmobile.co.tt/
- Digicel: http://www.digiceltt.com/
- Network Technologies Limited: http://www.mayarocabletv.com/
- Columbus Communications Trinidad Limited: http://www.flowtrinidad.com/
- Open Telecom: http://www.opentelecomtt.com/
- Greendot: http://www.gd.tt/
- Airlink Communications: http://airlinktt.net/
- Massy Communications : http://www.massycommunications.com/
- Massy Technologies Infocom (Trinidad) Limited: http://www.illuminatnm.com/
- Independent Cable Network of Trinidad & Tobago Limited: http://www.icntt.com/
- Diversified Technologies Limited: http://www.diversifiedtechltd.com/#!
- DirecTV Trinidad Limited: http://www.directvcaribbean.com/tt/

APPENDIX

APPENDIX IV: GLOSSARY OF TERMS

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

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

Licence	a legal instrument granted by the Authority to authorise the operation or use of any radiocommunication service or any radiotransmitting equipment, including that on board any ship, aircraft or other vessel in the territorial waters or airspace of Trinidad and Tobago.
Mobile voice subscription	Refers to an activated (pre-paid or post-paid) SIM card than enables the user to make and/or receive a call.
Narrowband	Internet speeds ≤ 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.