



Annual Market Report: Telecommunications and Broadcasting Sectors

January – December 2009

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1. Overall Market Data

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

The data presented is based primarily on the results of a survey of concessionaires conducted within the telecommunications and broadcasting sectors for the period 1st January to 31st December 2009, historical data series and other information made available to the Authority at the time of publication of the report.

The Authority will seek to publish regular market updates on the telecommunications and broadcasting sectors provided that stakeholders within the sector continue to cooperate by responding to the Authority's surveys in a timely manner.

1.1 Total Authorization

Under the Telecommunications Act 2001, the Authority is responsible for making recommendations to the Minister of Public Administration for the granting of concessions to telecommunications operators (Section 21(5)). As at the end of 2009, seventy five (75) concessions have been granted to service providers by the Minister based on the Authority's recommendations.

While this figure represents the number of authorizations granted, it may not reflect the total number of telecommunications and broadcasting service providers currently operating in the market. With respect to international operators and fixed voice operators there are some concessionaires in the market who are yet to launch their services to the public. Within the Internet market however, there existed a number of service providers whose concession and licence applications were submitted and were under review by the

Authority during the reporting period. Therefore, while these service providers were operational, they were not yet authorised by the Authority.

Table 1 provides a list of the number of concessions granted and the number of providers that are operational in the various markets.

Table 1: Number of Concessions and Operators as at December 2009

Concession Type	2007	2008	2009	
	Number of Concessions Granted			Number of Operators
International Telecommunications Service	10	10	10	9
Mobile Telecommunications Service	3	2	2	2 (mobile voice and Internet services)
Fixed Telecommunications Service	7	7	8	2 (fixed voice services) 9 (fixed Internet services)
Free to Air Radio Broadcasting Service	37	37	37	37
Free to Air Television Broadcasting Service	5	9	9	9
Subscription Television Broadcasting Service	7	8	8	8
TV Broadcasting Service via Cable	1	1	1	1

Source: TATT

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

In addition, under Section 36 of the Telecommunications Act 2001, the Authority is authorized and responsible for the granting of licences. In accordance with these legislative powers, for the period January to December 2009, the Authority granted a total of 482 licences.

Table 2 lists the categories and the number of licences granted per category over the period 2007 to 2009.

Table 2: Number of Licences Granted for the period 2007- 2009

Licences		2007	2008	2009
Spectrum	Cellular Mobile	3	2	2
	Land Mobile	44	69	90
	Point-to-Point	3	11	22
	Point-to-Multipoint	5	23	36
General Radiocommunications	Satellite Earth Stations	5	16	42
	Amateur Stations	43	69	100
	Maritime Stations	11	18	56
	Aeronautical Stations	1	46	79
Broadcasting		50	55	55
Total		165	309	482

Source: TATT

1.2 Overview of the Telecommunications and Broadcasting Sectors

1.2.1 Market Revenue Contributions to the Industry

As at December 2009, the estimated gross revenues obtained by the telecommunications and broadcasting sectors totalled TT\$4.3 billion¹ or US\$685.2 million² which comprised approximately 3.2 per cent of GDP³ for 2009. This represented a 9.3 per cent decrease in gross revenues when compared to 2008. Of this amount, mobile services contributed the highest with \$2.0 billion, or 45.7 per cent of gross revenues. This was followed by fixed⁴ voice services which contributed approximately \$773.6 million, 17.9 per cent of gross revenues. The next highest revenue earner for the industry was Internet services contributing \$460.5 million, 10.7 per cent of gross revenues. Following closely behind were pay television services and International⁵ services whose contributions totalled \$458.2 million and \$305.5 million respectively, that is 10.6 and 7.1 per cent of gross revenues. Next in line was free to air radio services recording \$153.7 million, 3.6 per cent of gross revenues. The lowest contributors were free to air television and leased line services with earnings of \$105.9 million and \$78.1 million respectively, 2.5 and 1.8 per cent of gross revenues. Other revenues⁶ recorded for the industry were estimated to be \$9.4 million or 0.2 per cent of gross revenues.

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

¹ This figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services.

² Estimated exchange rate US\$1=TT\$6.3

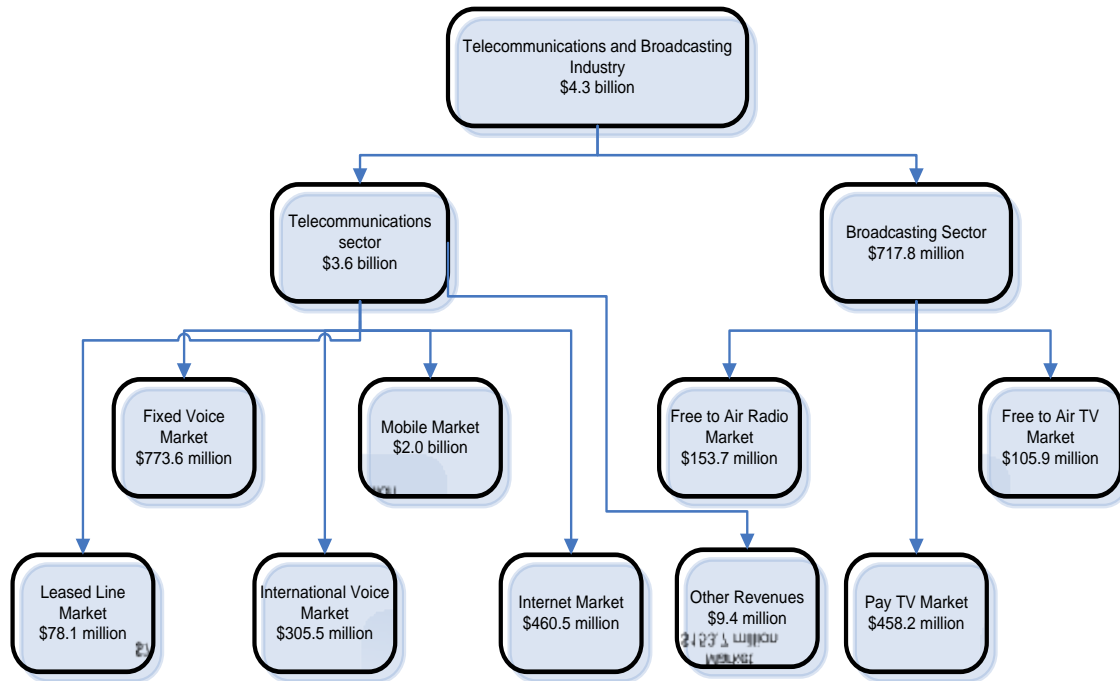
³ The Central Bank of Trinidad and Tobago has recorded Gross Domestic Product (GDP) at current market prices for 2009 to be TT\$133.6 billion.

⁴ Fixed market revenues include revenues earned from fixed voice and access (excluding international) services.

⁵ International market revenues are equal to the sum of gross revenues obtained from outgoing and incoming int'l traffic.

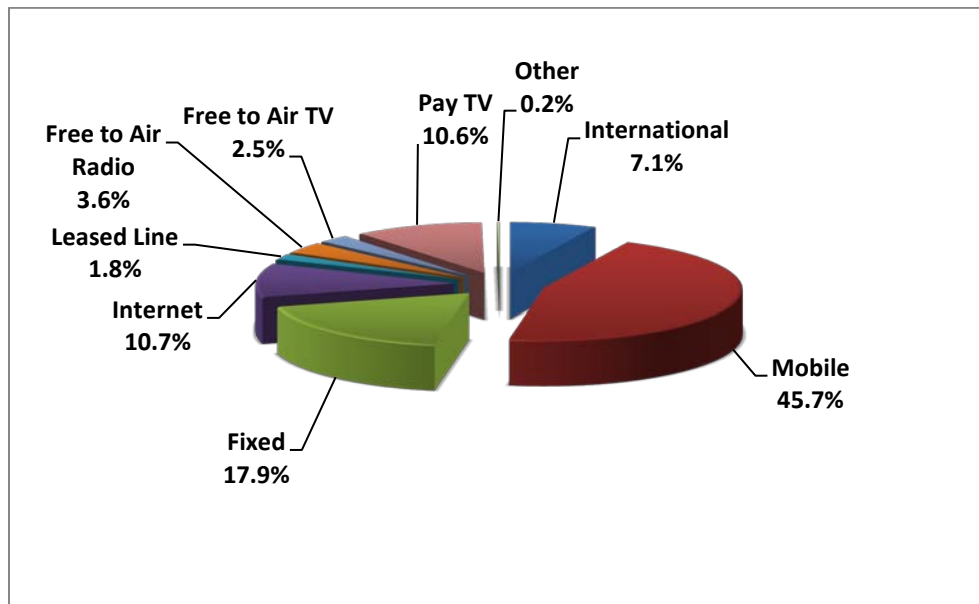
⁶ Other revenues included interconnection revenues and other wholesale services (excluding leased line) earned by service providers in the telecommunications sector.

Figure 1: Industry, Sectors and Markets Revenues 2009



Source: TATT

Figure 2: Percentage of Gross Revenues contributed by Markets



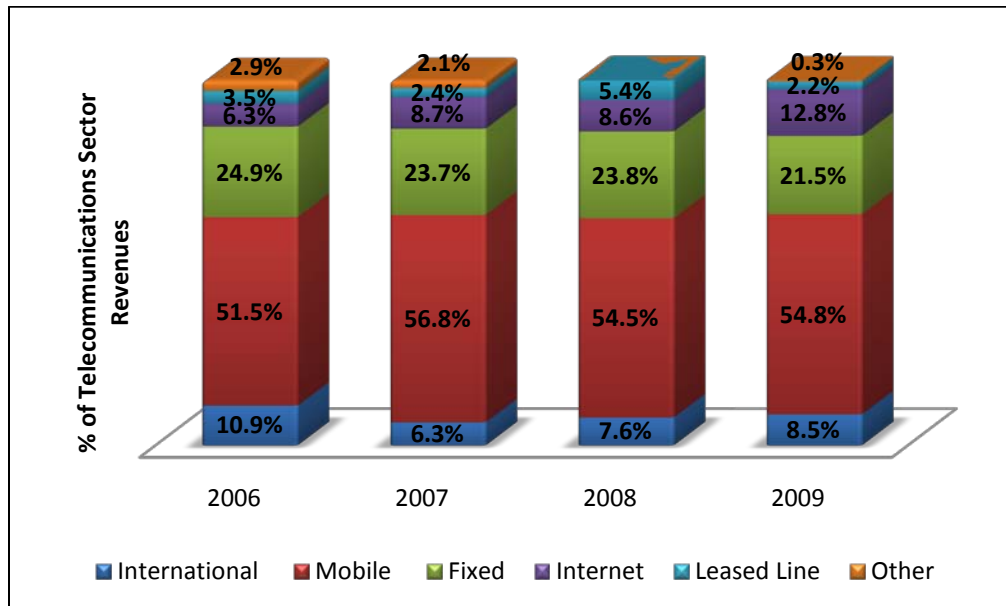
Source: TATT

1.2.2 Trends in Market Revenue Contributions to the Telecommunications Sector

For the 2009 period, \$3.6 billion or 83.4 per cent of overall industry revenue was contributed by the telecommunications sector. Of the five main markets within this sector, the mobile market continued to collect the majority of revenues, accounting for 54.8 per cent of total telecommunications revenues. The fixed telephony market generated the second highest revenues with 21.5 per cent, while revenues from the Internet and international markets followed thereafter. The leased line market earned 2.2 per cent of telecommunications revenues and continued to be the smallest revenue contributor to the sector.

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

Figure 3: Percentage Contributions of Telecommunications Markets towards Sector Revenues 2006 - 2009



Source: TATT

Figure 3 reveals that the Internet market showed the most significant growth in telecommunications revenue contributions, with a 4.2 per cent increase between 2008 and

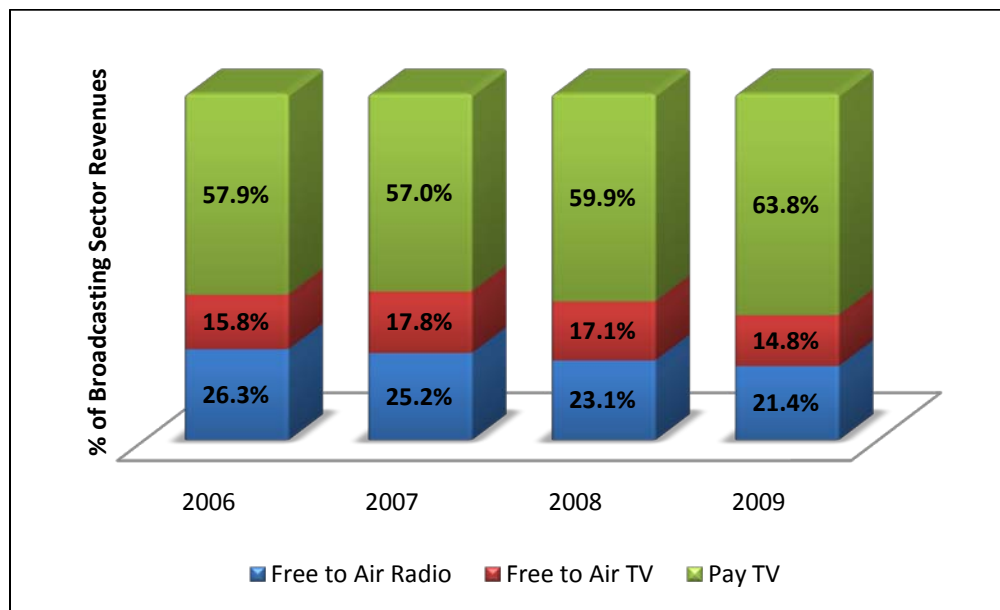
2009. The only other markets displaying any level of growth in revenue contribution, albeit minimal, were international and mobile.

1.2.3 Trends in Market Revenue Contributions to the Broadcasting Sector

For the review period, the broadcasting sector contributed \$717.8 million, or 16.6 per cent towards overall industry revenue. The broadcasting sector is divided into three main markets: pay television⁷, free to air television and free to air radio. Similar to the trends experienced between 2006 and 2008, the pay television market continued to earn the majority of revenues in the broadcasting sector, making up 63.8 per cent of broadcasting revenues for 2009. Trailing significantly behind were the free to air radio and free to air television markets earning 21.4 per cent and 14.8 per cent of broadcasting revenues respectively.

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

Figure 4: Percentage Contributions of the Broadcasting Markets towards Sector Revenues 2006 - 2009



Source: TATT

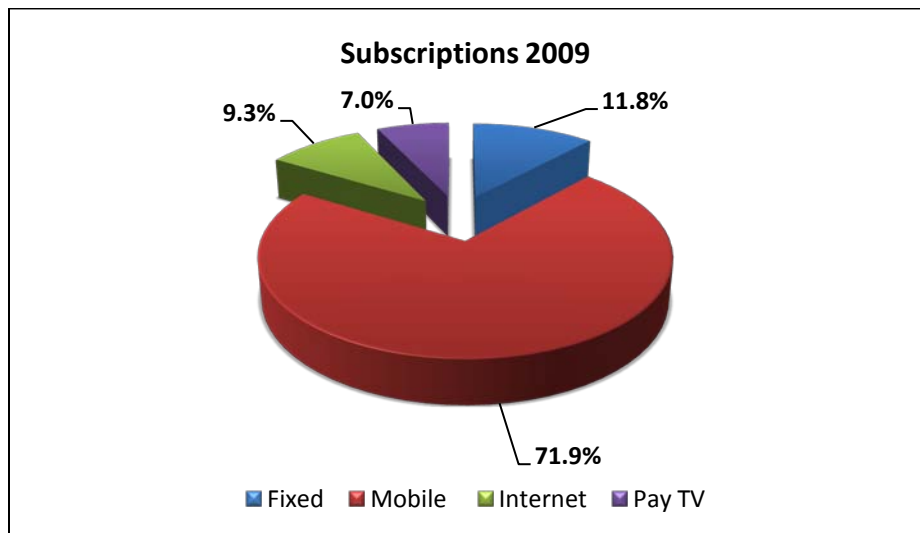
⁷ Also known as Subscription TV

When compared to revenues generated in 2008, pay television was the only broadcasting market showing any growth for the 2009 period. The free to air radio and television markets experienced marginal declines in their revenue contributions towards the broadcasting sector.

1.2.4 Telecommunications and Broadcasting Subscriptions

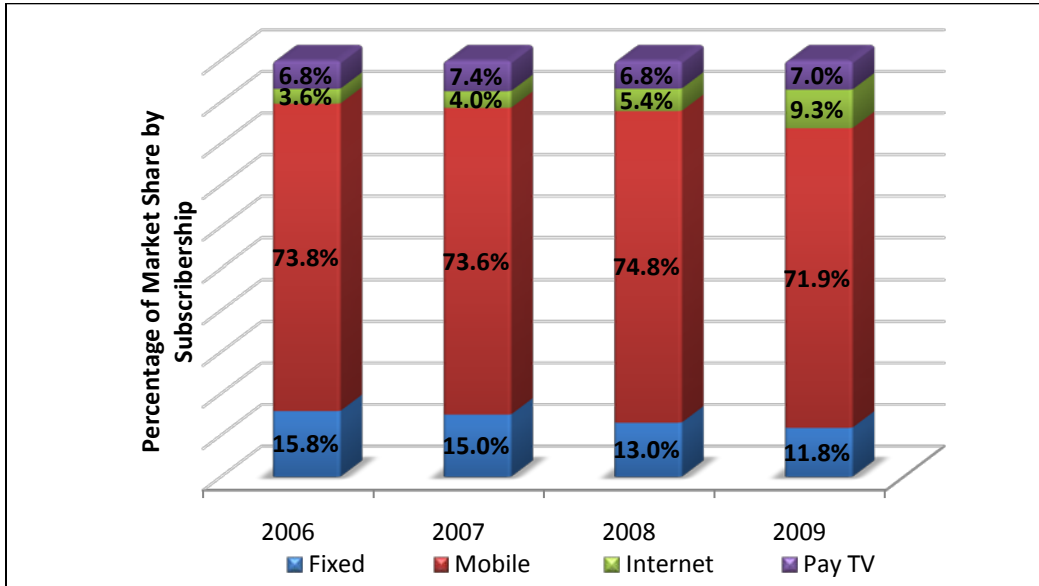
For the year ending December 2009, the number of subscriptions within the fixed, mobile, Internet and pay television market segments totalled approximately 2.6 million. This represents an increase of 6.4 per cent or 154.0 thousand more subscriptions than 2008. While the fixed voice market contributed 11.8 per cent towards total subscriptions, a decline of 1.2 per cent from last year, mobile subscriptions comprised 71.9 per cent, also a decrease of 2.9 percent from 2008. Conversely, both Internet and pay television grew in their contribution to total subscriptions by 3.9 and 0.2 per cent respectively. To graphically summarise, contributions by the various market segments towards total industry subscriptions are shown in Figure 5 while Figure 6 compares total industry subscriptions for the period 2006-2009.

Figure 5: Market Shares of Total Industry Subscriptions by Service as at December 2009



Source: TATT

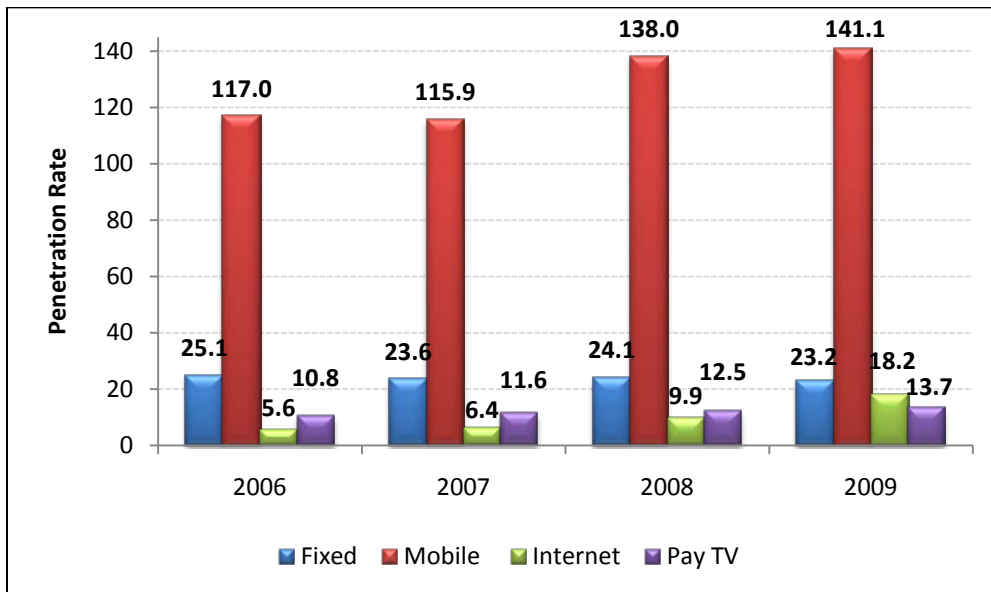
Figure 6: Market Share of Total Subscriptions by Service for 2006-2009



Source: TATT

1.2.5 Subscription Penetration Rate

Figure 7: Penetration Rate of Subscriptions 2006-2009



Source: TATT

As seen in Figure 7, the penetration rates⁸ for all subscription services, excluding fixed voice, increased for the 2009 period. The penetration rate is defined as the number of subscriptions per 100 inhabitants. As is the yearly norm, mobile services recorded the highest penetration rate of 141.1. Fixed telephony service was the second highest with a penetration rate of 23.2 whilst Internet⁹ and pay television followed with penetration rates of 18.2 and 13.7 respectively. It may be noted that Internet was the only service where the penetration rate substantially increased whereas mobile and subscription television services showed only marginal improvements.

⁸ Penetration rate is calculated as follows: (number of subscriptions to the service / population number) * 100

⁹ Internet penetration includes both fixed and mobile Internet penetration

Box 1: Overview of the Domestic Economy

Following a robust pattern of macro-economic expansion, the economy of Trinidad and Tobago contracted in 2009, after fifteen consecutive years of positive economic growth. In the third quarter of 2009, the economy experienced its fourth consecutive quarter of negative economic growth and was evidently affected by the global financial crisis of the early twenty-first century. Most specifically the economic climate which evolved from the global financial crisis resulted in the contraction of key export markets, declines in foreign investment, and reduced remittances from foreign workers. Table 3 below summarizes various key macro-economic indicators for 2009.

Table 3: Summary of Key Macro-economic Indicators

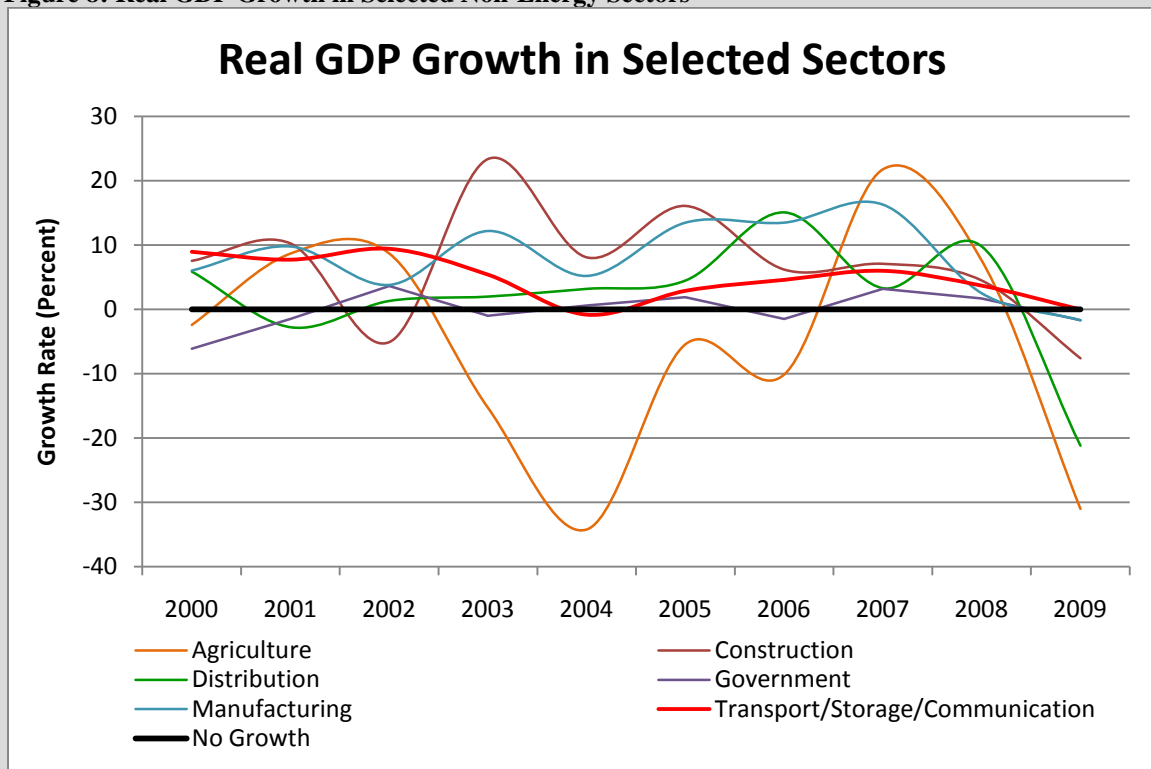
Key Indicator	2005	2006	2007	2008	2009	Notes
Real GDP Growth - Total	6.20	13.50	4.60	2.30	(3.00)	
Real GDP Growth - Energy Sector	8.30	21.80	1.70	(0.50)	0.90	2000 = 100
Non-energy Sector	5.00	6.50	7.30	3.50	(5.90)	
Inflation	6.90	9.30	7.90	12.00	7.20	period average / Jan 2003 = 100
Unemployment Rate	8.00	6.20	5.50	4.60	5.70	Average of four quarters
BOP Current Account Balance	22.40	37.40	24.60	36.20	25.40	as a percentage of GDP
Oil Price	56.50	66.00	72.30	99.60	61.70	WTI annual average / US\$/barrel
Exchange Rate (USD)	6.26	6.28	6.30	6.26	6.27	\$TT equivalent of US\$1.00
Population ('000)	1,294.50	1,297.90	1,303.20	1,308.60	1,310.10	Thousands of persons
G.D.P. current prices (\$mn)	100,682.00	115,951.20	132,280.80	163,324.90	133,533.60	Millions \$TT
Gross National Income	101,976.50	117,249.10	133,584.00	164,633.50	127,672.70	Millions \$TT
GNI per capita (\$TT)	78,776.75	90,337.55	102,504.60	125,808.88	97,452.64	Gross National Income/ Population
GNI per capita (\$US)	12,584.15	14,384.96	16,270.57	20,097.27	15,542.69	
<i>Source: Central Statistical Office of Trinidad and Tobago</i>						

The economy was estimated to have contracted by 3.0% in 2009, due to declines in both the energy and non-energy sectors. In the energy sector, modest growth was experienced

in the natural gas refining activities - the petrochemical sector (namely methanol and fertilizer production), liquefied natural gas production, and natural gas liquids. However, this growth in the gas sector was overshadowed by more significant declines in the crude oil sector, where both domestic production levels and international oil prices fell significantly, further causing major declines in petroleum services contractor activities.

Compared to the energy sector, the decline in the non-energy sector was more substantial, with a contraction of 7.2% in current prices, or 5.9% in real terms. Additionally, it appears that there was a reduction in import volumes in addition to retail sales. Economic performance differed significantly amongst the various composite sectors of the non-energy sector. In particular the manufacturing sector experienced a significant decline, due to reduced demand in both domestic and export markets. Many other key sectors such as agriculture and distribution also saw significant decline, and in the case of the construction sector, growth significantly slowed as major capital projects neared completion during the period. Figure 8 below shows the performance of selected non-energy sectors in terms of Real GDP growth rates.

Figure 8: Real GDP Growth in Selected Non-Energy Sectors



Source: Based on data from the Central Bank of Trinidad and Tobago (CBTT) Data Center

Interestingly, while the overall non-energy sector contracted by 7.2%, the ‘Transport, Storage and Communications’ subsector was among the non-energy sub-sectors which did not experience negative growth (along with ‘Electricity and Water Distribution’ and ‘Other Services’). The Central Bank of Trinidad and Tobago’s *2009 Annual Economic Survey* cites that the marginal growth in this sector “... resulted from increased activities in the airline transport industries as well as greater quantities of letters, parcels and other mail at the local post offices.”

As can be observed in Figure 8, the Transport, Storage and Communications sector has shown a historic trend of having a very low variability in annual real growth rates, suggesting that this sector has shown notable stability, subject to relatively smaller cyclical effects over business cycles and the changing macroeconomic landscape. As discussed in this market report, the Telecommunications and Broadcasting industry (which constitutes an element of the ‘Communications’ component of the Transport, Storage and Communications sector) has demonstrated a clear trend of robust growth in 2009 in various markets, and contraction in others. It is anticipated that as the general macro-economy recovers and returns to positive growth in the medium term, all telecommunications and broadcasting market segments should demonstrate robust growth in demand.

This anticipated growth pattern, along with continued investment, rollout of networks and services, and strengthening of the regulatory framework, ultimately reinforce the notion that the telecommunications and broadcasting industry provides an important contribution to national income. Additionally, continued development of the telecommunications and broadcasting sectors are critical to Trinidad and Tobago’s pursuit of economic diversification, and long term social and economic development.

2. Fixed Telephony Market Data

As at December 2009, there were eight (8) operators authorized to provide fixed domestic telecommunications services to the public over wired or wireless facilities. An additional concession was issued to Three Sixty Communications in December 2009 increasing the number of concessionaires granted as at 2008. These operators are classified into the following geographic categories and include:

Table 4: Operators Authorized to Provide Public Fixed Domestic Telecommunications Services as at 2009

Name of Provider	Authorised Coverage Area
1. Telecommunications Services of Trinidad and Tobago (TSTT)	Trinidad and Tobago
2. Columbus Communications Trinidad Limited (FLOW)	
3. Independent Cable Network of Trinidad and Tobago Limited (ICNTT)	
4. Green Dot Limited	
5. Three Sixty Communications	
6. TRICO Industries Limited	Tobago
7. Network Technologies Limited	Mayaro and Guayagauare
8. RVR International Limited	Rio Claro and Princes Town

Source: TATT

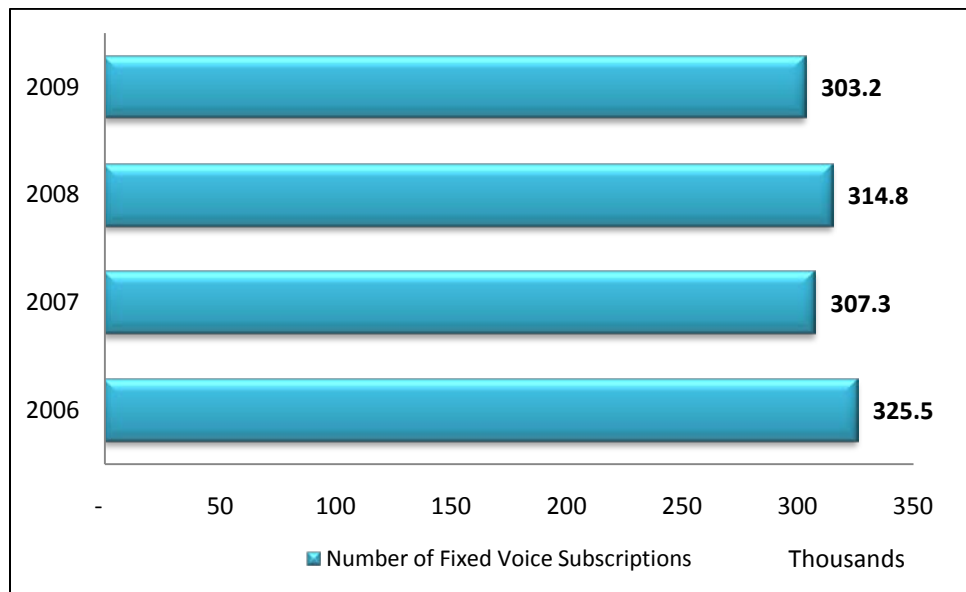
While the above eight operators were authorized by the Authority to provide fixed telecommunications services, only two operators offered domestic voice services in 2009 – TSTT through their Public Switched Telephone Network and FLOW via their cable television network.

2.1 Fixed Voice Subscriptions

2.1.1 Annual Fixed Voice Subscriptions

In 2009, the fixed voice market experienced a decline in subscriptions as it recorded approximately 303.2 thousand subscriptions for the year. This represented an overall 3.7 per cent or 11.6 thousand fall in subscriptions from the last period, as opposed to the 2 per cent growth recorded between 2007 and 2008. The annual trend for fixed voice subscriptions for the period 2006 to 2009 is shown in Figure 9.

Figure 9: Fixed Voice Subscriptions 2006-2009



Source: TATT

It should be noted that the second fixed voice service provider, FLOW, entered the market in April 2008, which may have accounted for the increase in subscriptions in that year. However for 2009, the decrease in fixed line subscriptions may be as a result of two factors:

- the recessionary period experienced by Trinidad and Tobago in 2009 (see Box 1); and
- the increasing use of Voice over Internet Protocol (VoIP) based services such as Skype, Magic Jack etc. Even though data is not yet available to determine the

level of penetration of these types of VoIP services, their use by customers may have had a significant impact on the number of fixed line subscriptions.

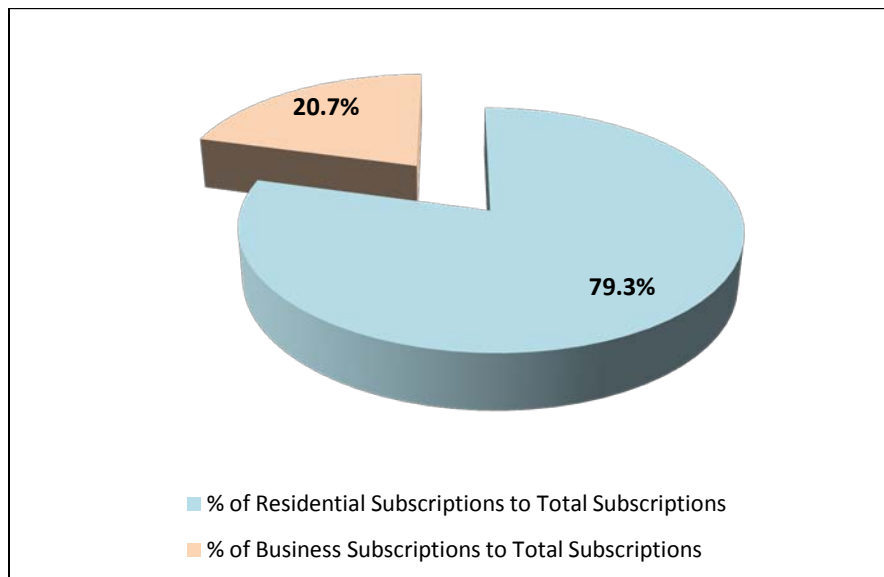
Information from the period in review has shown that customers were requesting disconnection of their fixed lines or being disconnected due to the non-payment of bills. Hence, the recession experienced in 2009 may have reduced the amount of disposable income customers were willing to spend on their fixed lines, leading to termination of the service and the alternate adoption of VoIP services.

2.1.2 Annual Residential and Business Fixed Voice Subscriptions

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

As at December 2009, out of the recorded 303.2 fixed voice subscriptions, 240.4 or 79.3 per cent were residential, and 62.8 or 20.7 per cent were business. Figure 10 illustrates the percentage breakdown of fixed voice subscriptions towards these two categories.

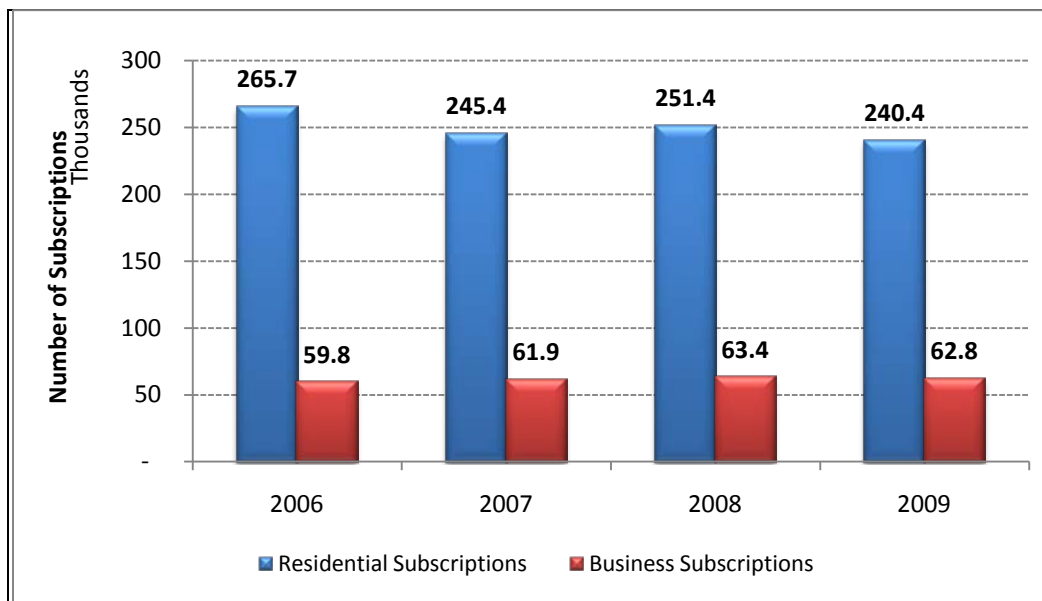
Figure 10: Percentage breakdown of Residential and Business Fixed Voice Subscriptions 2009



Source: TATT

Compared to 2008, the number of residential subscriptions declined by 4.4 per cent or 11.0 thousand subscriptions, while the business market experienced a less sizable reduction of 0.9 per cent or 584 subscriptions. As seen in Figure 11, whereas we have seen a minimal growth in the number of business subscriptions from 2006 to 2008, this was the first year in which business subscriptions have decreased. Residential subscriptions on the other hand fluctuated for the aforementioned period.

Figure 11: Residential and Business Fixed Voice Subscriptions 2006-2009

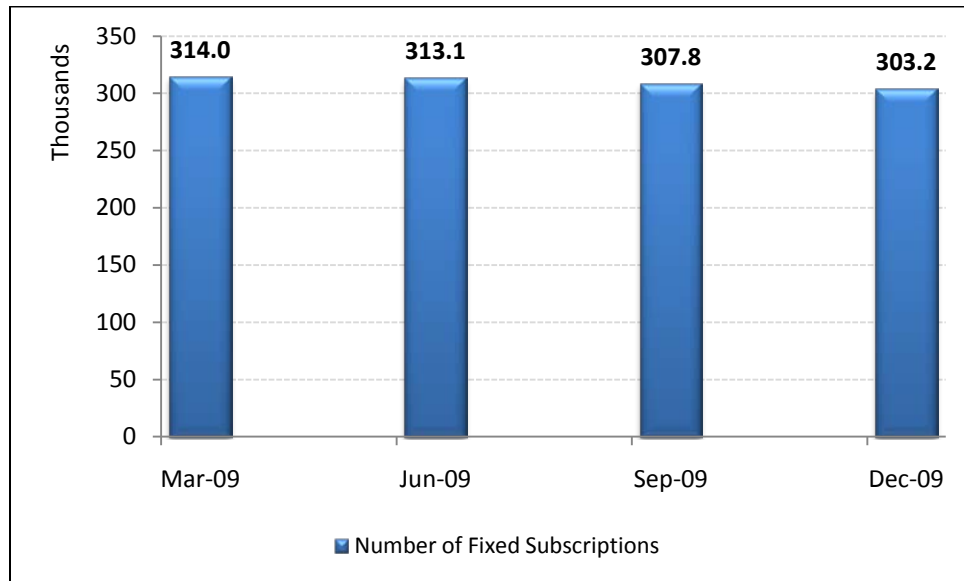


Source: TATT

2.1.3 Quarterly Fixed Voice Subscriptions

Overall the fixed voice industry saw a 3.4 per cent decrease in the total number of subscriptions from 314.0 as at the end of the Quarter 1 (March 2009) to 303.2 at the end of Quarter 4 (December 2009). It should be noted, as seen in Figure 12, the last two quarters of the period were the main contributors to the fall in subscriptions for 2009.

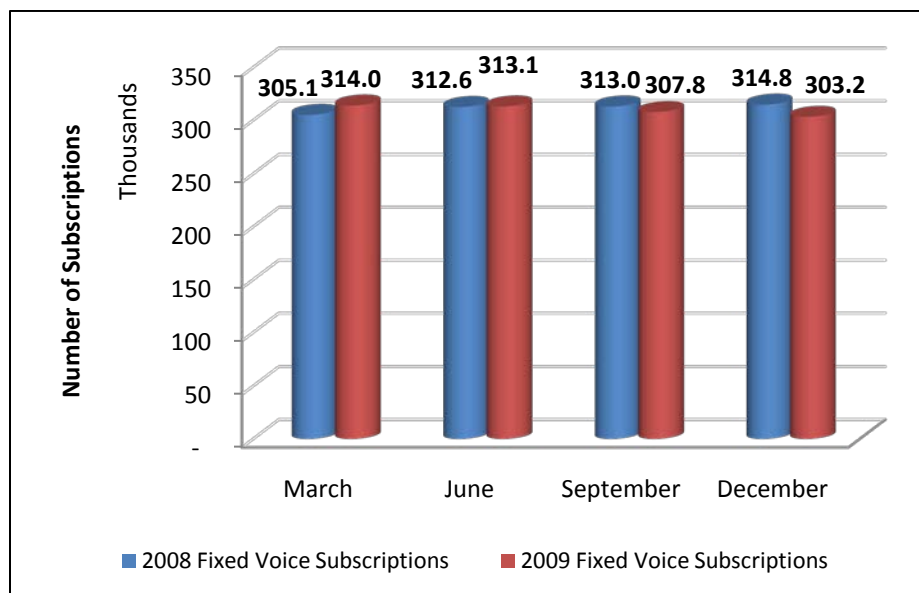
Figure 12: 2009 Quarterly Fixed Voice Subscriptions



Source: TATT

Compared with the quarterly trend in 2008, whilst fixed voice subscriptions steadily increased throughout Quarter 1 to Quarter 4 in 2008, the opposite occurred during 2009. Figure 13 illustrates that there were falls in subscriptions during each quarter of 2009.

Figure 13: Comparison of Quarters 2008 and 2009



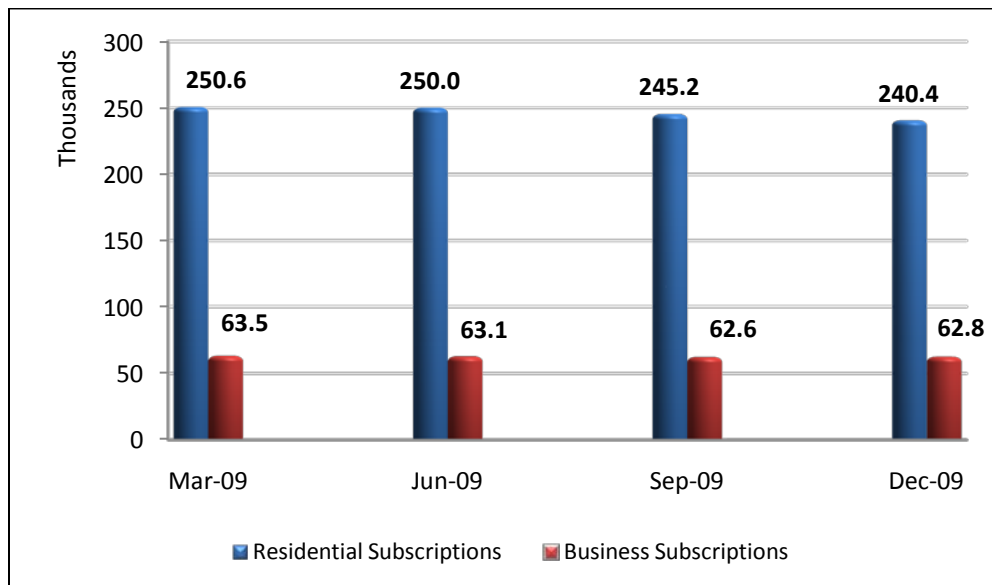
Source: TATT

2.1.4 Quarterly Residential and Business Fixed Voice Subscriptions

Throughout the quarters of 2009, residential subscriptions consistently constituted the majority of the fixed voice market with an 80 per cent market share while business customers accounted for 20 per cent. However while market shares were relatively stable, there were steady decreases in the number of residential subscriptions as opposed to only marginal decreases in business subscriptions during 2009 with the exception of the last quarter, which showed a slight increase.

Overall, residential subscriptions decreased by 4 percent between the first and last quarter while business subscriptions marginally fell by 1 per cent for the same period. As mentioned in section 2.1.1, the national recession experienced in 2009 may have contributed to the reduction in the number of residential and business subscriptions. Figure 14 shows the number of residential and business fixed voice subscriptions recorded on a quarterly basis for 2009.

Figure 14: Quarterly Residential and Business Fixed Voice Subscriptions 2009

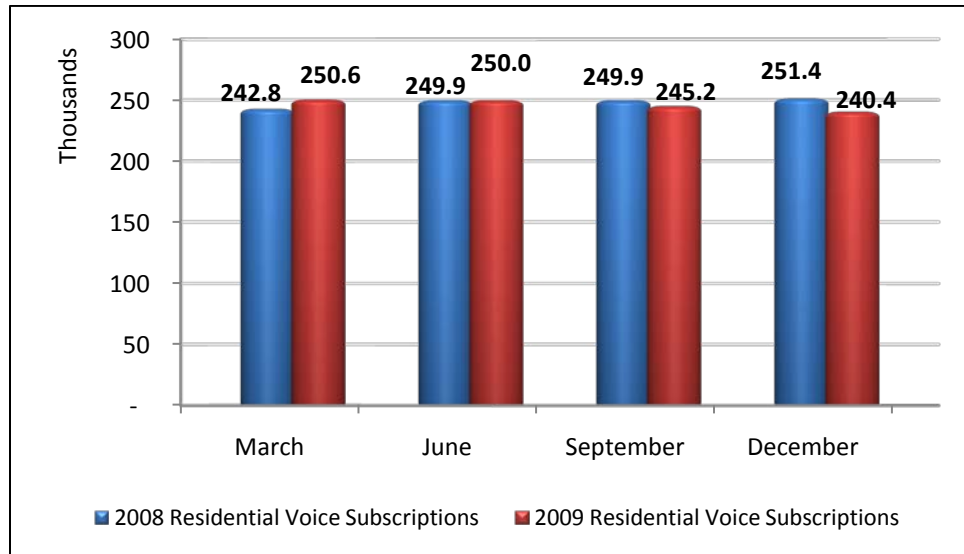


Source: TATT

In comparison with 2008 which showed increases in residential voice subscriptions during each quarter, 2009 illustrated the opposite effect with a constant decline in

residential subscribership from Quarter 1 through Quarter 4. The quarterly trends are depicted in Figure 15.

Figure 15: Comparison of Residential Subscriptions between Quarters 2008 and 2009



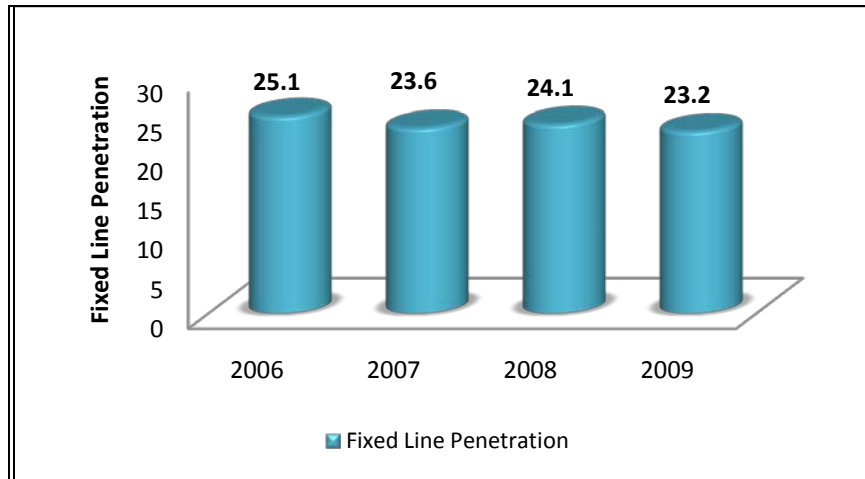
Source: TATT

2.2 Fixed Line Penetration

Fixed line penetration¹⁰ decreased slightly from 24.1 in 2008 to 23.2 in 2009, a 3.7 per cent fall. This means that there are 23 fixed lines available to every 100 persons in Trinidad and Tobago. As mentioned in Section 2.1, this is a result of the decrease in fixed subscriptions possibly due to the contraction in the economy occurring in 2009. An illustration of the fixed line penetration trend from 2006 to 2009 is given in Figure 16.

¹⁰ Fixed line penetration = (number of residential fixed voice subscriptions / total population) *100

Figure 16: Fixed Line Penetration 2006-2009

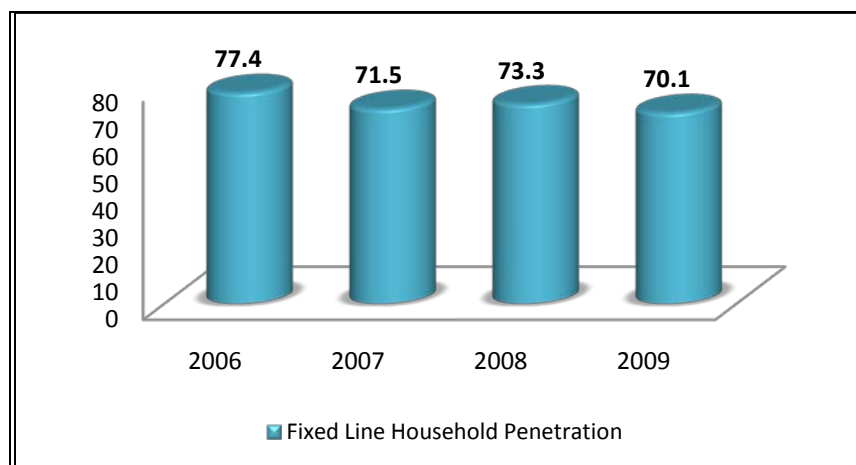


Source: TATT

In addition, fixed line household penetration¹¹ fell from 73.3 to 70.1 between 2008 and 2009, indicating that approximately 70 out of every 100 households had access to fixed voice services at the end of the period.

As depicted in the graph below, for the period 2006 to 2009 there were fluctuations in the household penetration rate. Overall, fixed line household penetration decreased from 77.4 to 70.1, that is, by 7.3 per cent during the last four years. Figure 17 shows the trend in fixed line household penetration.

Figure 17: Fixed Line Household Penetration 2006-2009

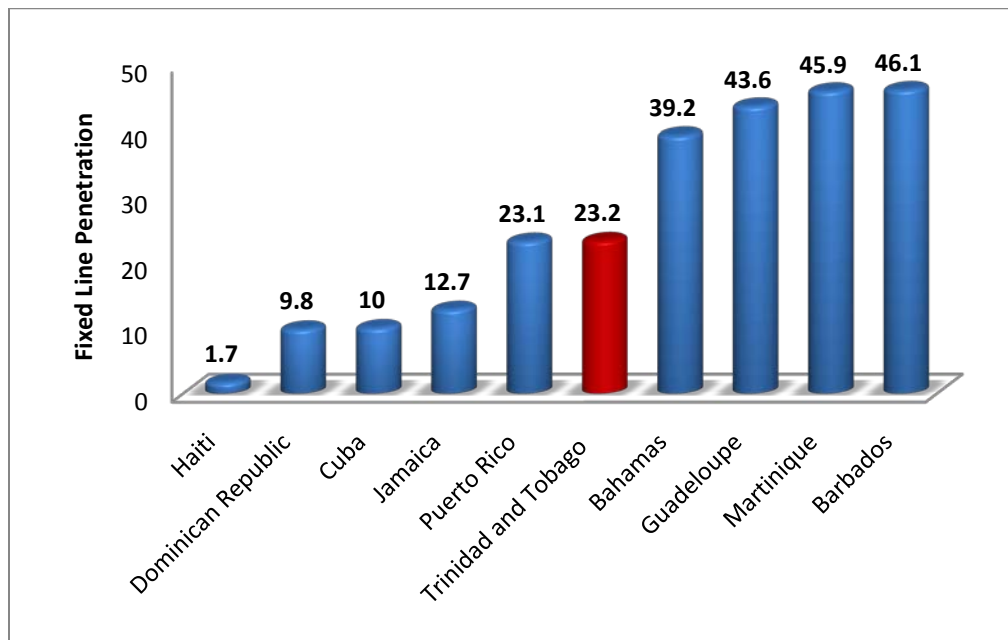


¹¹ Fixed line household penetration= (number of residential fixed voice subscriptions / total number of households) * 100

2.2.1 Fixed Penetration Rates for the Caribbean

Among the Caribbean countries listed in Figure 18, Trinidad and Tobago has the sixth highest fixed line penetration rate. International publisher, Business Monitor International Limited (BMI), has reported that within the Caribbean the high growth in mobile services has led to few marginal increases and in most cases a decline in fixed line penetration.¹² When compared to 2008 data, Haiti and Cuba are the only countries in the Caribbean data set showing growth, even though very marginal, in the fixed voice market. All other countries highlighted in Figure 18, inclusive of Trinidad and Tobago, showed declines in the fixed market. The BMI report also notes that the geographical composition of the Caribbean makes the task of deploying mobile infrastructure much easier than that of fixed line infrastructure. As a result the demand for mobile services has surpassed the demand for fixed line services. These factors, together with the national recession, may have played a part in the marginal decline experienced in the fixed voice market for 2009.

Figure 18: 2009 Fixed Line Penetration for selected Caribbean countries



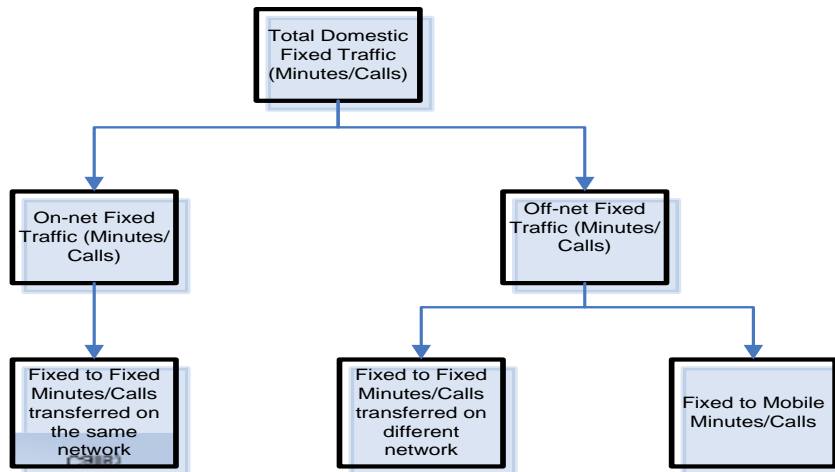
Source: Business Monitor International Limited and TATT

¹² Referenced from BMI Industry Forecast Report for the Caribbean: Fixed Line Q2 2009

2.3 Domestic Fixed Voice Traffic

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

Figure 19: Classification of Domestic Fixed Traffic



Source: TATT

2.3.1 Annual Domestic Fixed Voice Traffic in Minutes

As illustrated in Figure 20 below, domestic fixed voice traffic totalled 1,493.1 million minutes for the 2009 period, a 13.9 per cent decrease from 2008.

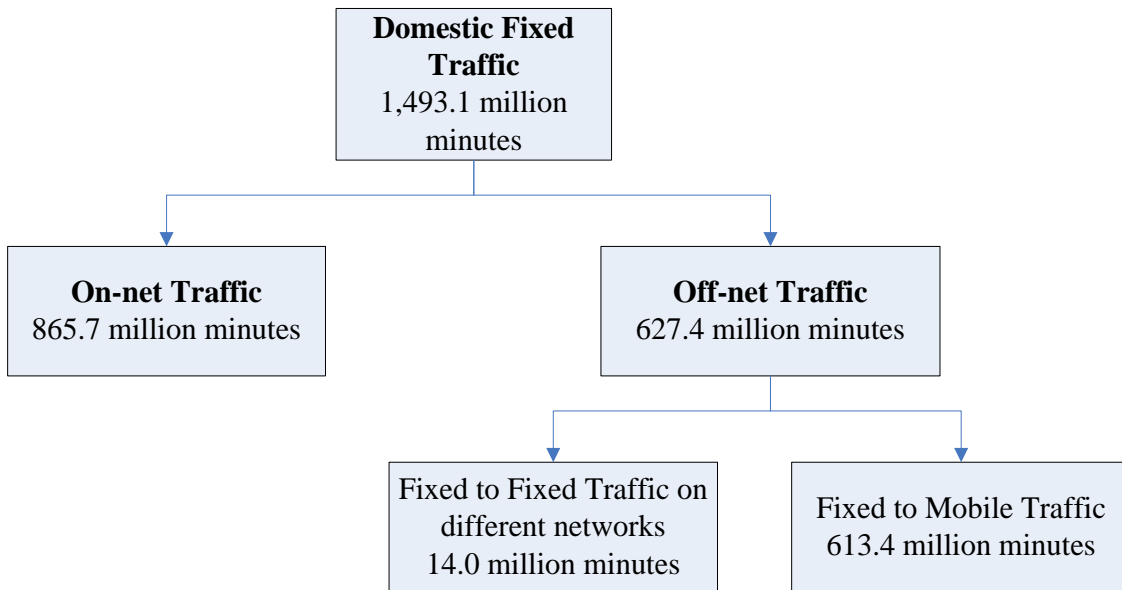
Of the 1,493 million minutes of domestic fixed traffic, on-net¹³ traffic totalled 865.7 million minutes while off-net¹⁴ traffic recorded 627.4 million minutes, a 17.4 per cent and 8.5 per cent decrease respectively when compared to 2008. There were 14.0 million fixed to fixed off-net minutes, a 312.8 percent increase, while 613.4 million fixed to mobile minutes comprised the remaining off-net traffic, a 10.1 per cent reduction in traffic from the last period.

A breakdown of the subcategories of traffic minutes for 2009 is shown below.

Figure 20: Breakdown of fixed domestic traffic minutes 2009

¹³ On-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on the same fixed network.

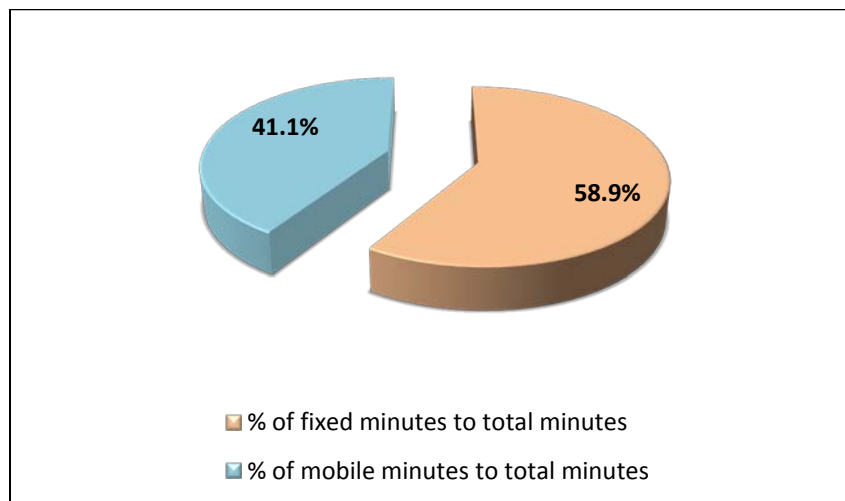
¹⁴ Off-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on another network (intra and inter service provider). For example, a call originating on TSTT's fixed network and terminating on Flow, bmobile or Digicel's network will be included in these minutes.



Source: TATT

Furthermore, the percentage of fixed (on-net and off-net) minutes to total domestic fixed traffic minutes was estimated to be 58.9 per cent, a 2.8 per cent decline from 2008. Mobile minutes to total domestic fixed traffic minutes totalled 41.1 per cent, a 4.4 per cent rise from the previous period. Figure 21 gives a breakdown of the percentage contribution.

Figure 21: Percentage Breakdown of Fixed and Mobile Minutes Contribution to Total domestic fixed traffic minutes 2009

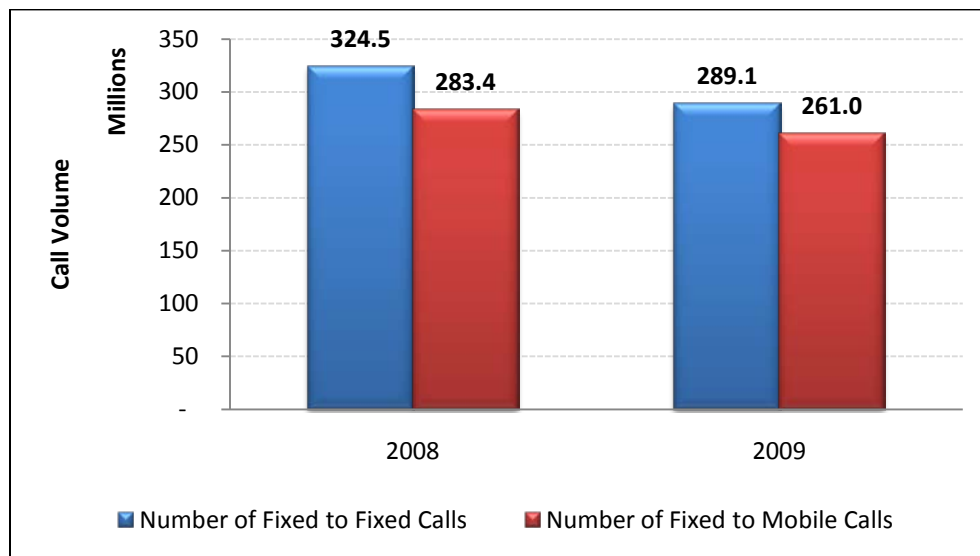


Source: TATT

2.3.2 Annual Domestic Fixed Voice Call Volumes

For the 2009 period, the number of domestic fixed voice calls totalled 550.0 million. Fixed to fixed calls accounted for 289.1 million¹⁵ or 52.6 per cent of total fixed voice calls. Fixed to mobile calls accounted for 261.0 million calls or 47.4 per cent of total fixed voice calls. When compared to 2008 total fixed to fixed calls decreased significantly by 10.9 percent while fixed to mobile calls also declined by 7.9 per cent. Figure 22 below compares the breakdown of domestic call volume by traffic type 2008-2009.

Figure 22: Comparison of Domestic Call Volume Traffic Type 2008-2009



Source: TATT

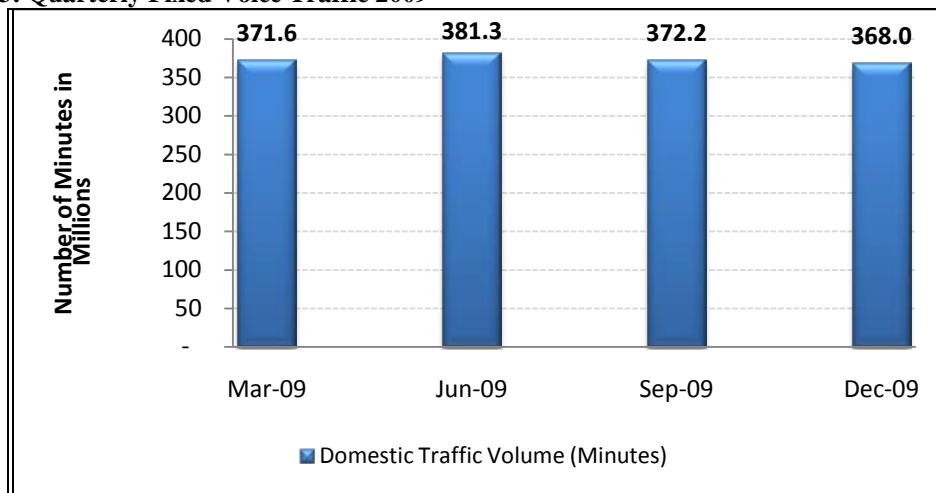
2.3.3 Quarterly Domestic Fixed Voice Traffic

Total domestic fixed voice traffic fell between Q1 and Q4 from 371.6 million minutes to 368.0 million minutes, a 1 per cent decline between periods. Additionally, for the first quarter of 2009, fixed-to-fixed traffic volume totalled 221.4 million minutes or 60 per cent of total domestic fixed voice traffic volume. This share gradually decreased to 217.1 million minutes or to 59 per cent of the total volume of domestic traffic by the fourth

¹⁵ This figure includes both fixed to fixed on-net and off-net minutes.

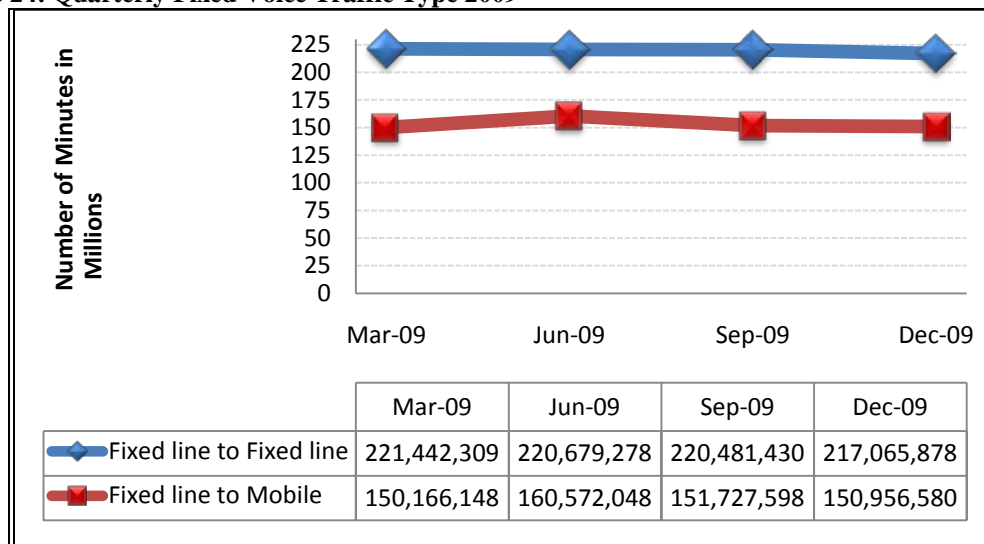
quarter of 2009. Synonymous with this decrease in the share of fixed-to-fixed traffic volume is the increase in the share of traffic volumes to mobile networks. The share of traffic from the fixed voice networks to mobile networks increased slightly from 150.2 million minutes or 40 per cent in Q1 to 151.0 million minutes or 41 per cent of total traffic in Q4 of 2009. Therefore as the decline in fixed to fixed minutes outweighed the rise in fixed to mobile minutes, overall fixed traffic volume fell between Q1 and Q4. The trend in the quarterly fixed voice traffic for 2009 is shown in Figure 23 while the quarterly trend by traffic type is depicted in Figure 24.

Figure 23: Quarterly Fixed Voice Traffic 2009



Source: TATT

Figure 24: Quarterly Fixed Voice Traffic Type 2009



2.4 Fixed Telephony Revenues

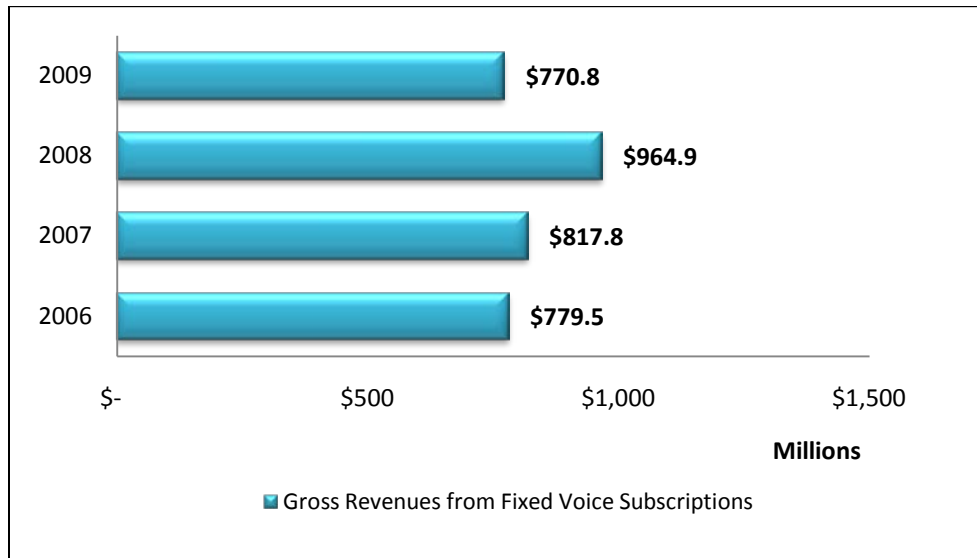
2.4.1 Annual Fixed Voice Revenues

At the end of 2009, gross revenues received from all fixed voice services¹⁶ totalled \$773.6 million as compared to \$976.6 million in 2008. Gross revenues received from fixed voice subscriptions for 2009 amounted to \$770.8 million as compared to \$964.9 million for 2008 resulting in a decrease of \$194 million or 20.1 per cent. This fall in fixed subscription revenues is consistent with the reduction in the number of subscriptions recorded during the period.

The \$2.8 million difference between total fixed voice revenues and fixed voice subscription revenues represented monies generated from payphones, calling cards and late fees charged by service providers.

The annual trend in fixed telephony revenues for the period 2006 to 2009 is illustrated in Figure 25.

Figure 25: Fixed Voice Subscription Revenues 2006-2009



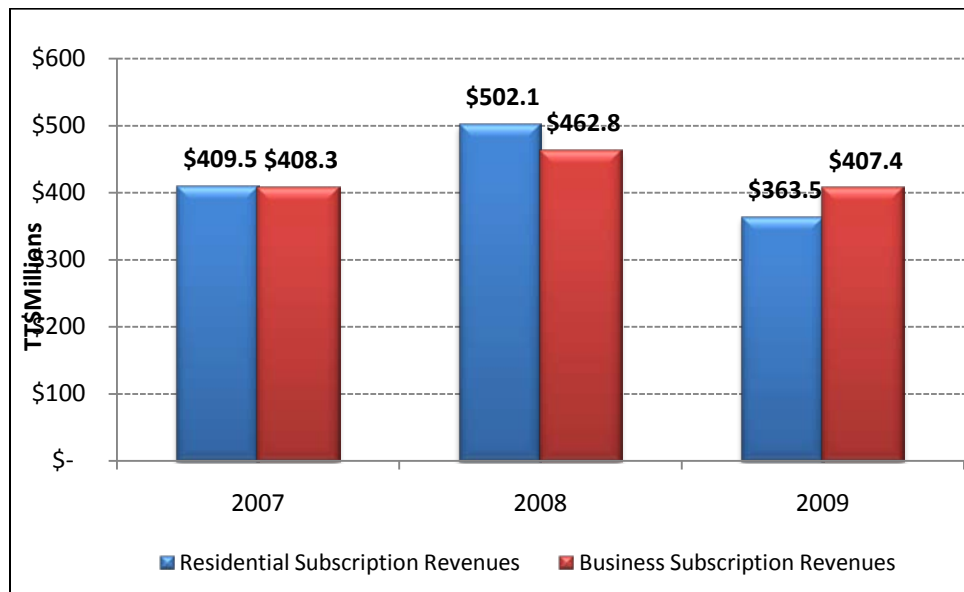
Source: TATT

Within the subscription categories, residential subscriptions accounted for \$363.5 million or 47.2 per cent of total fixed voice subscription revenues, a 27.6 per cent drop from

¹⁶ Fixed voice services include revenues from voice subscriptions, payphones, calling cards, and miscellaneous services.

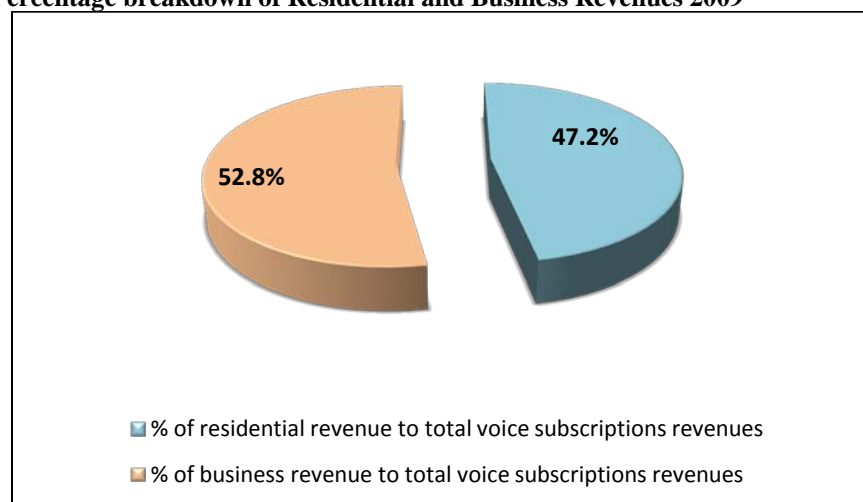
2008. Similarly, business subscriptions accounted for \$407.4 million or 52.8 per cent of total fixed voice subscription revenue, a smaller decrease of 12 per cent from 2008. The reduction in revenues may be explained by the 3.7 per cent decrease in fixed voice subscriptions and the decrease in traffic volume mentioned earlier. Figure 26 shows the separation of annual revenues according to residential and business categories and Figure 27 illustrates the percentage of revenue contribution.

Figure 26: Residential and Business Fixed Voice Revenues 2007-2009



Source: TATT

Figure 27: Percentage breakdown of Residential and Business Revenues 2009

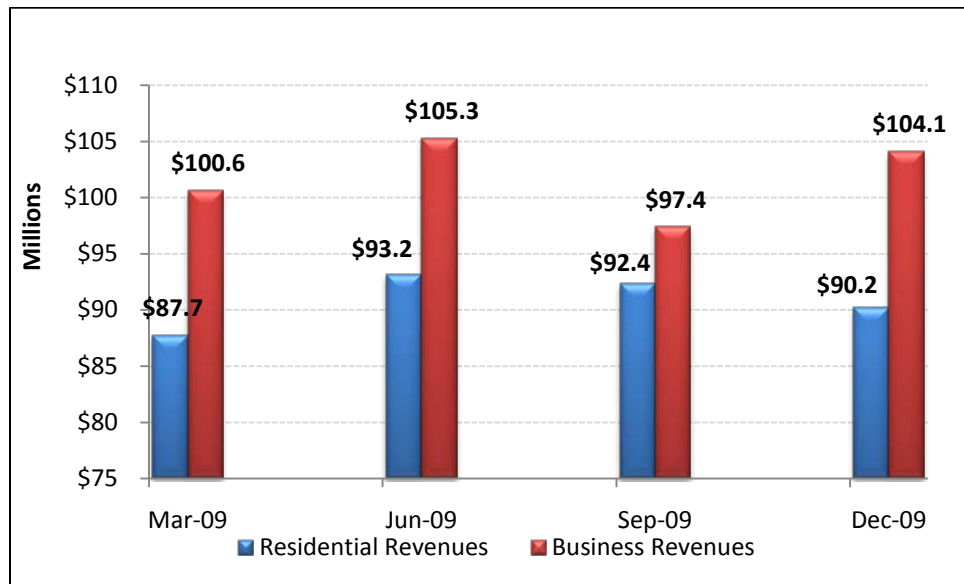


Source: TATT

2.4.2 Quarterly Fixed Voice Subscription Revenues

During 2009 fixed voice revenues generated on a quarterly basis fluctuated resulting in an overall 3 per cent increase in total voice subscription revenues between Quarter 1 and Quarter 4. Interestingly, the second quarter of 2009 recorded the highest revenue contribution for the year even though the number of both residential and business subscriptions declined for the corresponding period. The quarterly residential and business revenues for 2009 are depicted in the following diagram.

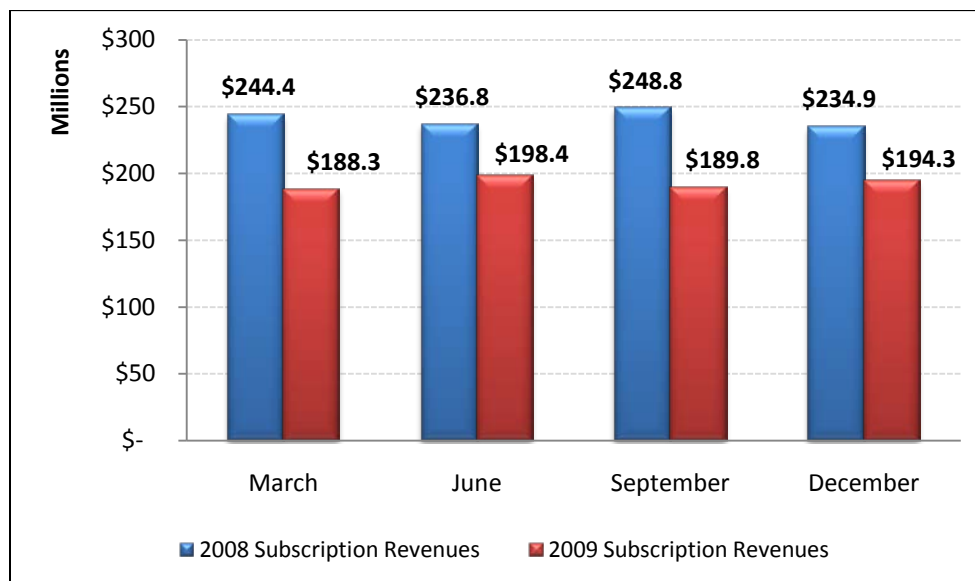
Figure 28: 2009 Quarterly Residential and Business Voice Subscription Revenues



Source: TATT

When compared to 2008, the previous quarterly period showed revenue fluctuations while 2009 recorded its only dip in subscription revenues during the third (September) quarter. Figure 29 compares the quarterly trends between 2008 and 2009.

Figure 29: Comparison of 2008 and 2009 Quarterly Subscription Revenues



Source: TATT

2.5 Fixed Market Concentration

Consistent with the Authority’s Price Regulation Framework, the Hirschman-Herfindahl Index (HHI)¹⁷ has been adopted to measure the level of market concentration and the state of competitiveness in the market.

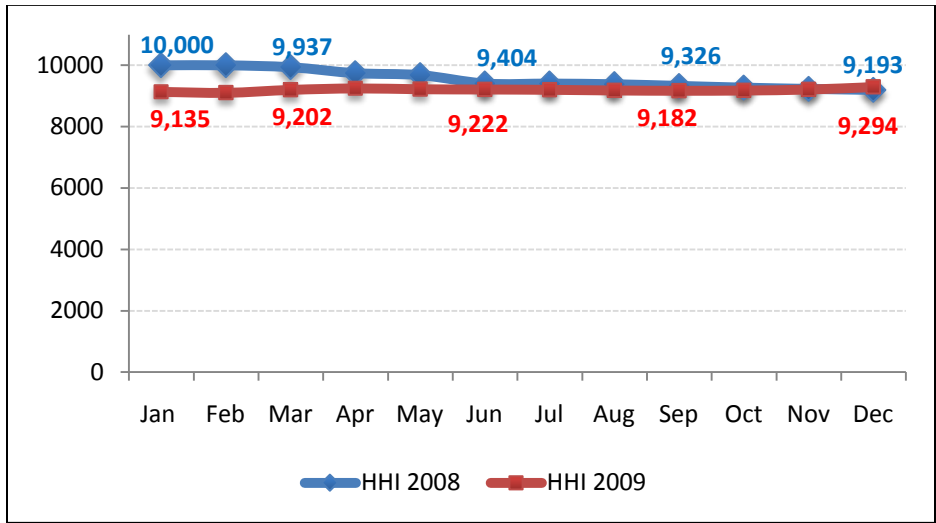
At December 2009, the HHI calculated for the fixed voice market was 9294¹⁸ compared to 9193 in December 2008. While these figures indicate that the market remains highly contested and concentrated, there has been a slight increase in the level of concentration as a direct result of the falling number of subscriptions in the fixed voice market. As graphically illustrated in Figure 30, while the HHI has fluctuated between January to September 2009, the last quarter showed a continuous rise in the HHI consistent with the drastic dip in subscriptions within the market.

¹⁷ HHI is a useful tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market shares of all firms in the market. The guidelines used for market concentration are: HHI < 1,000 – **Unconcentrated**, 1,000 < HHI < 1,800 – **Moderately Concentrated** and HHI > 1,800 **Concentrated**.

In addition, according to the Authority’s Price Regulation Framework (www.tatt.org.tt), the Authority defines competitiveness as follows: HHI < 1,800 – **Competitive**, HHI > 1,800 – **Contested**, HHI = 10,000 – **Uncontested**.

¹⁸ Based on subscription market share

Figure 30: HHI for the Fixed Voice Market 2008- 2009

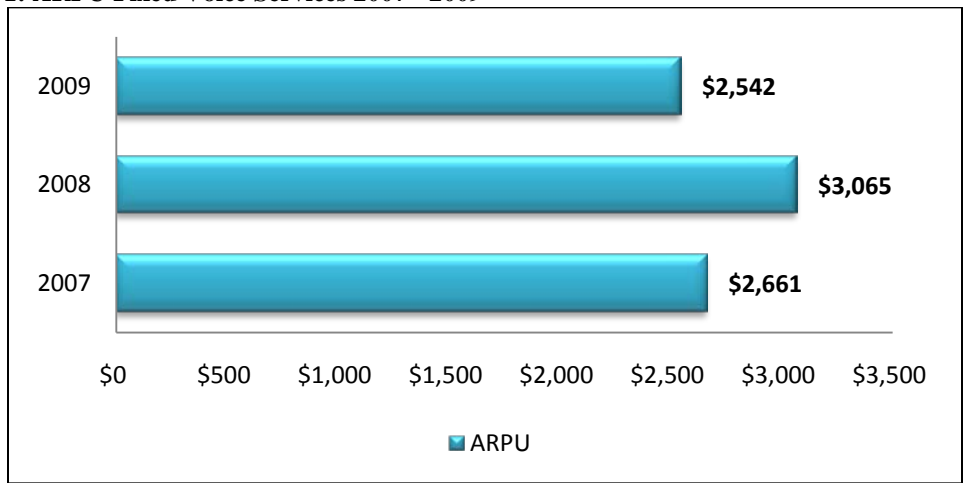


Source: TATT

2.6 Average Revenue per User (ARPU)

For the year 2009, persons spent an average of TT \$2,542 for fixed voice services. This represents a decrease of TT\$523 or 17.1 per cent in the average revenue per user (ARPU)¹⁹ over the amount recorded for 2008. The changes in ARPU for the last three years are highlighted in Figure 31.

Figure 31: ARPU Fixed Voice Services 2007 - 2009

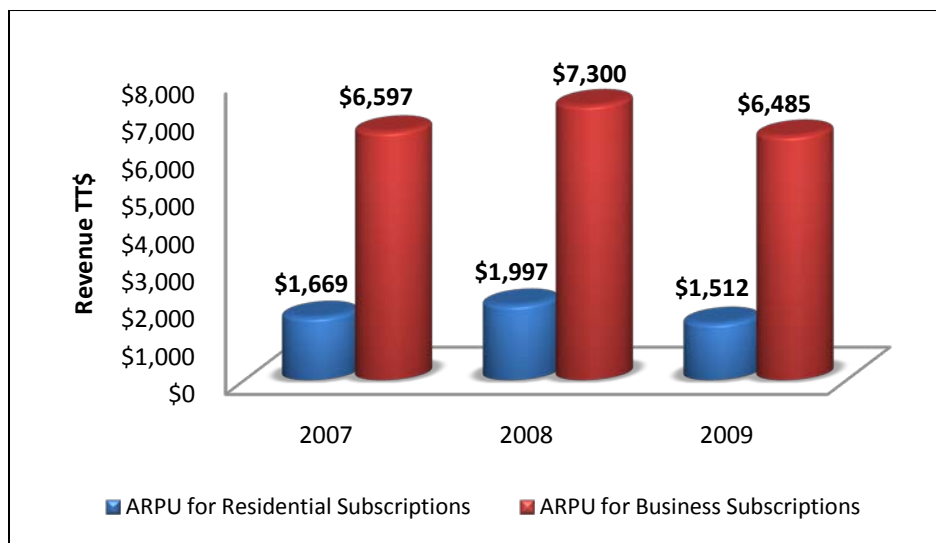


Source: TATT

¹⁹ ARPU measures the average revenue generated by one subscriber. It is calculated = (Total revenues for fixed voice subscriptions / Total number of fixed subscriptions)

On a smaller scale residential consumers spent an average of TT\$1,512 on fixed voice subscription services, a decline of 24.3 per cent over 2008. Similarly, business consumers spent an average of TT\$6,485 on fixed voice subscription services, a fall of 11.2 per cent. The decline in ARPU for residential and business consumers is illustrated in Figure 32. The 17.1 per cent overall decrease in ARPU is consistent with the combined 20.1 per cent fall in revenue and the 3.7 per cent dip in subscriptions experienced in the fixed market for the period.

Figure 32: ARPU for Fixed Residential and Business Voice Services 2007-2009



Source: TATT

3. Mobile Market Data

During 2009, there were two mobile service providers authorized to provide public domestic mobile telecommunications services on a national basis in Trinidad and Tobago. They were:

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

The mobile market data compiled below is representative of these two operators for the period 2009.

3.1 Mobile Voice Subscriptions²⁰

3.1.1 Annual Mobile Subscriptions

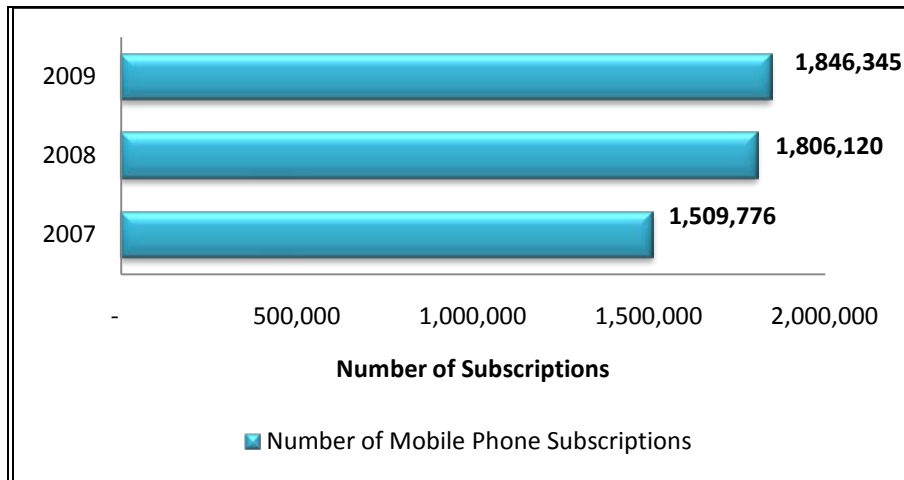
As at December 2009, the mobile market recorded a total of 1.85 million subscriptions of which 1.69 million were prepaid subscriptions and 157.5 thousand were post paid. This total represents an increase of 40.2 thousand or 2.2 per cent over the 1.81 million subscriptions recorded in 2008. When compared to the 19.6 per cent growth in subscriptions experienced between 2007 and 2008, the 2.2 per cent growth for the 2009 period may seem minimal. However the decrease in the rate of growth may be partially attributed to two main factors:

- The mobile market in Trinidad and Tobago may be nearing its saturation point; and
- The national economic recession may have reduced the demand for new mobile subscriptions.

Figure 33 below highlights the trend in mobile subscriptions for the period 2007 to 2009.

²⁰A mobile voice subscription refers to an activated (pre-paid or post-paid) SIM card that enables the user to make and/or receive a call.

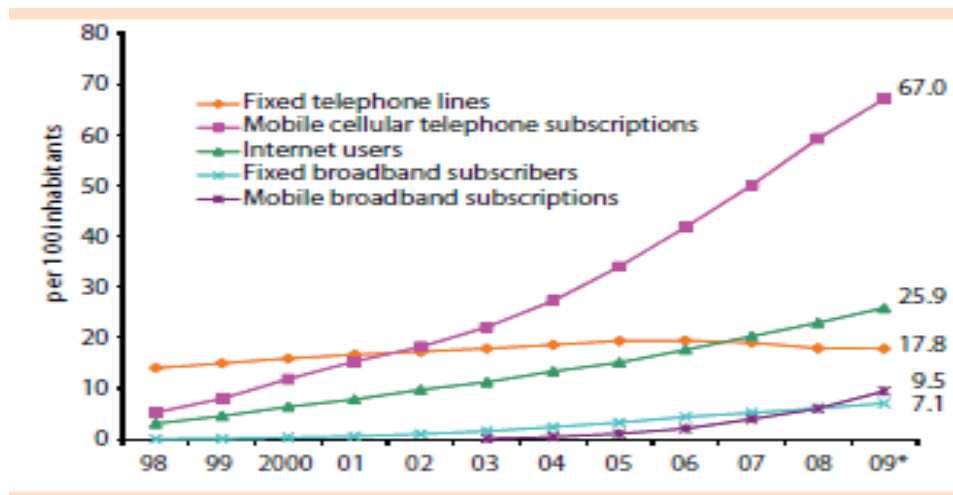
Figure 33: Mobile Subscriptions 2007-2009



Source: TATT

The continuing growth, albeit marginal, in mobile subscriptions within the local market is consistent with existing global trends which recorded voice consumers increasing their uptake of mobile services as opposed to traditional fixed line voice services²¹. The relatively low cost of mobile services and devices, as well as widespread geographical coverage, are the main contributing factors leading to the growth in the mobile market overtaking the fixed line voice market. Comparison of the global trend between mobile subscriptions and other telecommunications services, including fixed line, is illustrated in Figure 34.

Figure 34: Global ICT Developments 1998 – 2009

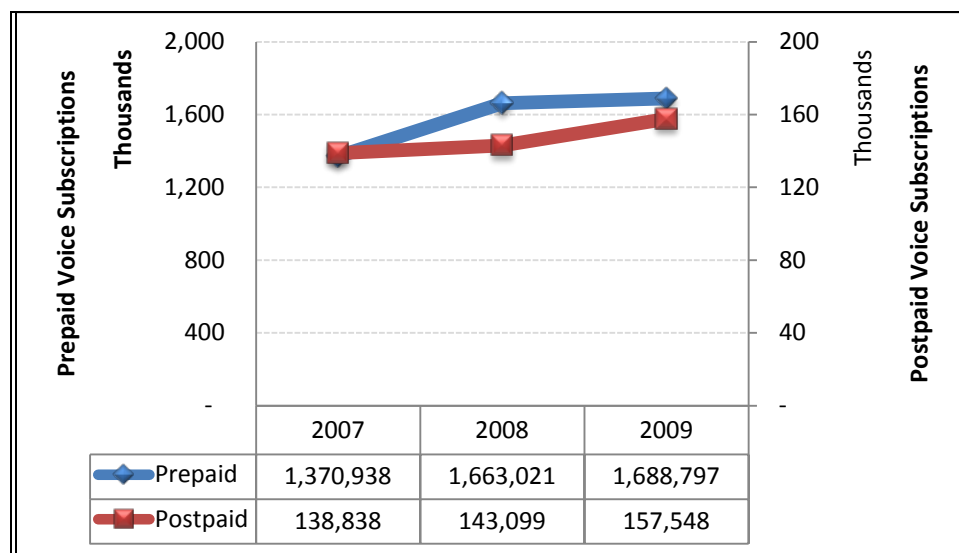


Source: Measuring Information Society 2010, ITU

²¹ Adapted from 'Measuring the Information Society 2010' by the International telecommunications Union

Within the local mobile market, Figure 35 shows that the number of prepaid subscriptions continued to grow with an increase of approximately 25.8 thousand subscriptions, or 1.5 per cent, between 2008 and 2009. This 1.5 per cent growth rate can be considered minimal when compared to the 21.3 per cent growth in prepaid subscriptions for the 2007 to 2008 period. Moreover, postpaid subscriptions showed significantly higher growth of approximately 10.1 per cent, or an estimated 14.4 thousand subscriptions since the last period which recorded only a 3.0 per cent growth in postpaid subscriptions. This is contrary to the usual trend in the 2007 and 2008 period which saw prepaid subscribership growing at a faster rate than postpaid subscribership. One explanation for postpaid subscriptions growing more rapidly than prepaid in 2009 may be the marketing strategies adopted by the mobile service providers which encouraged the take-up of postpaid packages by customers. As an example there has been a shift by service providers towards offering lower priced monthly fee contracts to customers. Basic postpaid plans were offered for as low as \$80 per month.

Figure 35: Mobile Prepaid and Postpaid subscriptions 2007 – 2009

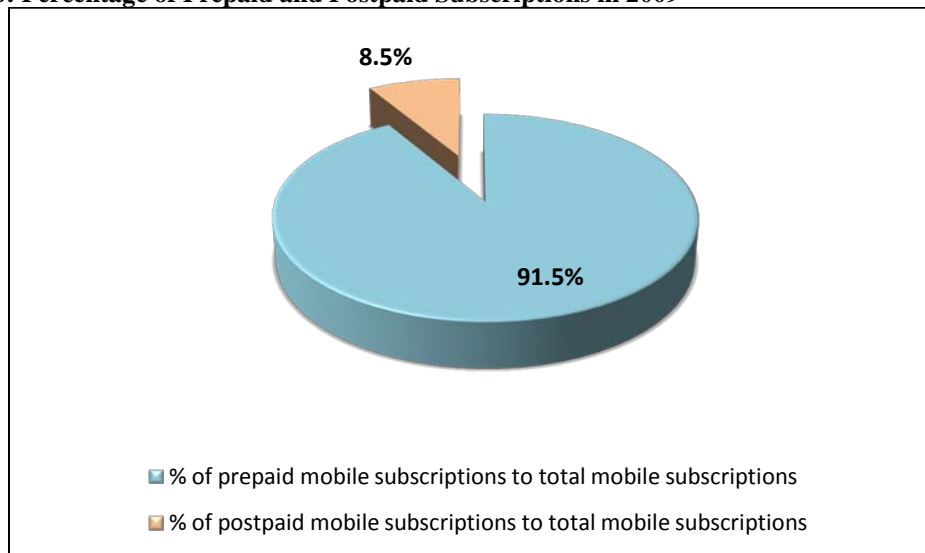


Source: TATT

Although there was stronger growth recorded in postpaid subscriptions, prepaid subscriptions accounted for the majority of the mobile market with approximately 91.5 per cent market share. Postpaid subscriptions accounted for the remaining 8.5 per cent

share of the market. The pie chart in Figure 36 illustrates the percentage breakdown in subscriptions.

Figure 36: Percentage of Prepaid and Postpaid Subscriptions in 2009



Source: TATT

It should be noted that both locally and globally, data suggests subscribers prefer prepaid packages to postpaid packages as there are no contractual commitments and it gives consumers, especially those within the lower income bracket, the flexibility to use mobile services only when they can afford it. Evidence of the global trend showing prepaid outnumbering postpaid subscriptions was published in an October 2008 ITU article which stated:

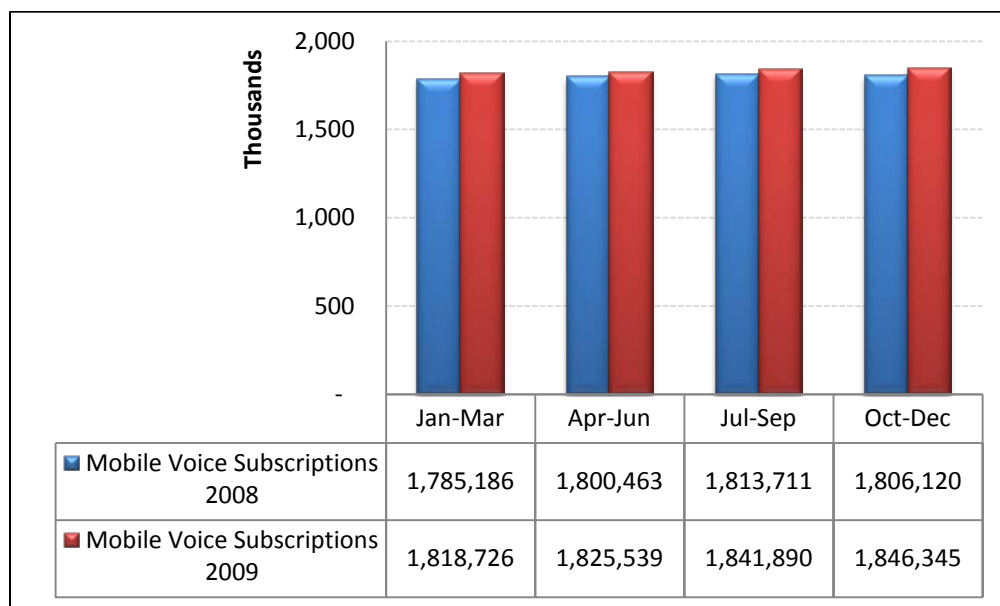
*‘During 2007 and into 2008, the market for prepaid mobile services has continued to grow more than twice as fast as the contract market according to Informa Telecoms & Media. At the end of 2007, there were 2.33 billion prepaid subscriptions in the world ...*²²

²² The ITU article can be referenced at the following link:
<http://www.itu.int/ITU-D/ict/newslog/Prepaid+Outstrips+Postpaid+Two+To+One.aspx>

3.1.2 Quarterly Mobile Subscriptions

Overall the mobile voice industry saw a 1.5 per cent increase in the total number of subscriptions from 1.82 million as at the end of the Quarter 1 (January to March 2009) to 1.85 million at the end of Quarter 4 (October to December 2009). The first quarter of 2008 showed a stronger growth rate when compared to the same period in 2009. In addition, the last quarter of 2008 showed a reduction in subscriptions of 0.4 per cent, while the corresponding period in 2009 showed subscription numbers slightly increasing by 0.2 per cent, the lowest quarterly increase recorded for the year. Figure 37 compares the quarterly trends for 2008 and 2009.

Figure 37: Quarterly Number of Subscriptions 2008 and 2009

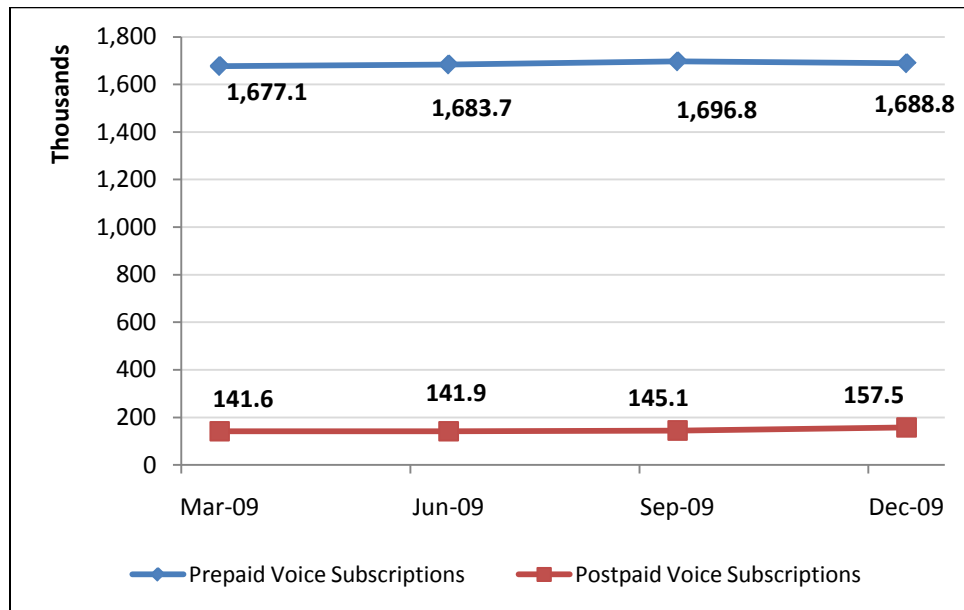


Source: TATT

Figure 38 below shows the quarterly growth trend for both prepaid and postpaid subscriptions during the 2009 period. While postpaid experienced constant growth throughout the four quarters, prepaid subscriptions recorded a slight decline of approximately 8.0 thousand subscriptions through the last quarter of 2009. The decrease in prepaid subscriptions may be as a result of:

- the direct effect of the service providers’ marketing strategies to boost revenues by encouraging customers to switch to postpaid packages;
- the negative effects of the recession leading to persons with multiple handsets to discontinue use of any unnecessary prepaid service.

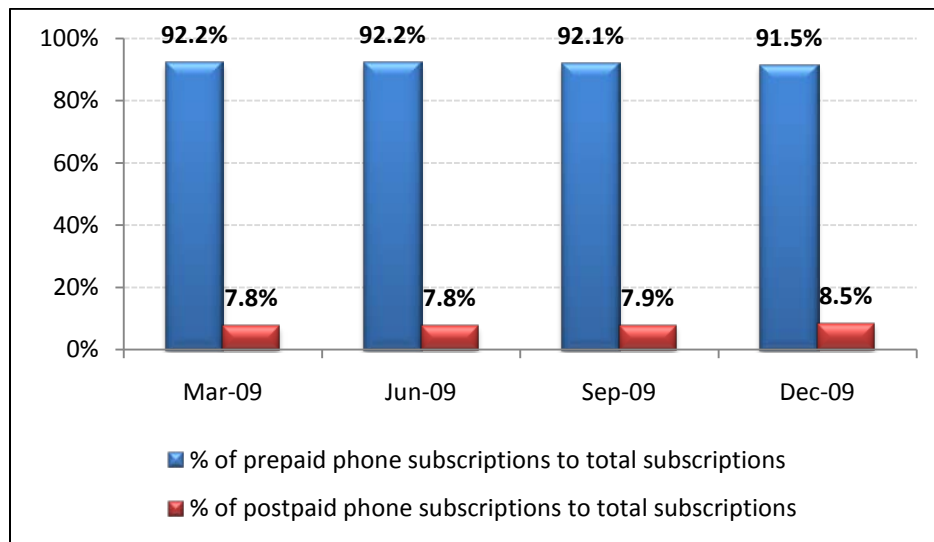
Figure 38: 2009 Quarterly Prepaid and Postpaid Subscriptions



Source: TATT

From a market share position, prepaid subscriptions comprised the majority of the mobile market with an average of 92 per cent market share while postpaid subscriptions accounted for the remaining 8 per cent. However Figure 39 shows that throughout the quarters of 2009, the percentage of market share occupied by prepaid subscriptions constantly decreased while the number of postpaid subscriptions continually rose. As mentioned above, this may be the effects of market churn where some prepaid customers were switching over to the postpaid plans offered by the service providers, in addition to the discontinued use of multiple prepaid mobile subscriptions.

Figure 39: Percentage of prepaid and postpaid subscribers on Quarterly Basis 2009



Source: TATT

3.2 Mobile Penetration

3.2.1 Mobile Penetration Rate in the Domestic Market

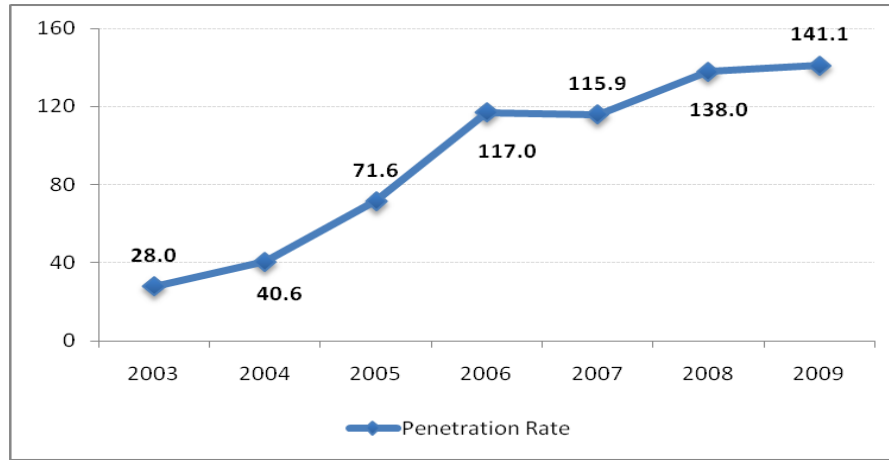
During 2003 to 2009, the mobile penetration rate²³ in Trinidad and Tobago continually increased with the exception of the 2007 period. This exception stemmed from the increase in subscriptions in 2006 as Digicel entered the market and the competitive marketing strategies employed by TSTT to attract new subscribers to their customer base. The significant upsurge in mobile penetration in 2006 was quelled in 2007 as the market settled to accommodate the rise in competition. This led to a minor decline in mobile penetration for 2007.

The competitive tactics between TSTT and Digicel continued in 2009 as the mobile penetration rate stood at 141.1, a 2.8 per cent growth from 2008. This occurred as a direct result of the 2.2 per cent growth in mobile subscriptions for 2009 as noted in Section 3.1. This marginal increase in penetration may be as a result of the combined negative effects of the recession, and the inference that the mobile market in Trinidad and Tobago may be nearing its saturation point.

²³ Mobile Penetration Rate = (number of mobile subscriptions / total population) * 100

Figure 40 shows the varying levels of penetration rates from 2003 to 2009.

Figure 40: Mobile Penetration Level per 100 Inhabitants for Trinidad and Tobago 2003-2009

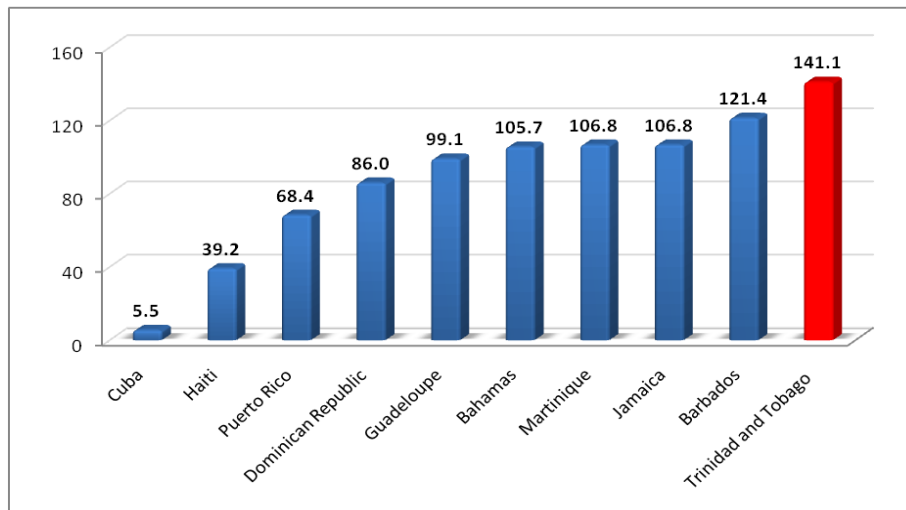


Source: TATT

3.2.2 Regional Mobile Penetration Rates

Figure 41 compares the mobile penetration rates for selected Caribbean countries where Trinidad and Tobago recorded the highest mobile penetration rate of 141.1 for the 2009 period. Following behind were Barbados and Jamaica with penetration rates of 121.4 and 106.8 respectively. Cuba and Haiti were at the other end of the scale with the lowest readings of 5.5 and 39.2.

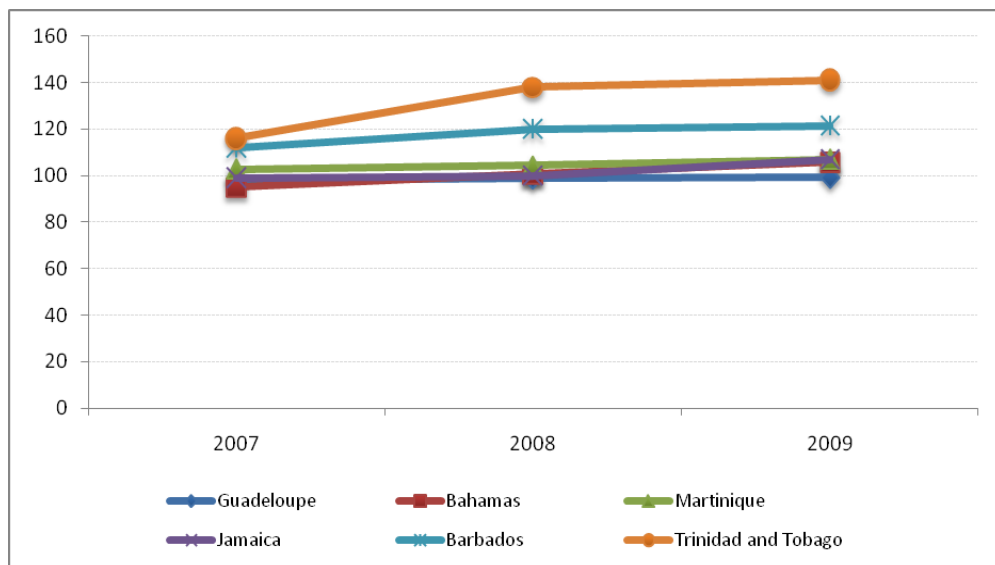
Figure 41: 2009 Mobile Penetration for Selected Countries in the Caribbean



Source: BMI Caribbean Telecommunications Report Q2 2010, and TATT

From observing the regional trend, it is estimated that the majority of the Caribbean countries exceeding the 100 per cent mobile penetration threshold have begun to experience a slowing of growth in the mobile market. This may be an indication that these markets are nearing their saturation points with limited growth expected in the future. Figure 42 illustrates, for selected Caribbean countries nearing or exceeding 100 per cent mobile penetration level, the slow down in growth rate for 2009 when compared to the growth rates in 2007 and 2008.

Figure 42: 2007 – 2009 Mobile Growth Rate among selected Caribbean Countries

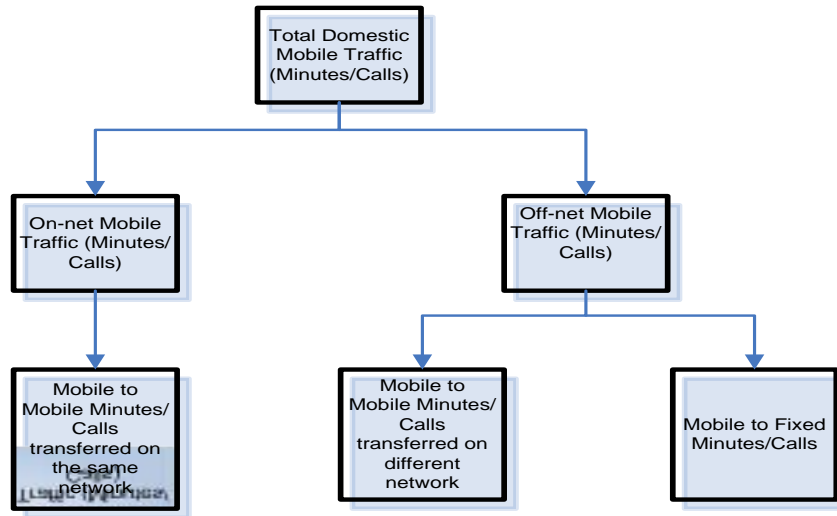


Source: TATT

3.3 Domestic Mobile Voice Traffic

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

Figure 43: Classification of Domestic Mobile Traffic



Source: TATT

3.3.1 Annual Domestic Fixed Voice Traffic in Minutes

As illustrated in Figure 44 below, domestic mobile voice traffic totaled 5.1 billion minutes for the 2009 period, a 9.7 per cent increase from 2008.

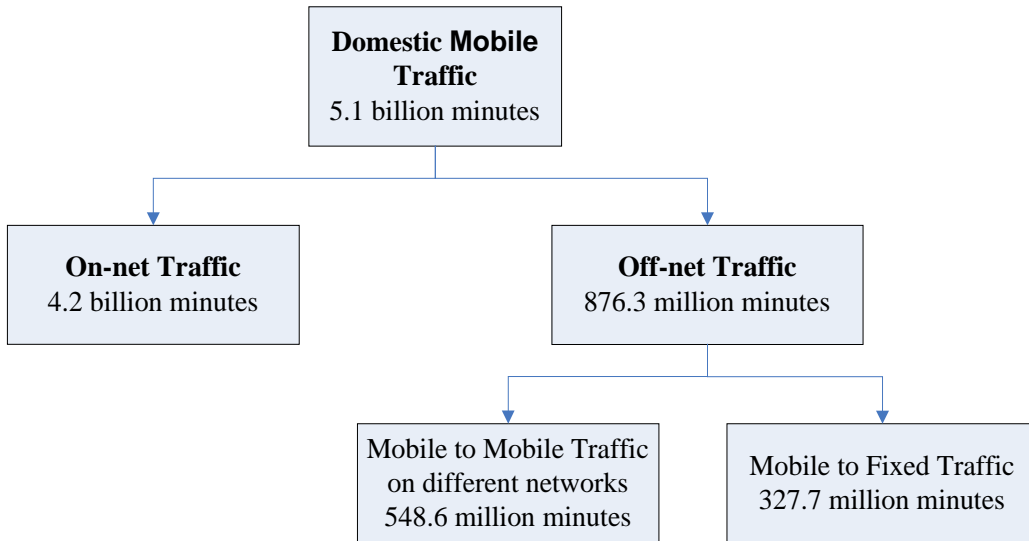
Of the 5.1 billion minutes of domestic fixed traffic, on-net²⁴ traffic totaled 4.2 billion minutes while off-net²⁵ traffic recorded 876.3 million minutes. There were 548.6 million mobile to mobile off-net minutes, while 327.7 million mobile to fixed minutes comprised the remaining off-net traffic.

A breakdown of the subcategories of mobile traffic minutes for 2009 is shown below.

²⁴ On-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on the same mobile network.

²⁵ 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 network and terminating on bmobile, Flow or TSTT's fixed network will be included in these minutes.

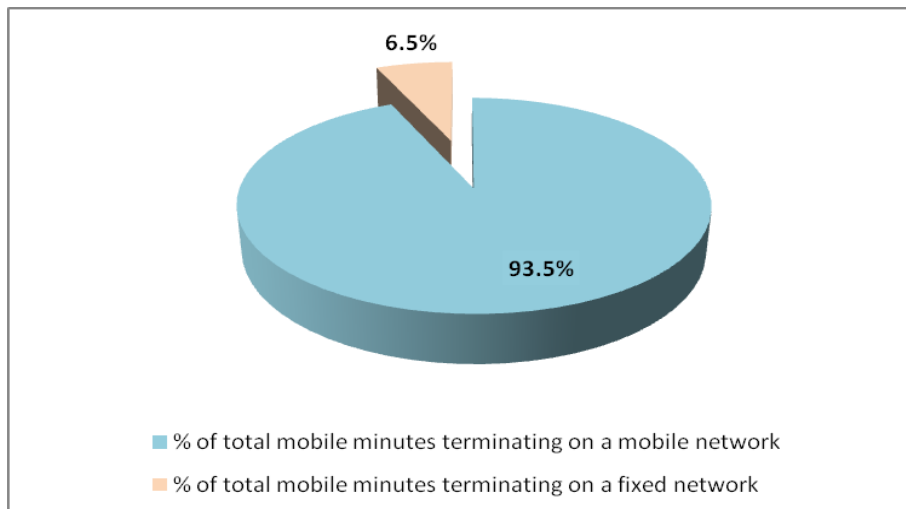
Figure 44: Breakdown of Domestic Mobile Traffic Minutes 2009



Source: TATT

Furthermore, the percentage of total mobile minutes terminating on a domestic mobile network was estimated to be 93.5 per cent, while 6.5 per cent represented the number of mobile minutes terminating on a domestic fixed network. Figure 45 gives a representation of the percentage contribution.

Figure 45: Percentage Breakdown of Fixed and Mobile Contribution to Total Mobile Voice Minutes 2009



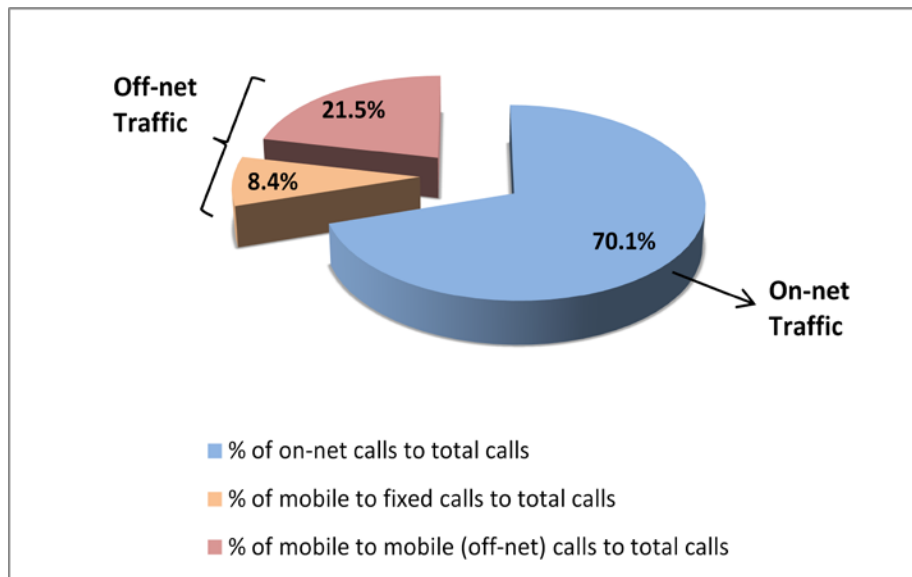
Source: TATT

3.3.2 Annual Domestic Mobile Voice Call Volumes

Domestic mobile voice traffic totaled 2.8 billion calls for the 2009 period. Of the 2.8 billion calls, on-net traffic totaled 2.0 billion calls or 70.1 per cent of total mobile call traffic, while off-net traffic recorded 837.0 million calls or 29.9 per cent of total mobile call traffic. Further divided, off-net traffic comprised 234.0 million mobile to fixed calls or 8.4 per cent of total mobile calls, with the remaining 603.0 million calls representing mobile to mobile off-net traffic, 21.5 per cent of total mobile calls.

A breakdown of the subcategories of traffic is shown below.

Figure 46: Breakdown of domestic Mobile Traffic Calls 2009



Source: TATT

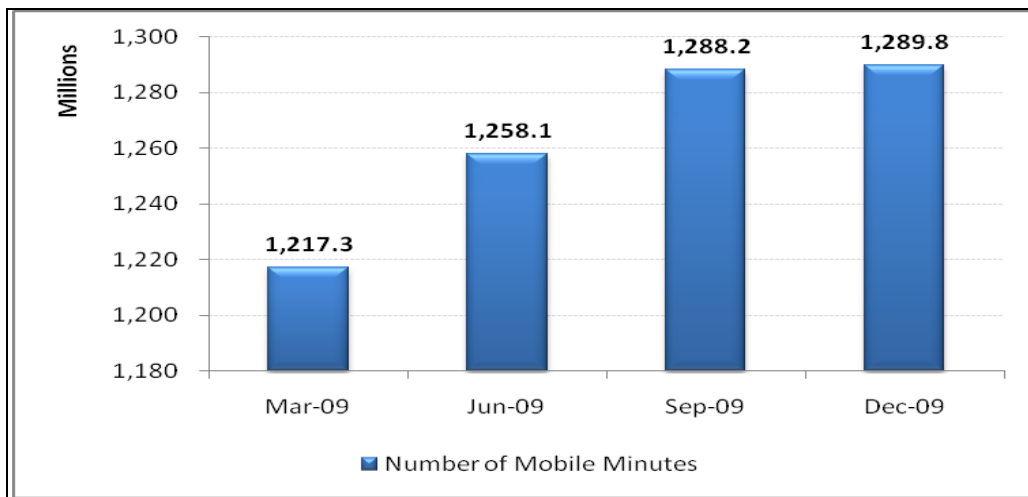
3.3.3 Quarterly Domestic Mobile Voice Traffic

Total domestic mobile voice traffic increased between Q1 and Q4 from 1.2 billion minutes to 1.3 billion minutes, a 6.0 per cent increase between periods. Additionally, for the first quarter of 2009, mobile-to-fixed traffic volume represented 6.6 per cent of total domestic mobile voice traffic volume. This share gradually decreased to 6.4 per cent of the total volume of domestic mobile traffic in the fourth quarter of 2009. Synonymous

with this decrease in the share of mobile-to-fixed traffic volume is the increase in the share of mobile-to-mobile traffic volumes. The share of traffic from mobile-to-mobile networks increased slightly from 93.4 per cent in Q1 to 93.6 per cent of total mobile traffic in Q4 of 2009. However, as the increase in mobile-to-mobile minutes outweighed the fall in mobile-to-fixed minutes, overall mobile traffic volume rose between Q1 and Q4.

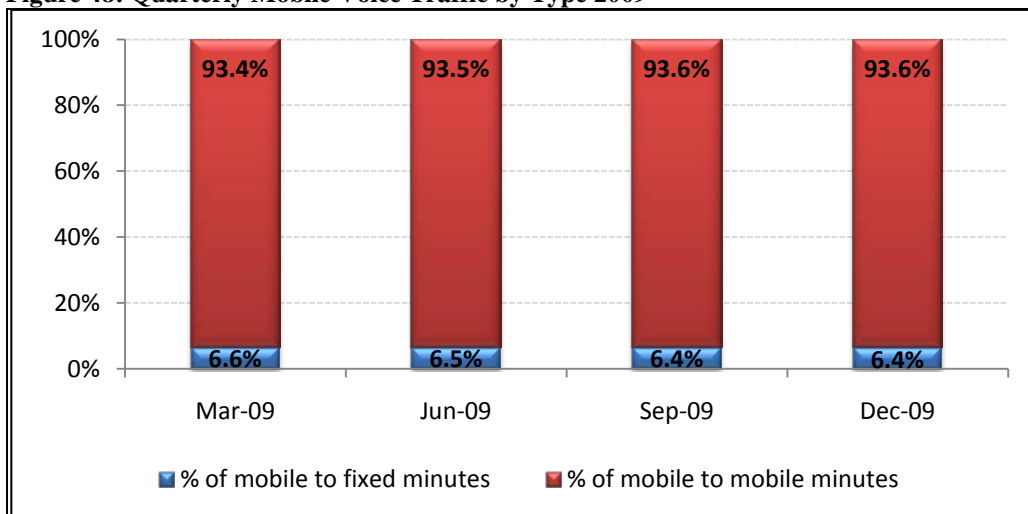
The trend in the quarterly mobile voice traffic for 2009 is shown in Figure 47 while the quarterly trend by traffic type is depicted in Figure 48.

Figure 47: Quarterly Mobile Voice Traffic 2009



Source: TATT

Figure 48: Quarterly Mobile Voice Traffic by Type 2009



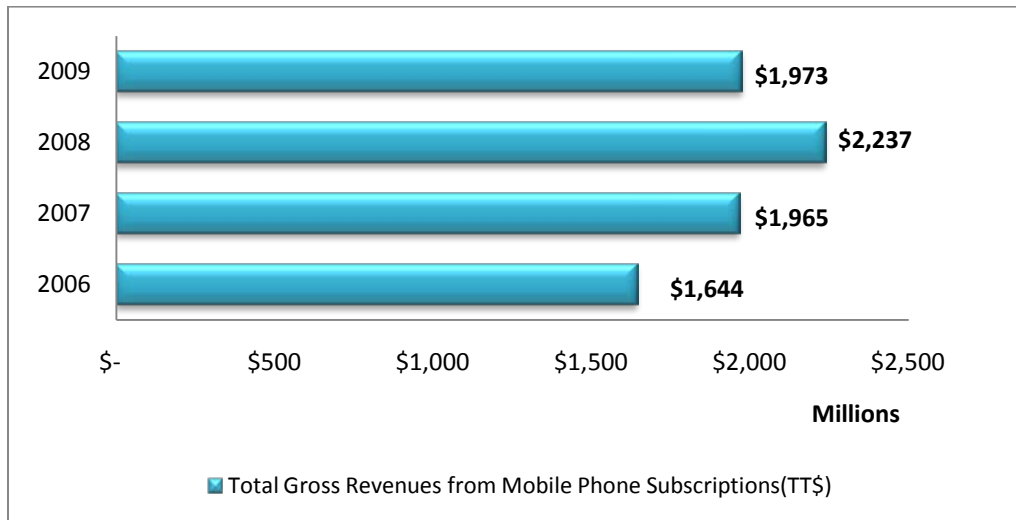
Source: TATT

3.4 Mobile Voice Revenues

3.4.1 Annual Revenues from Mobile Voice Subscriptions²⁶

For 2009, annual revenues from mobile voice subscriptions totalled TT\$1,973 million. For the first time in three years the mobile market experienced a fall in revenues. This decline from 2008 to 2009 amounted to TT\$263.8 million, a decrease of 11.8 per cent. The annual revenue trend from 2006 to 2009 is illustrated in Figure 49.

Figure 49: Annual revenues from Mobile Voice Subscriptions 2006 – 2009



Source: TATT

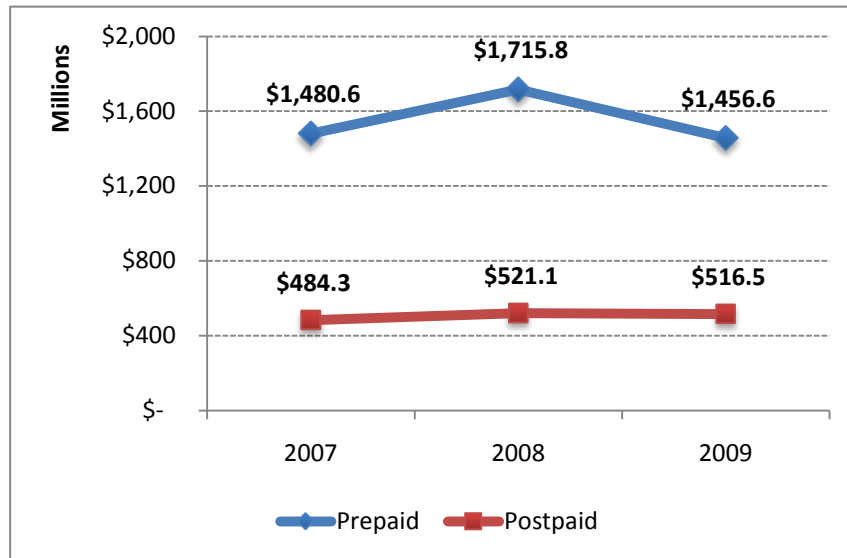
Prepaid revenue accounted for the main portion of revenues with a contribution of TT\$1,457 million or 73.8 per cent of total mobile voice revenues, a 15.1 per cent decrease from 2008. In contrast, postpaid subscribers contributed TT\$516.5 million or 26.2 per cent of the total mobile earnings, a smaller fall of 0.9 per cent from 2008.

During the 2009 period, the two mobile service providers both implemented promotions geared towards boosting mobile usage. For example, bmobile's 'my lime' promotion offered customers the ability to call up to five numbers where the customer paid for the

²⁶ These revenues exclude mobile Internet revenue which is reported within the Internet section of this report.

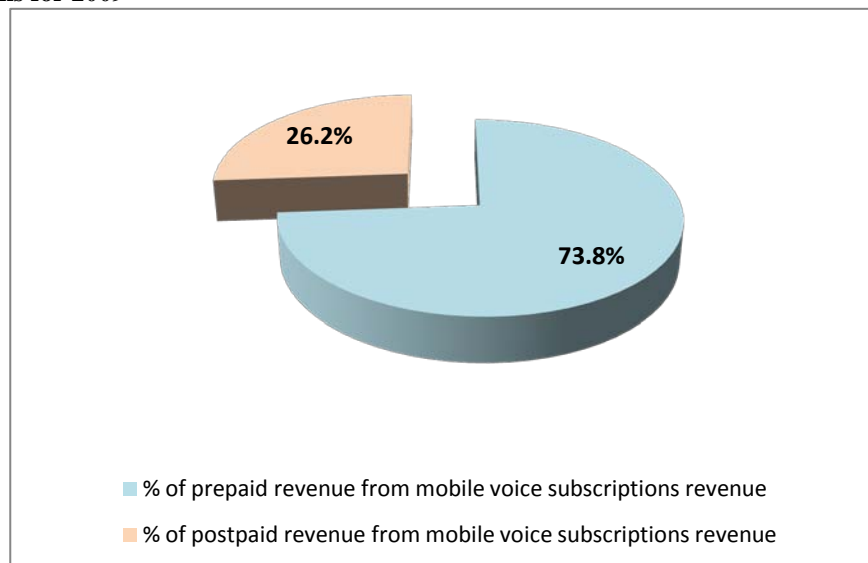
first three minutes and could talk for up to an hour for free. Digicel offered a similar promotion allowing customers to spend three minutes on a call while up to half an hour is free. While these promotions may have contributed to the increase in traffic mentioned in the previous section, it did not contribute positively to the revenues earned for the period. Figures 50 and 51 show the trend in prepaid and postpaid revenues for the period 2007-2009 and the percentage contributions to revenues.

Figure 50: Revenues from Mobile Voice Subscriptions-Prepaid and Postpaid 2007 – 2009



Source: TATT

Figure 51: Percentage of Prepaid and Postpaid Contributions to Revenues from Mobile Voice Subscriptions for 2009

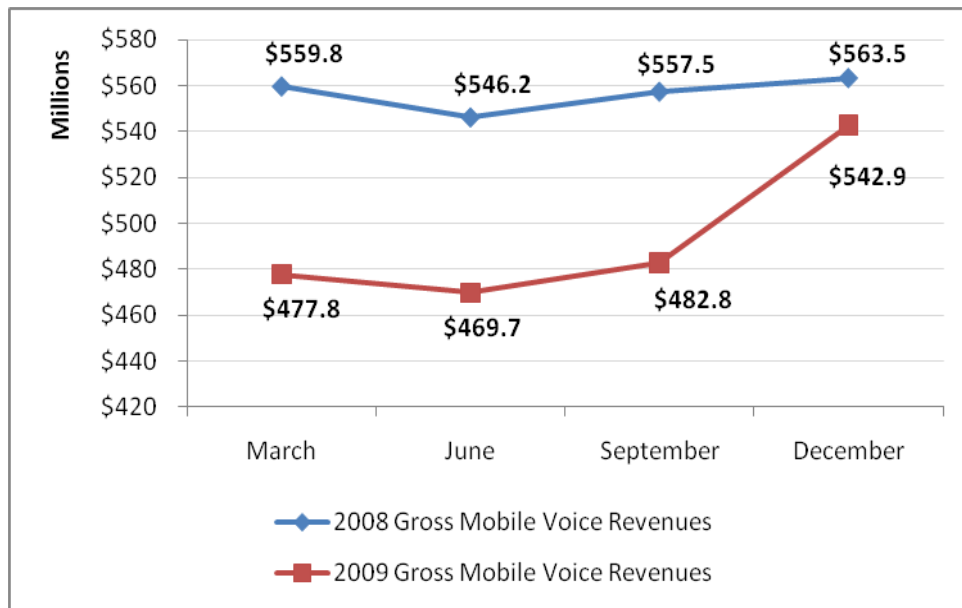


Source: TATT

3.4.2 Quarterly Revenues from Mobile Voice Subscriptions

The mobile voice industry saw a 13.6 per cent increase in the amount of revenues generated from \$477.8 million as at the end of the Quarter 1 (January to March 2009) to \$542.9 million at the end of Quarter 4 (October to December 2009). When compared to 2008 similar trends can be seen during Quarter 2 (April to June) where there were dips in the revenue numbers. However increases were then noticeable during the third and final quarters of the periods, evidence of the seasonal fluctuations from the school vacation period (see Box 2) and the Christmas season. Figure 52 compares the quarterly mobile revenues for 2008 and 2009.

Figure 52: Comparison of 2008 and 2009 Quarterly Mobile Revenues

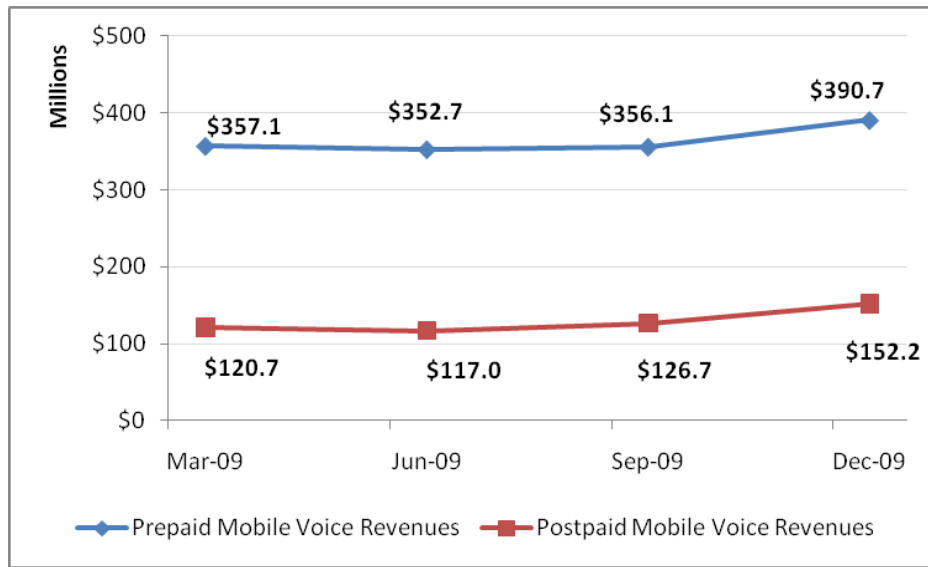


Source: TATT

Prepaid revenues decreased by 9.4 per cent between Quarter 1 and Quarter 4 while postpaid revenues increased by 26.1 percent for the same period. The increase in postpaid revenues during the quarters is consistent with the rise in postpaid subscriptions as well as the numerous promotions targeting the market.

Figure 53 shows the quarterly prepaid and postpaid revenue trends for 2009.

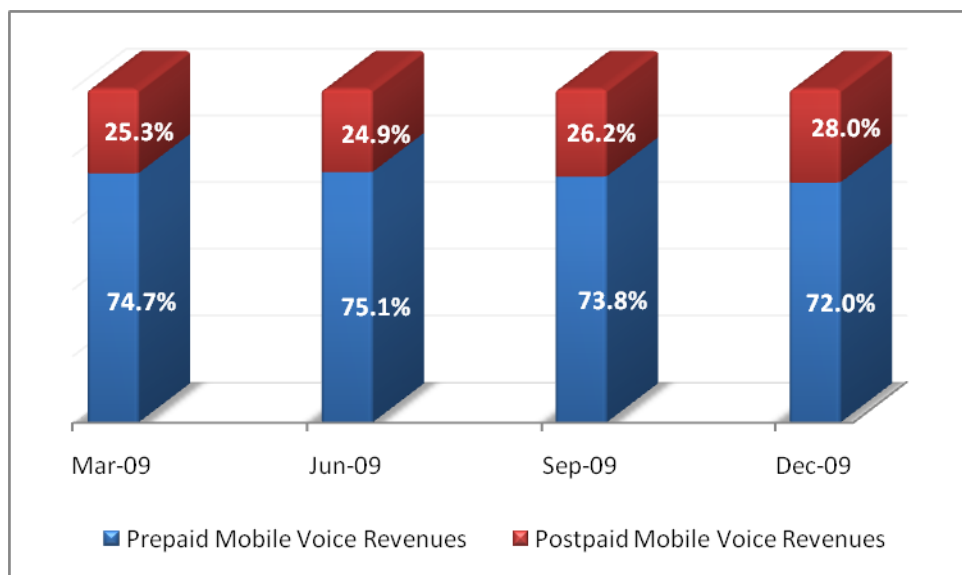
Figure 53: 2009 Quarterly Prepaid and Postpaid Revenues



Source: TATT

From a market share position, prepaid subscriptions contributed the majority of mobile market revenues with an average of 73.9 per cent market share while postpaid subscriptions contributed the remaining 26.1 per cent. However Figure 54 shows that during the last two quarters of 2009, the percentage of market share occupied by prepaid revenues constantly decreased while the amount of postpaid revenues continually rose.

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



Source: TATT

Box 2: The Short -term Influence of Competitive Strategies on Mobile Revenues

Competition, Competition, Competition!

A distinctive characteristic of the local mobile market is competition, competition and more competition! Indeed, it is without a doubt that the two mobile operators in Trinidad and Tobago engage in aggressive competition on a daily basis. While the HHI for the year 2009 of 5000, gives empirical evidence to support this statement, most consumers may attest to being exposed to some form of competitive strategy, from either provider, in the form of entertaining local television ads, colourful ads in the local print media and of course numerous unforgettable, catchy jingles filling the airwaves of any local radio station! A review of the tangible evidence in the local media demonstrates, without a doubt that the two mobile providers invest heavily in advertising, sales promotions, public relations, sponsorships and even customer lock-in strategies as a means of competing with each other.

While basic economic theory tells us that the main aim of the entrepreneur is profiteering, we can assume that such heavy investments in the midst of the mobile competitive climate, is geared towards increasing sales and ultimately provider revenues. If this is so, such investment by the provider should correlate with increasing revenues.

This article therefore seeks to ascertain, based on evidence in the print media during the July to August 2009 period, the impact of such promotional activity on mobile revenues in the Trinidad and Tobago market.

Revenues - Up again, Down again...Up again!

For the year 2009, there is a general upward trend in revenues, but a closer look at the fluctuations shows short-term falls followed by sharp increases. Based on Figure 52, the July to September period is characterised by a sharp peak in revenues. The peak in revenue, to the discerning mind, is indicative that some form of market activity is impacting on revenues in the short term. Let's take a closer look!

Travelling Abroad? Lots of Roaming and International Rate Promotions!

The July /August period is commonly known as the “August holidays” in Trinidad and Tobago and is more popularly known as summertime in temperate countries. This period marks the end of the school year for students at the primary and secondary school levels and it is historically evident that this results in an increase in consumer demand for certain travel-related services such as airlines, hotels, car rentals, as well as, retailing and entertainment services.

The market evidence demonstrates that the mobile telecommunications industry is no exception to such seasonality in demand. An exploration of the marketing strategies for this period demonstrates significant promotions in travel-related telecommunication services such as roaming and international calls. Much of the month of August 2009, showed advertising in the print media on the provider’s number of international roaming partners, the number of data partners in various countries, prepaid roaming services and special (cheaper) Caribbean roaming rates which may even allow the consumer to pay less to call back to Trinidad. Both networks offered competing proposals for the cheaper international rates if customers have a longer international call or offered call savings to its customers for making international calls.

Such activity described above was directly geared toward lowering price and increasing the quantity of travel-related mobile services bought. In economic theory, revenue is a function of the price per unit of a good and the number of units produced or sold. Consequently, one may infer that as consumers bought more travel related services and the prices (rates) for these services fell, revenue experienced positive growth in the short term.

Talk More, We're the Cheaper Network!!

Over the July to August period, an examination of the sales promotions revealed that the mobile providers competed against each other by introducing pricing promotions (geared toward lowering prices) and quantity promotions (geared toward increasing domestic traffic). There was extensive advertising of cheaper prepaid rates (mostly to closed user-groups), post paid plans for specific callers, sales promotions aimed at increasing the

number of calls made by the consumer as well as the number of minutes used per user. The two providers also seemed to be intensely competing in the short-message-service (SMS) market segment whereby the lowest text rate seemed to be a major point of contest.

Over this period, the data shows that both revenues and domestic traffic (represented by the number of calls and the number of minutes) increased.

Given once more, that revenue is a function of the price per unit of a good and the number of units produced or sold and that the promotions were aimed at and increasing the quantity of calls made and the number of minutes bought, at lower prices, one may infer that as a result, revenue experienced a short term increase.

We Care about You!

Another key characteristic of the promotional activity during the period, is significant involvement by both providers in socially-designed, value-added public relations, sponsorships and other corporate-image related activities. Many of these activities seemed to have been geared toward the youth and young adult population and included dance contests, tribute to a musical icon, contests and ticket giveaways to party events, sporting contests, discounted local cuisine (as a value-added strategy), network trivia and tours of local music bands. It must also be noted that during this period, the Trinidad and Tobago “Soca Warriors” were playing qualifying matches for the 2010 World Cup. As a result both providers sponsored football matches and/or associated unofficial football events, and supported the team via advertising. Additionally, toward the end of August 2009, both providers offered back to school specials, subsidized handsets, free gifts etc.

While such marketing strategies are not directly geared towards lowering price or increasing traffic, one may infer that such significant effort was placed on value-added services to gain the trust of consumers and ultimately increase the amount of services bought by the consumer.

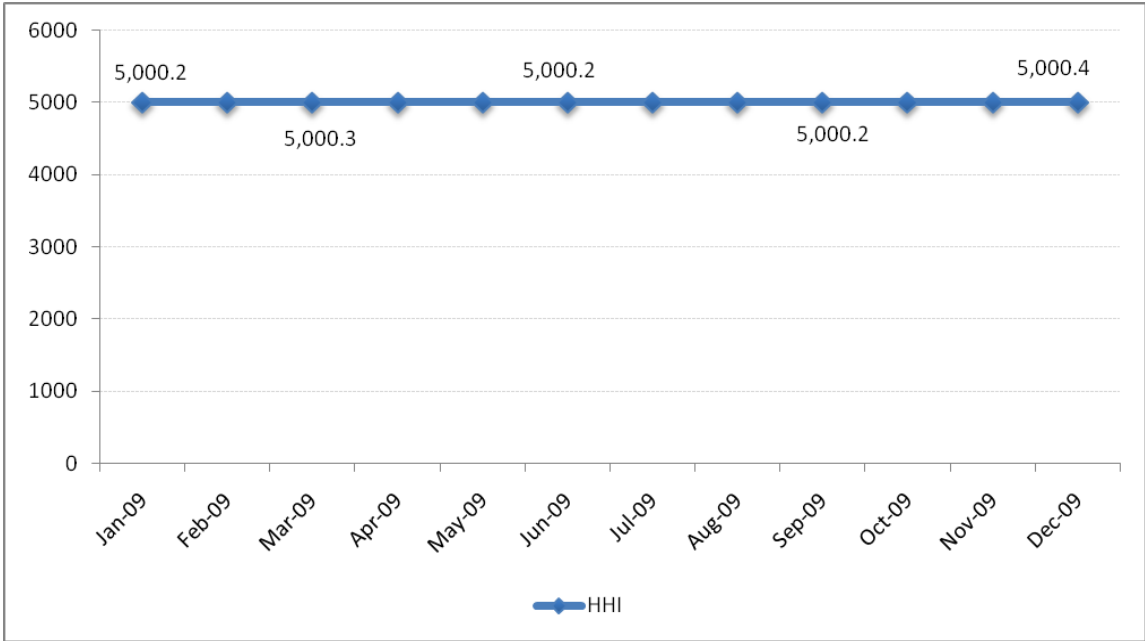
What Have We Learnt?

Indeed, there are distinctive characteristics of the competitive strategies employed by the mobile providers in Trinidad and Tobago for the period identified. Mainly, the strategies involved promotional deals for roaming and international rates, lower price promotions for domestic calls and corporate sponsorships and brand awareness. Given that for the purpose of this article there is no mathematical proof of the correlation between marketing strategies and the actual increase in the short term revenues, one can infer from the market evidence, that such marketing strategies may have influenced the quantity of mobile services bought and hence, influenced the short term increase in revenues for the period.

3.5 Mobile Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration in the mobile market of Trinidad and Tobago for the year ending December 2009. ‘Number of subscriptions’ was used to determine market share for the service providers. The result reveals that there was an HHI of approximately 5,000 throughout the year, an insignificant change over the figure reported for December 2008. Figure 55 illustrates the HHI trend for 2009.

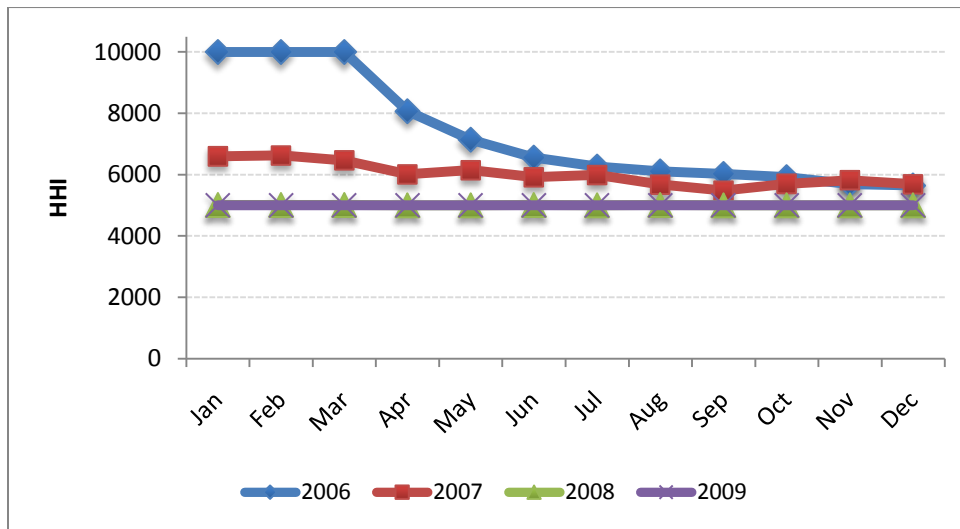
Figure 55: Hirschman-Herfindahl Index for the Mobile Market January –December 2009



Source: TATT

On comparing the last three years, Figure 56 shows the effects of market competition reducing the HHI in the mobile market from a monopoly of 10,000 in 2006 to 5,000 in 2009.

Figure 56: Hirschman-Herfindahl Index for the Mobile Market 2006- 2009

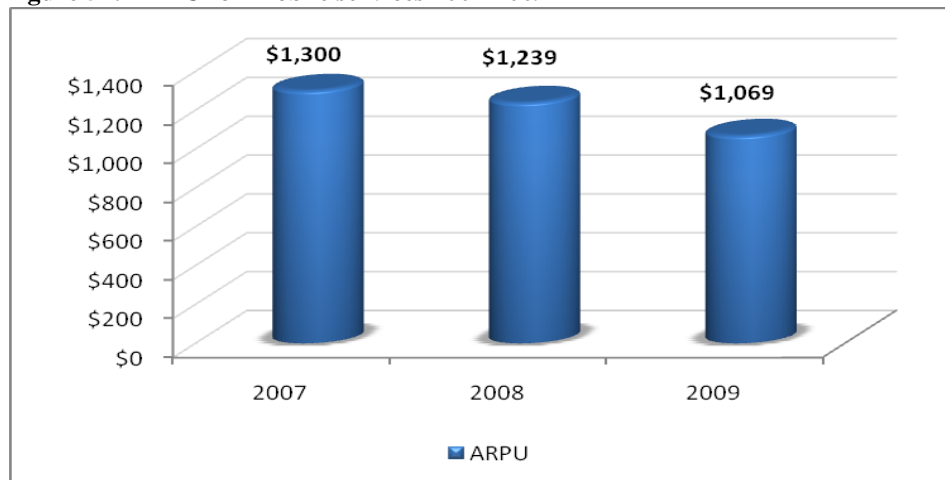


Source: TATT

3.6 Average Revenue per User

During 2009, customers of mobile subscriptions spent an average of TT \$1,069 for mobile services²⁷. This represents a decrease of TT\$170 or 13.7 per cent in the average revenue per user (ARPU) over the amount recorded for 2008. The decline in ARPU was a result of an 11.8 per cent decrease in revenues outweighing the 2.2 per cent increase in the number of subscriptions. Figure 57 compares annual ARPU for the period 2007 to 2009.

Figure 57: ARPU for Mobile services 2007-2009



²⁷ ARPU from mobile services excludes Mobile Internet services.

The ARPU generated for prepaid mobile subscriptions stood at \$863, a fall of \$169 or 16.4 per cent when compared to 2008, while the ARPU generated for postpaid subscriptions was \$3,278, a decrease of \$363 or 10.0 per cent. A recent article titled ‘Recession Drives Down Mobile ARPU’ provided a possible explanation why ARPU for prepaid mobile services declined at a faster rate than the ARPU for postpaid mobile services:

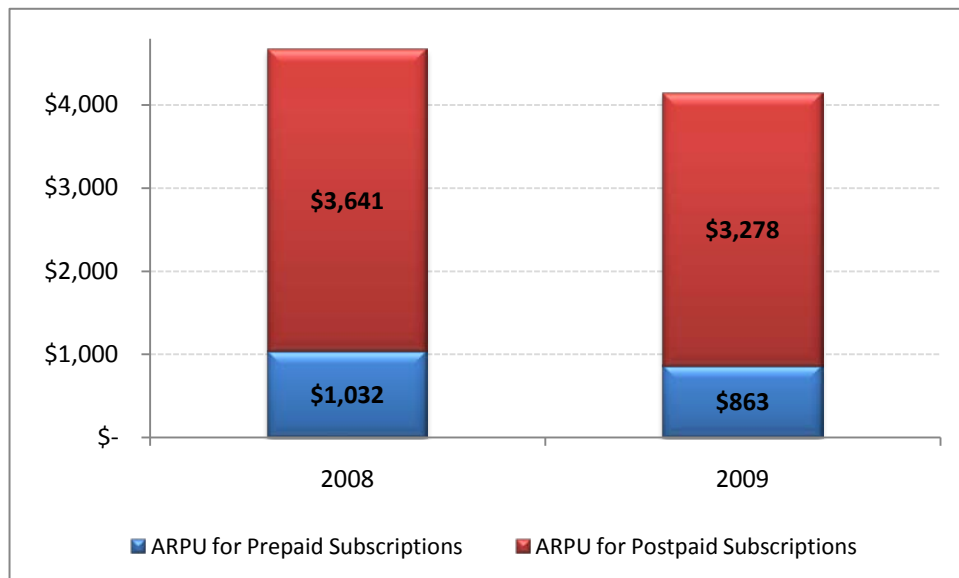
‘Contract (postpaid) users are tied in with a guaranteed minimum spend for the duration of their contract. So any decline in ARPU will be slower to materialise.

The decline in prepaid is more immediate as users can instantly influence their spending and reduce it as necessary.’²⁸

However, it is worth noting that mobile service providers earn the majority of their average revenue from postpaid subscriptions. This may explain the recent trend in promotions by service providers towards postpaid subscribership.

Figure 58 compares the ARPU earned for prepaid and postpaid subscriptions from 2008 to 2009.

Figure 58: ARPU for Prepaid and Postpaid Subscriptions



²⁸Source: <http://futureofmobilebroadband.blogspot.com/2010/01/recession-drives-down-mobile-arpu.html>

4. Internet Market Data

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

In 2009, there were eight operators authorized to provide fixed domestic telecommunications services which included the provision of Internet services. They were:

- Telecommunications Services of Trinidad and Tobago (TSTT),
- Columbus Communications Trinidad Limited (CCTL),
- Network Technologies Limited,
- RVR International Limited,
- TRICO Industries Limited,
- Independent Cable Network of Trinidad and Tobago Limited (ICNTT), and
- Green Dot Limited
- Three Sixty Communications Limited

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

They were:

- Telecommunications Services of Trinidad and Tobago (bmobile)²⁹, and
- Digicel Trinidad Limited

From the eight concessionaires listed above, only five provided Internet services to the public in 2009. These were:

- TSTT,
- Columbus Communications Trinidad Limited (CCTL),
- Three Sixty Communications Limited,
- Green Dot Limited, and

²⁹ bmobile is the mobile services division of TSTT, therefore their Internet services are recorded as one concessionaire.

- Digicel Trinidad Limited

However for the period under review there also existed Internet service providers who were yet to be authorized to provide domestic fixed telecommunications services (inclusive of Internet). These were:

- Lisa Communications Limited
- Open Telecom
- Illuminat
- Airlink
- Caribel

The Authority is in the process of granting the above operators with their relevant concessions.

Broadband Wireless Access (BWA) Services

Since 2007, the Authority has granted a number of concessions for the provision of broadband Internet access, fixed telephony and/or subscription broadcasting services (hereafter termed, “Broadband Wireless Access (BWA) services”) over fixed wireless domestic telecommunications networks. In 2007, the Authority auctioned the Lower 700 MHz, 12 GHz and 28 GHz bands to service providers for the delivery of public BWA services. There were two successful Bidders from this auction, Green Dot Limited and Telstar Cable Systems Limited. To date, a concession has been awarded to Green Dot Limited while the grant of concession to Telstar has been recommended to the Minister.

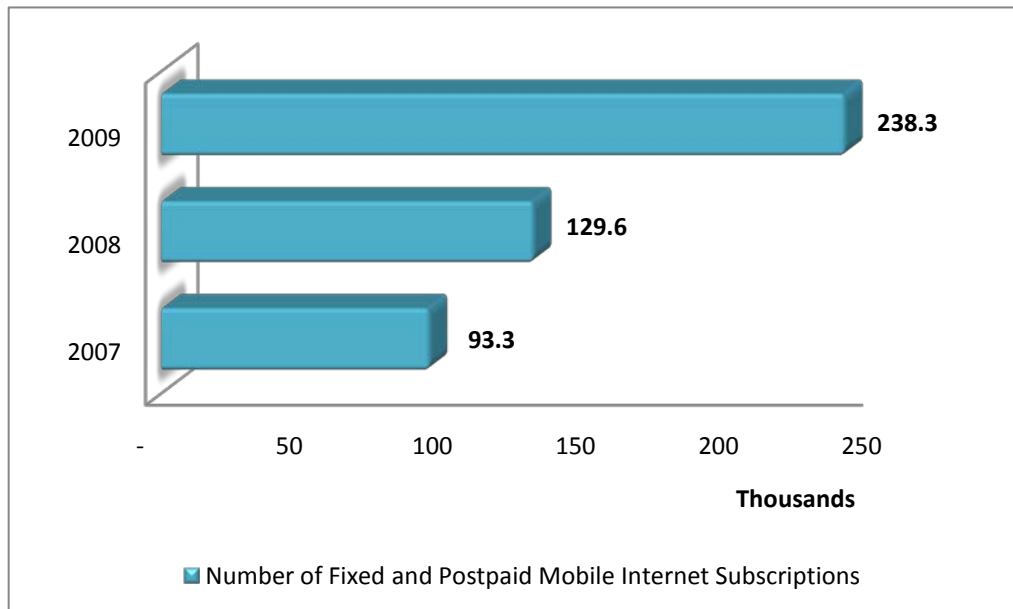
This authorisation process for the delivery of BWA services continued in October 2008 with the commencement of a competitive process for spectrum in the Lower 700 MHz (remaining blocks), 2.3 GHz, and 2.5 GHz Bands. This competitive process, which commenced with a pre-qualification process (via Request for Proposals), concluded with an auction in April 2009. The successful bidders from this second BWA auction were TSTT, Digicel and Green Dot to which concessions have been granted by the Minister.

4.1 Internet Subscriptions

The market for Internet services experienced significant growth in 2009 as a result of the increased accessibility of mobile Internet services and continued take-up of fixed Internet services by persons. Internet subscriptions for 2009 comprising both fixed and mobile postpaid³⁰ totalled 238.3 thousand. This represented an increase of 108.6 thousand or 83.8 per cent in Internet subscriptions over 2008. In 2008 the number of Internet subscriptions was calculated using fixed Internet subscriptions and total (postpaid and prepaid) mobile subscriptions with Internet access. However the description of mobile Internet subscriptions was redefined during the collection of the 2009 market data leading to the inclusion of only postpaid mobile Internet subscriptions. Further explanation is provided in Section 4.1.2.

Figure 59 indicates the increasing trend of Internet subscriptions from 2007 to 2009, while Figure 60 portrays the percentage of fixed and mobile subscriptions contributing to total Internet subscriptions.

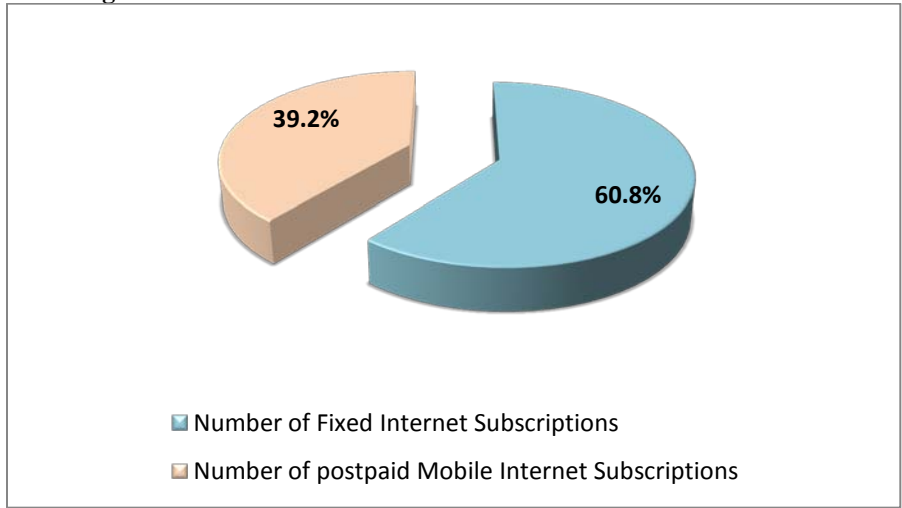
Figure 59: Total Number of Internet Subscriptions 2007 - 2009



Source: TATT

³⁰ Only fixed Internet subscriptions and mobile Internet postpaid subscriptions were included in the calculations for total Internet subscriptions. The corresponding explanation for exclusion of prepaid mobile subscriptions with Internet access is provided in Section 4.1.2.

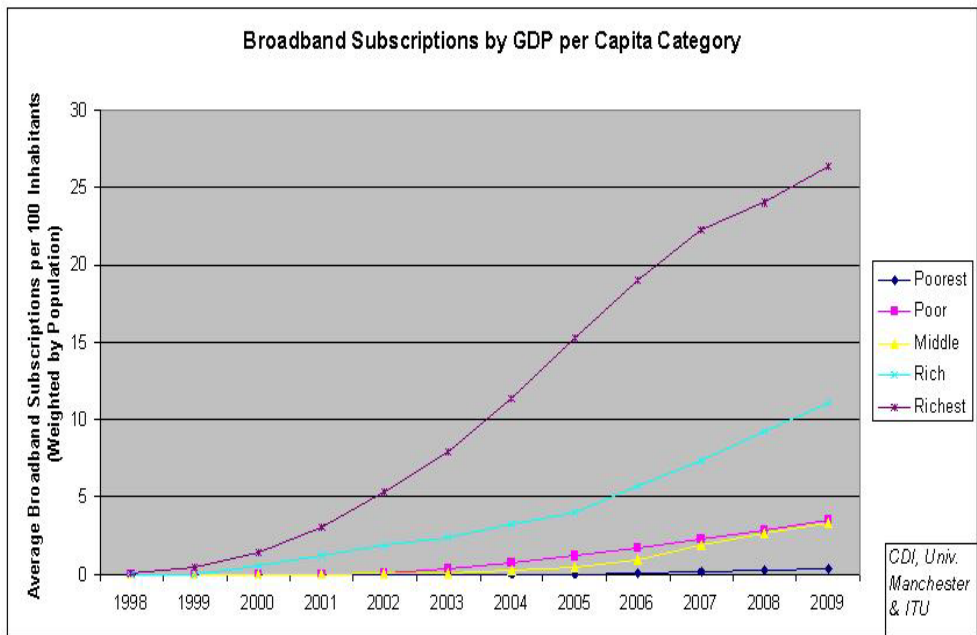
Figure 60: Percentage of Fixed and Mobile Internet Subscribers for 2009



Source: TATT

Evidenced by the positive growth in Internet subscriptions, it is worthy to note that the national economic recession had no negative impact on the Internet market (see Box 3). Global statistics from the International Telecommunications Union (ITU) has indicated that over the last decade, even through the global recession, the majority of developing and developed countries have witnessed growth in their Internet market especially with respect to broadband subscriptions. Figure 61, sourced from the ITU, illustrates.

Figure 61: Global Trend in Broadband Subscriptions

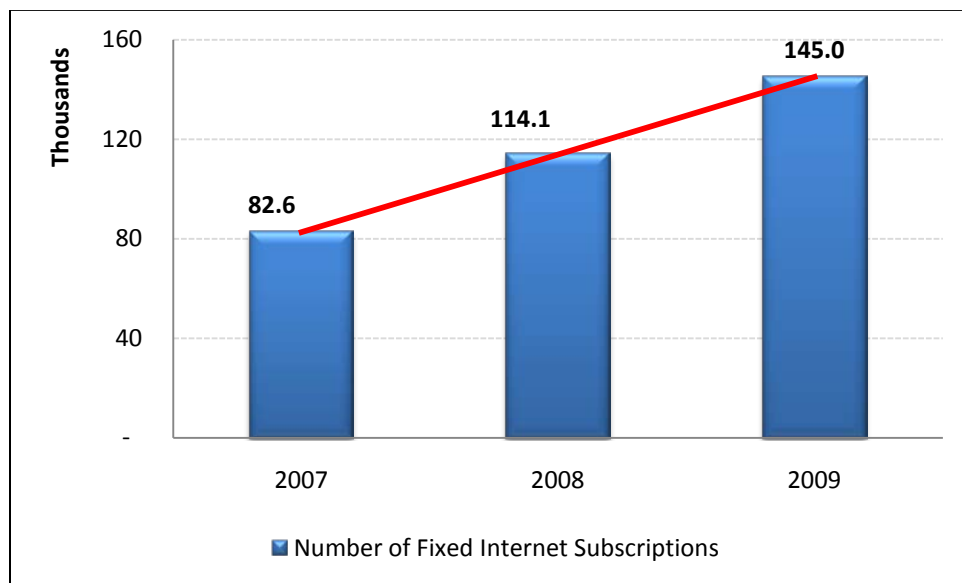


Source: ITU

4.1.1 Fixed (Wired and Wireless) Internet Subscriptions

As at December 2009, the number of fixed Internet subscriptions grew by 27.1 per cent totalling in excess of 145.0 thousand subscriptions. This increase of 30.9 thousand subscriptions over the last year may be attributed to the increased level of competitive tactics among providers in the market to attract new customers. The yearly trend of fixed Internet subscriptions from 2007 to 2009 is shown in Figure 62.

Figure 62: Fixed Internet Subscriptions 2007-2009



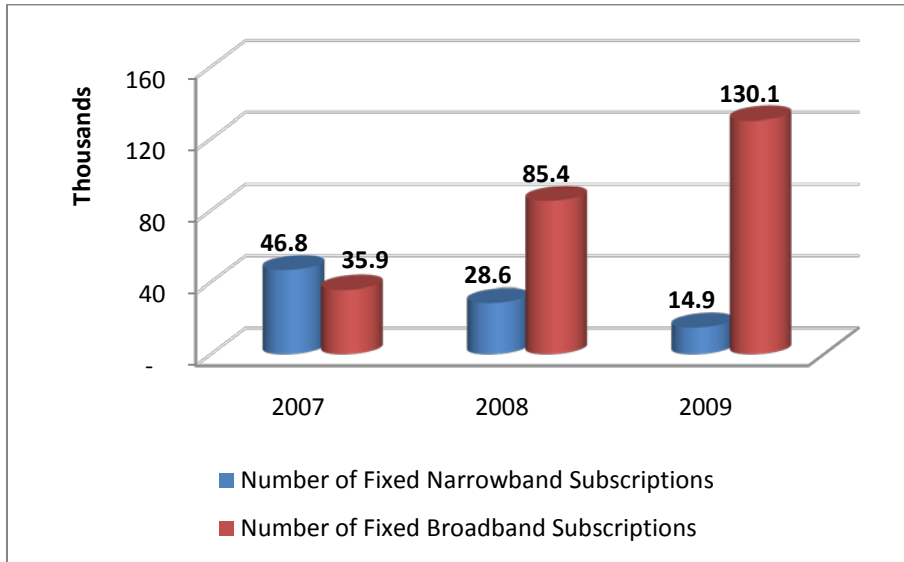
Source: TATT

Fixed broadband³¹ Internet subscriptions accounted for 130.1 thousand or 89.7 per cent of total fixed Internet subscriptions while fixed narrowband³² Internet subscriptions accounted for 14.9 thousand or 10.3 per cent. The trend for fixed Internet subscription by category for 2007 to 2009 is illustrated in Figure 63, while Figure 64 below depicts the percentage of broadband and narrowband subscriptions to total fixed Internet subscriptions at the end of 2009.

³¹ Broadband can be defined as speeds > 256 kbits per second

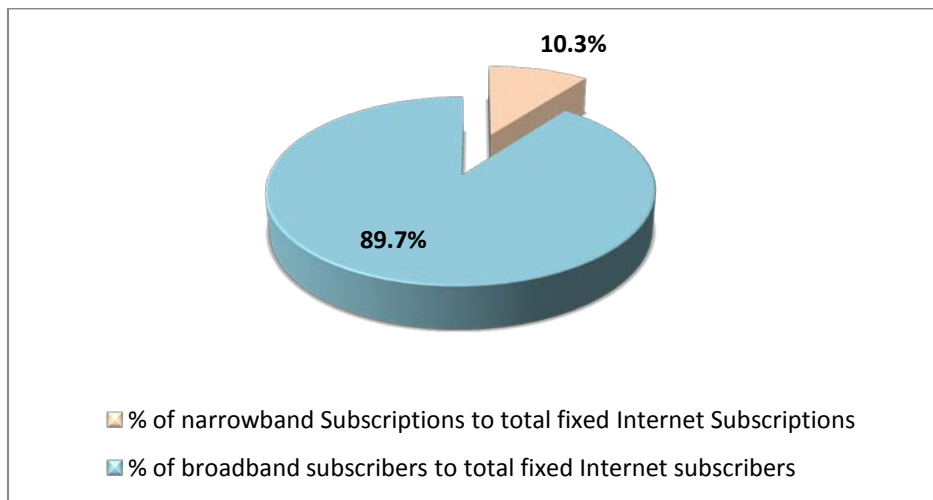
³² Narrowband can be defined as speeds ≤ 256 kbits per second

Figure 63: Fixed Narrowband and Broadband Subscriptions 2007- 2009



Source: TATT

Figure 64: Percentage of Broadband and narrowband Fixed Internet Subscriptions 2009



Source: TATT

In comparison to 2008, broadband subscriptions increased by 52 per cent or an estimated 44.6 thousand subscriptions, whereas narrowband subscriptions decreased by 48.0 per cent or about 13.7 thousand subscriptions. The continued substitution of narrowband subscriptions to broadband services may be a direct result of service providers in the market upgrading their services such that customers can now enjoy faster broadband speeds at the comparable prices that were previously offered for narrowband services. In addition, some service providers in the industry have been significantly increasing the

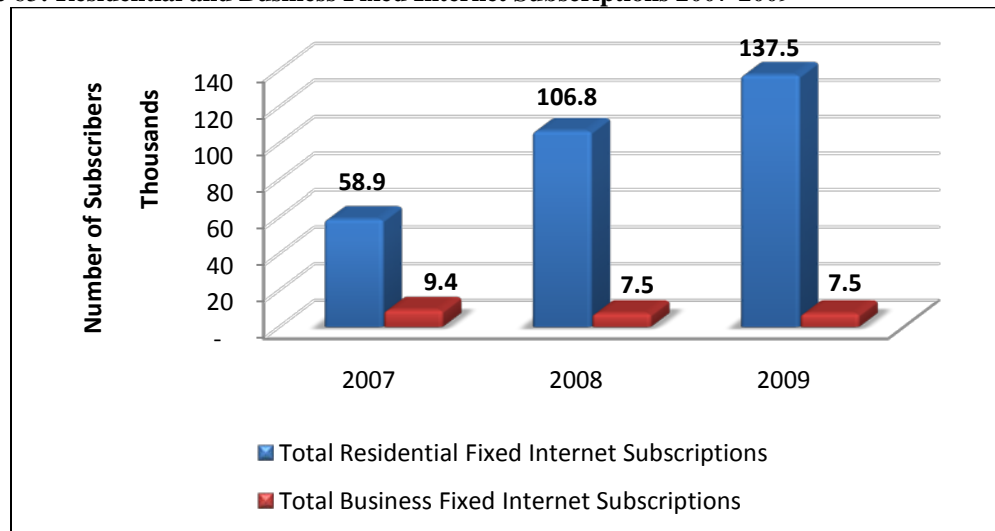
speed of their broadband service with little or no change in the price of their packages. This marketing strategy has contributed to the strong growth of subscriptions in the market. Table 5 below summaries the change in fixed narrowband and broadband subscriptions between 2008 and 2009.

Table 5: Change in Fixed Internet Subscriptions 2009

Fixed Internet Type	Number of Subscriptions	Percentage Change in Subscriptions from 2008
Broadband	130,057	52.2%
Narrowband	14,895	(48.0%)
Total Fixed Internet	144,952	27.1%

The number of fixed Internet subscriptions can be further grouped into residential and business categories. In 2009 the number of residential subscriptions amounted to approximately 137.5 thousand, representing a growth rate of 28.7 per cent or a 30.6 thousand climb in subscriptions from 2008. Also, business subscriptions measured slightly above 7.5 thousand, showing a slight decrease of 0.4 per cent or 31 subscriptions. Figure 65 illustrates the trend of residential and business fixed Internet subscriptions for 2007 to 2009.

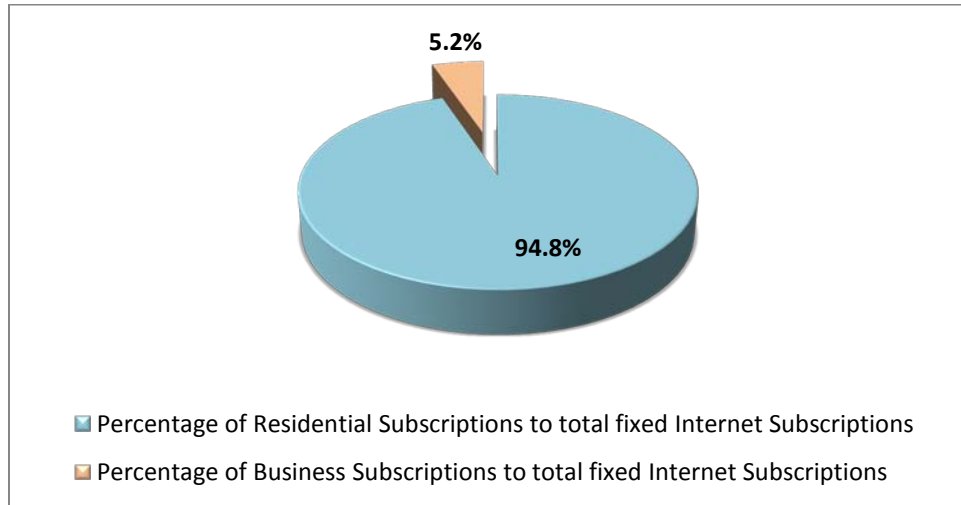
Figure 65: Residential and Business Fixed Internet Subscriptions 2007-2009



Source: TATT

Figure 66 presents the percentage distribution of fixed Internet subscriptions between the residential and business categories.

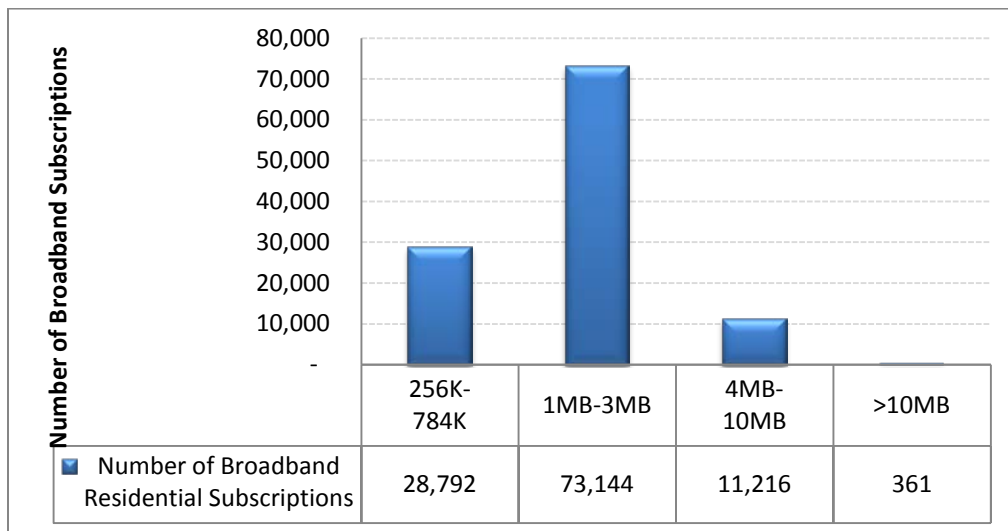
Figure 66: Percentage of Residential and Business Fixed Internet Subscriptions 2009



Source: TATT

The broadband market also showed that the majority of residential customers subscribed to packages offering download speeds between 1MB to 3MB, whereas the 256kbps to 784 kbps range and the 1MB to 3MB range were more popular among business customers. Figure 67 and 68 illustrate subscriptions by download speed.

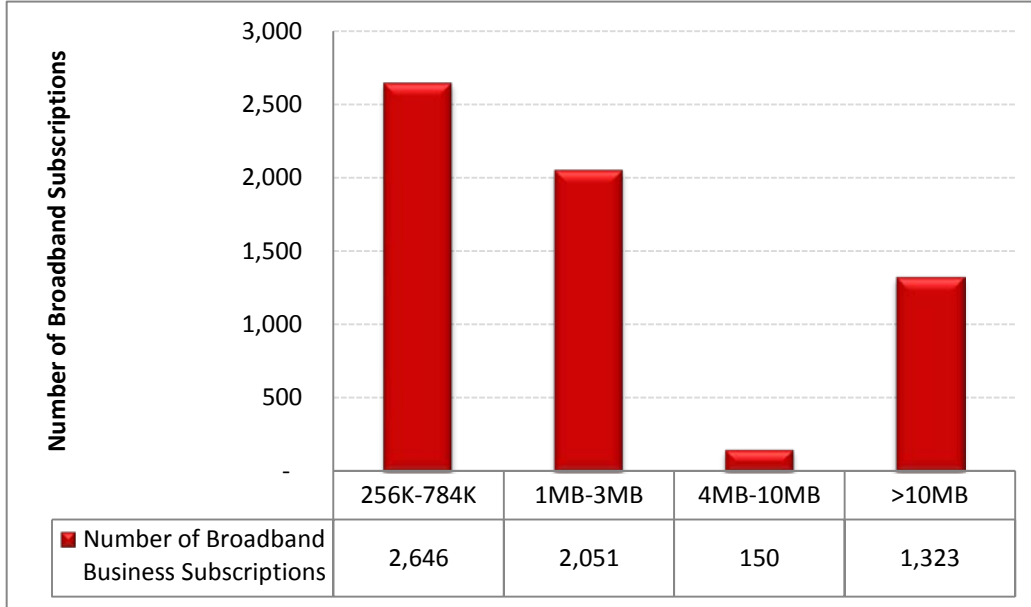
Figure 67: Number of Broadband Residential Subscriptions by Download Speed 2009



Source: TATT

When compared to the 2008 period, statistics show that residential subscriptions are switching to packages with higher download speeds to satisfy their Internet needs.

Figure 68: Number of Broadband Business Subscriptions by Download Speed



Source: TATT

4.1.2 Mobile Subscriptions with Internet Access

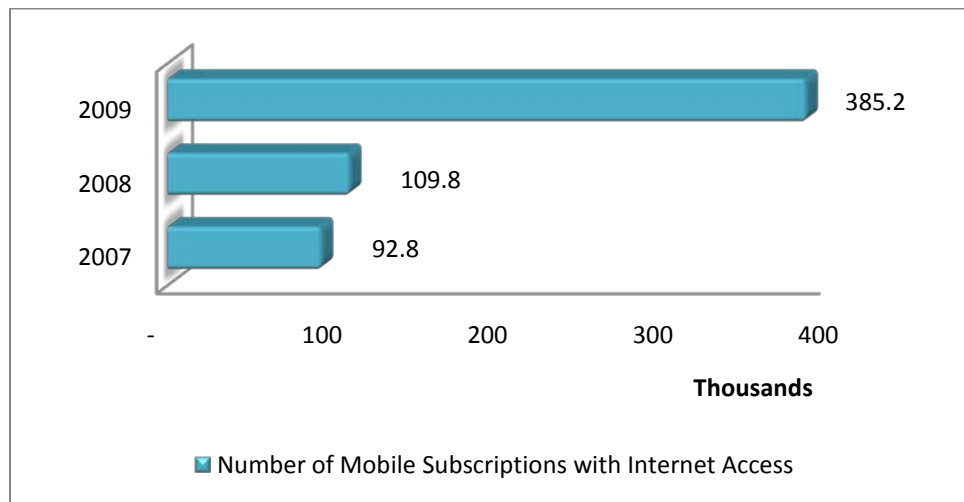
The number of mobile subscriptions with Internet access³³ grew strongly in 2009 with a total of 385.2 thousand subscriptions. This increase of 275.4 subscriptions or 250.8 per cent from 2008 was largely attributed to the redefinition of the term ‘mobile subscriptions with Internet access’ used in the collection of the 2009 data. This year’s definition was broadened to measure the level of mobile Internet accessibility available to subscribers rather than only usage of the service.

³³ The definition used in the collection of data from service providers is as follows: *Number of mobile users with Internet access refers to (prepaid and postpaid) subscribers of the mobile cellular network who can access the Internet via a mobile phone.* This definition differs from mobile Internet subscriptions which specifically refer to mobile postpaid Internet subscriptions.

With the number of mobile subscriptions recorded for 2009 surpassing 1.4 million, it is estimated that 20.9 per cent³⁴ of the mobile population can access Internet using their phones.

Figure 69 compares the number of mobile subscriptions with Internet access trend from 2007-2009.

Figure 69: Number of Mobile Subscriptions with Internet Access 2007-2009



Source: TATT

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

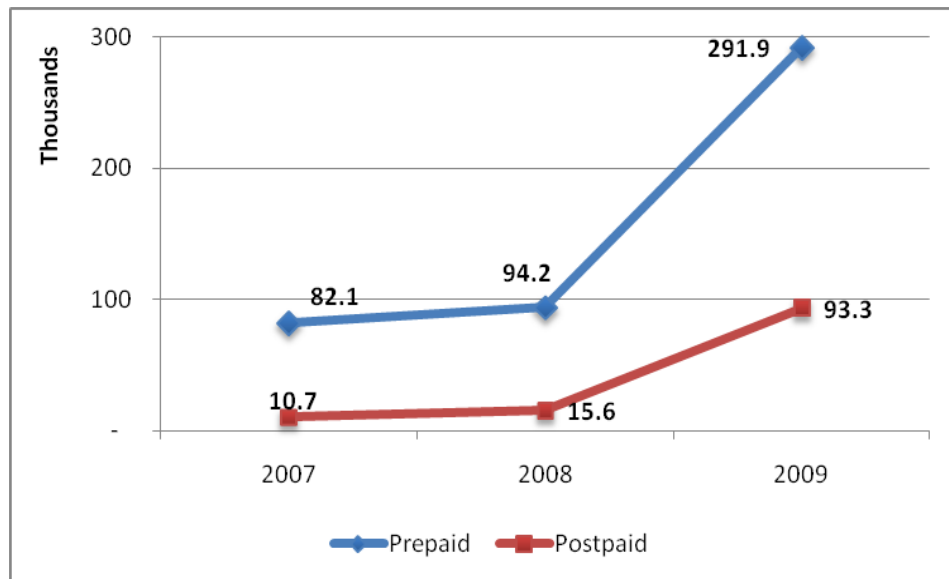
³⁴ This estimate was derived using the formula: number of mobile subscriptions with Internet access / number of mobile subscriptions.

For this reason, this report only considers postpaid mobile subscriptions with Internet access to be actual mobile Internet subscriptions.

As shown in Figure 70, 291.9 thousand were estimated to be prepaid mobile subscriptions with Internet access, which is a 197.7 subscription increase from 2008 or a 208.9 per cent increase from 2007. Additionally, 93.3 thousand were counted as postpaid mobile subscriptions, a 499.1 per cent growth or 77.8 thousand subscriber increase from the last period. Even though a stronger growth rate was recorded with postpaid subscriptions, prepaid accounted for 75.8 per cent of total mobile subscriptions with Internet access, with postpaid mobile subscriptions accounting for the remaining 24.2 per cent. This percentage distribution is shown in Figure 71.

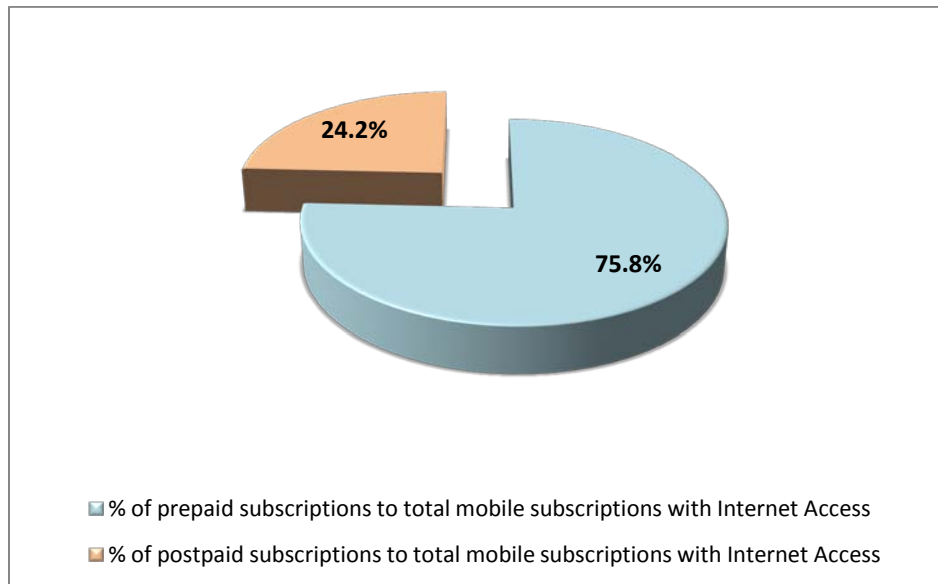
Contributing to the rise in mobile subscriptions with Internet access may be the availability of more affordable mobile Internet packages to customers as well as of the fact that ‘smart’ phones are now more easily available and affordable in the market. For example, smart phone handsets can be purchased at a price of \$1500, whereas data package plans start at only \$99 a month.

Figure 70: Number of Prepaid and Postpaid mobile subscriptions with Internet Access for 2007-2009



Source: TATT

Figure 71: Percentage of Prepaid and Postpaid Mobile Internet Subscriptions 2009



Source: TATT

4.2 Internet Penetration

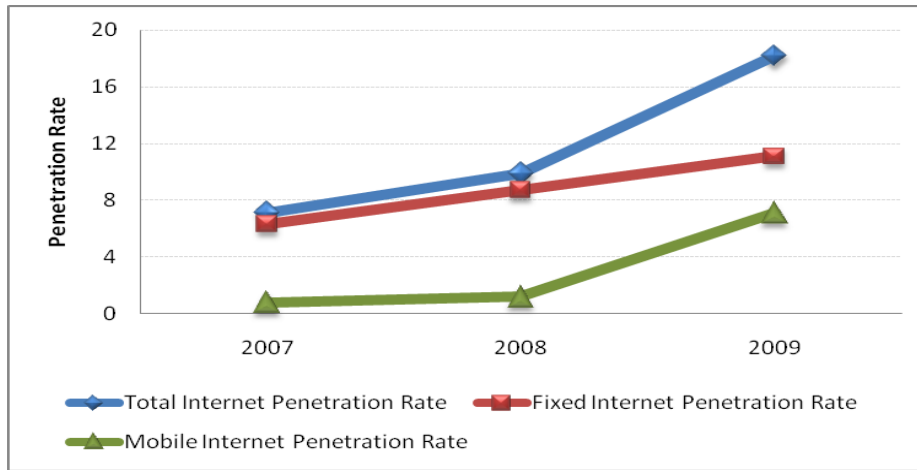
For 2009, Trinidad and Tobago recorded a fixed Internet penetration³⁵ of 11.1 while mobile Internet penetration³⁶ measured 7.1. Combined, a total Internet penetration rate³⁷ of 18.2 was achieved, an increase of 8.3 from 2008. The significant increase in the penetration rate is largely as a consequence of the growth in the number of mobile subscriptions with Internet access for the period under review. Figure 72 below looks at the Internet penetration trend from 2007 to 2009.

³⁵ Fixed Internet penetration is calculated: (total number of Fixed Internet Subscriptions / Total Population) * 100

³⁶ Mobile Internet penetration is calculated: (total number of Postpaid Mobile Internet Subscriptions / Total Population number) * 100. It must be noted that mobile Internet penetration is calculated using only postpaid mobile subscriptions as these are considered 'true' mobile Internet subscriptions. Reference can be made to section 4.1.2.

³⁷ Internet penetration rate is calculated: (total number of Internet Subscriptions / Total Population) * 100

Figure 72: Internet Penetration 2007-2009

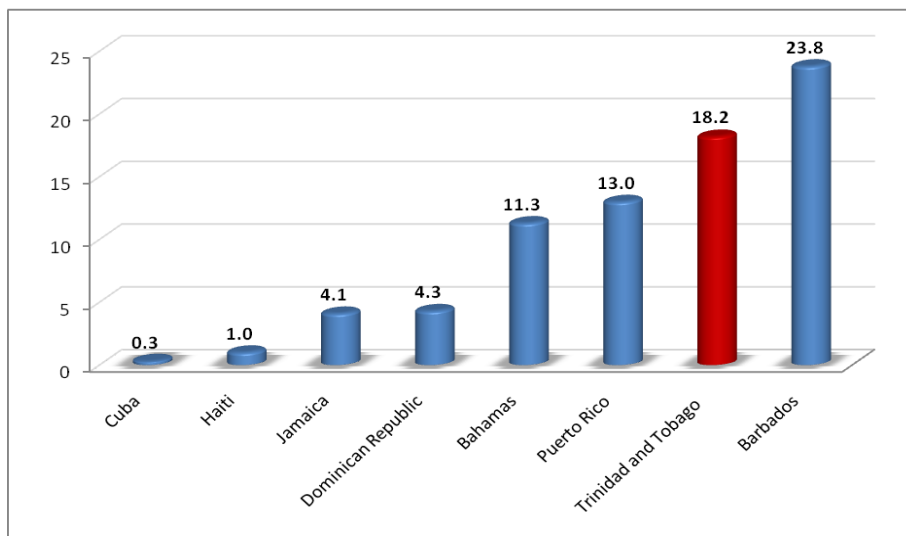


Source: TATT

One of the ITU’s main objectives contributing towards the Millennium Development Goals, is to facilitate the building of an inclusive Information society. Internet penetration is an important indicator that can be used to measure a country’s achievement towards this objective. Figure 73 lists a number of Caribbean countries and their associated penetration rates.

When compared to these countries, Trinidad and Tobago ranks second after Barbados, whilst Cuba and Haiti fall to the other end of the scale.

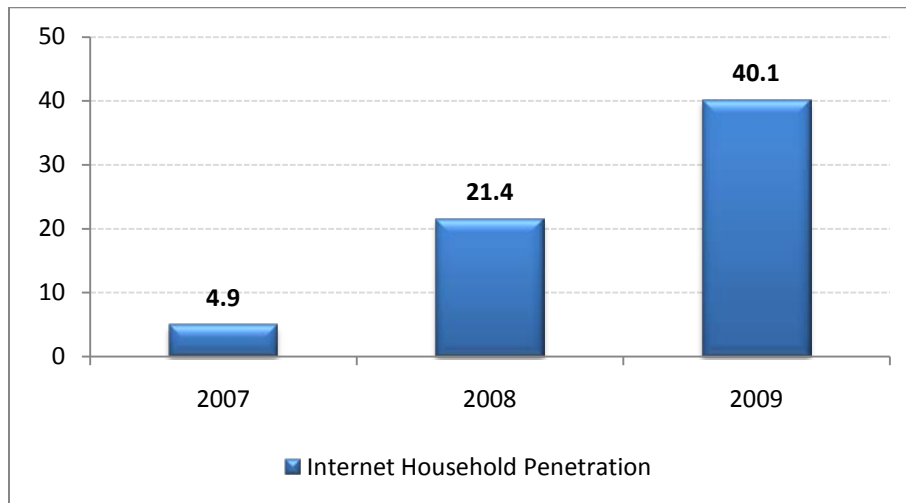
Figure 73: Internet Penetration for Selected Caribbean Countries 2009



Source: International Telecommunications Union and TATT

Similar to Internet penetration, Internet household penetration³⁸ can be used to measure the proportion of households with Internet access at home. For 2009, Internet household penetration measured approximately 40.1. This indicates that 40 out of every 100 households subscribe to a fixed Internet package, almost double the amount recorded for 2008. Figure 74 below depicts the growth in Internet household penetration for the period 2007 to 2009.

Figure 74: Internet Household Penetration 2007-2009



Source: TATT

4.2.1 Internet Users

Another useful indicator to measure progress towards an Information society is the number of Internet users³⁹ penetration. In 2007, the Authority conducted a Digital Divide survey⁴⁰ which showed that approximately 33 in every 100 persons (approximately 429,000 persons) in Trinidad and Tobago regularly used the Internet. Since no other survey was conducted after 2007, the Authority estimated the number of Internet users to be the number of fixed Internet subscriptions for the year multiplied by the average

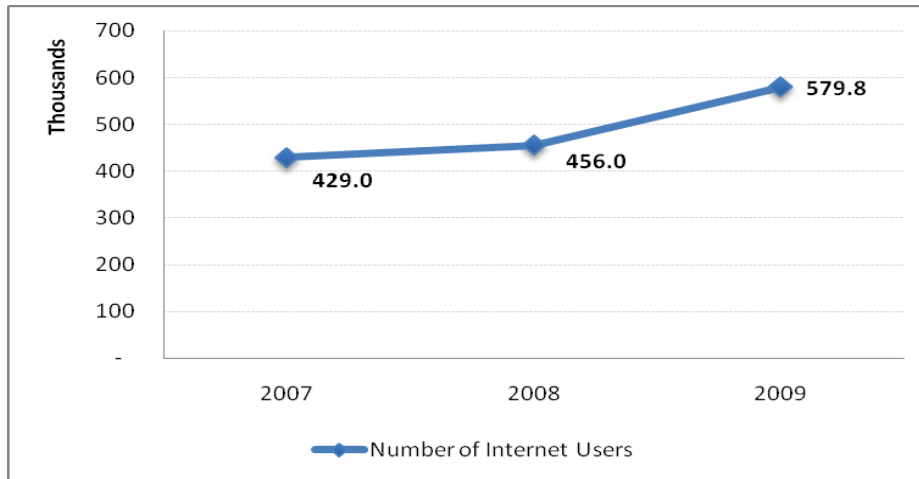
³⁸ Internet household penetration = (number of residential fixed Internet subscriptions / total number of households) * 100

³⁹ Persons who regularly use the Internet. A person does not have to have a personal Internet subscription to be considered an Internet user.

⁴⁰ The complete Digital Divide Report 2007 can be found on the Authority's website: www.tatt.org.tt

number of persons residing within a household⁴¹. For 2009, this approximates to 579,808 Internet users or 44 out of every 100 persons who regularly use the Internet. Figure 75 below shows the growth in number of Internet users over the years.

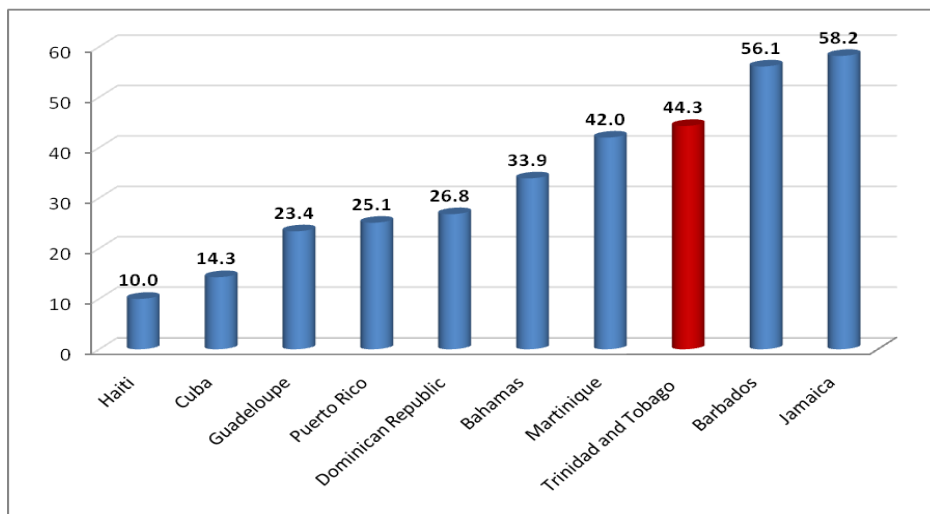
Figure 75: Number of Internet Users 2007-2009



Source: TATT

In comparison with other countries in the Caribbean, Trinidad and Tobago ranks third after Barbados and Jamaica in the number of Internet users per 100 inhabitants. Following closely behind is Martinique and the Bahamas. Figure 76 illustrates.

Figure 76: Internet Users per 100 inhabitants for Selected Caribbean Countries 2009



Source: International Telecommunications Union, TATT

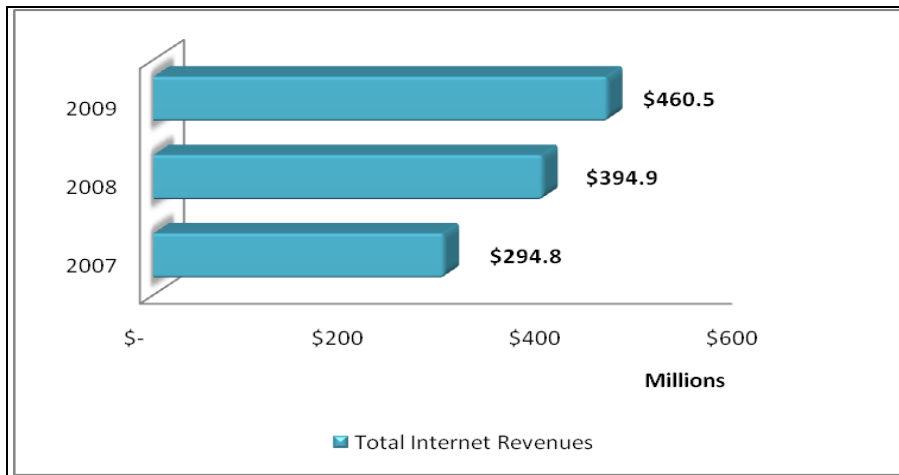
⁴¹ The Central Statistical Office estimated that an average of four (4) persons reside within a household in its 2000 Census Report.

4.3 Total Internet Revenues

Revenues generated from fixed and mobile prepaid and postpaid Internet services totalled TT\$460.5 million, an increase of TT\$65.5 million or 16.6 percent when compared to 2008. This rise in revenues is attributed to the growth in Internet accessibility and subscriptions experienced in the Internet market. As mentioned in Section 4.1, the Internet market, including the revenues generated, was not negatively affected by the national recession.

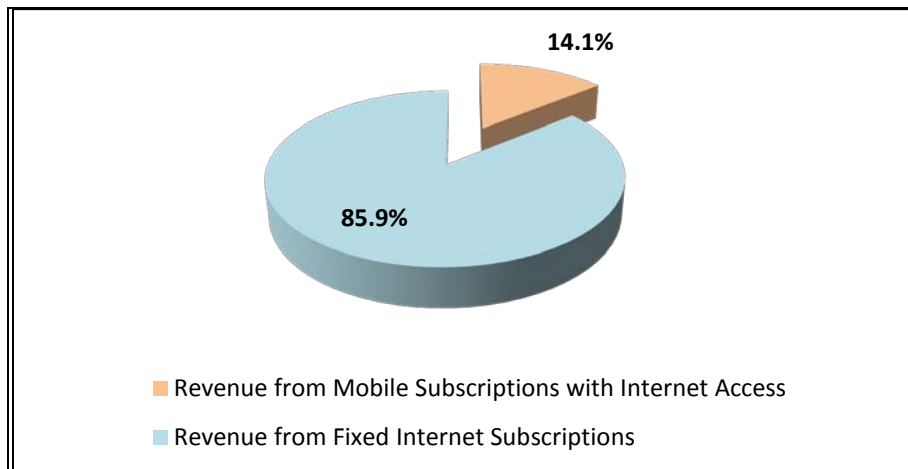
Figure 77 shows the Internet revenues trend from 2007 to 2009. Figure 78 also depicts the percentage of revenue contributions made by the fixed Internet and mobile Internet markets.

Figure 77: Total Internet Revenues 2007-2009



Source: TATT

Figure 78: Percentage of Fixed and Mobile Contributions to Internet Revenues



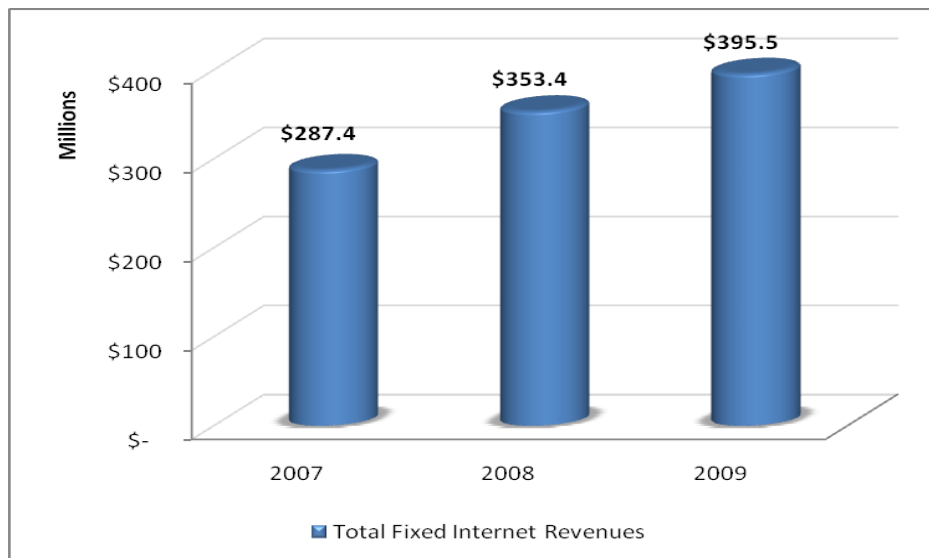
The individual categories of fixed and mobile Internet revenues are discussed below.

4.3.1 Fixed Internet Revenues

For the period under review, the total estimated gross revenues for the fixed Internet market stood at \$395.5 million, an increase of \$42.1 million or 11.9 per cent over the figures reported in 2008. Of this amount, narrowband Internet accounted for \$30.0 million and broadband Internet contributed \$365.6 million.

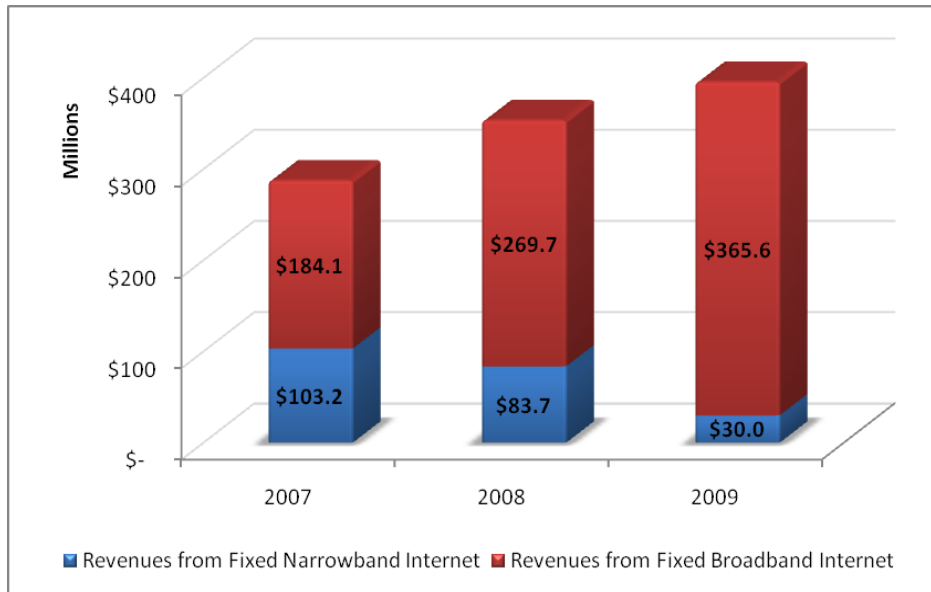
As there was a migration of subscriptions from narrowband to broadband services, narrowband revenues declined by \$53.8 million or 64.2 per cent where as broadband revenues rose by \$95.5 million or 35.6 per cent when compared to the 2008 period. Figures 79 and 80 highlight the annual revenue trend in this market from 2007 to 2009.

Figure 79: Fixed Internet Revenues 2007-2009



Source: TATT

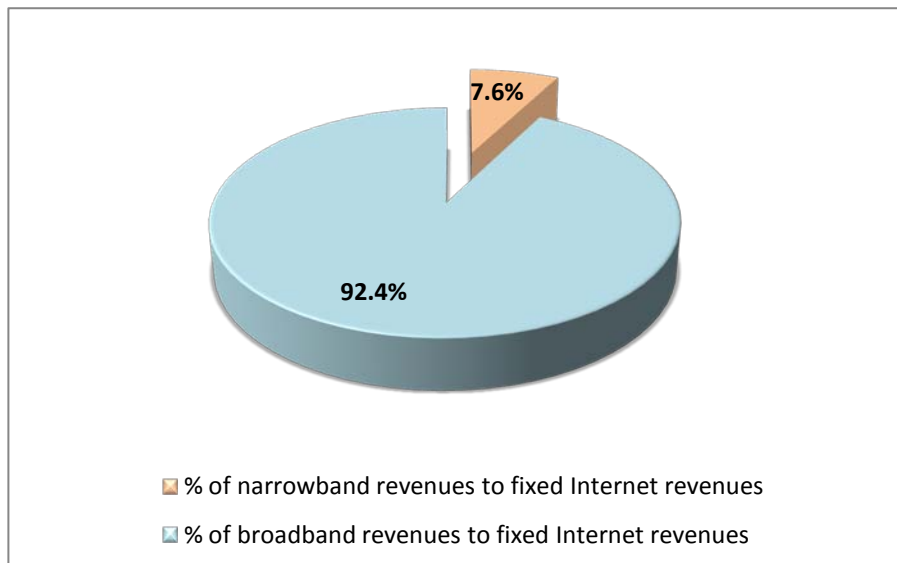
Figure 80: Revenues from Fixed Narrowband and Broadband subscriptions 2007 - 2009



Source: TATT

With broadband being the predominant choice of service in the market, broadband contributed 92.4 per cent to total fixed Internet revenues while narrowband added only 7.6 per cent. Figure 81 portrays the revenue percentage contributions for 2009.

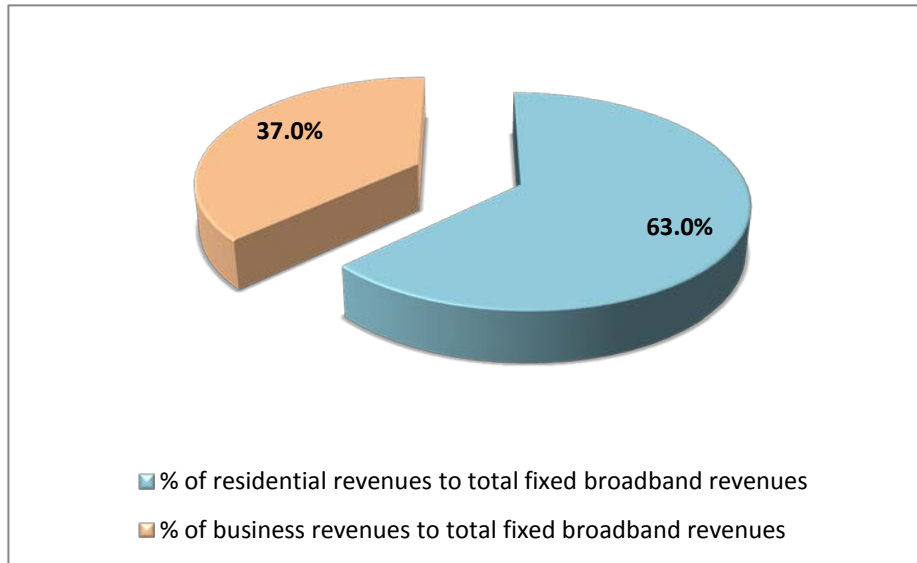
Figure 81: Percentage of Narrowband and Broadband Revenues to Total Fixed Internet Revenues 2009



Source: TATT

From total fixed broadband revenues, residential broadband subscriptions contributed \$230.2 million or 63 per cent, whilst revenues from business broadband subscriptions totalled \$135.4 million or 37 per cent. Figure 82 illustrates.

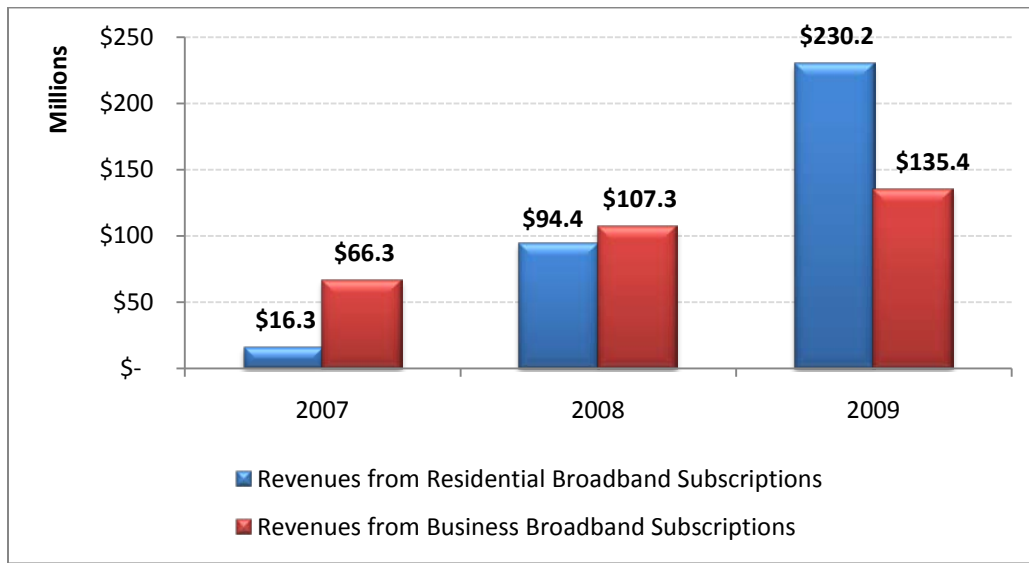
Figure 82: Percentage of Residential and Business Revenues to Fixed Broadband Revenues



Source: TATT

Consistent with the significant growth in residential fixed Internet subscriptions, revenues from residential broadband increased by 143.8 per cent or by \$135.8 million. Similarly, revenues from business broadband grew by 26.2 per cent or by \$28.1 million despite the small increase in the number of business fixed Internet subscriptions. Figure 83 shows the growth in revenues from residential and business broadband subscriptions for the period 2007 to 2009.

Figure 83: Revenues from Residential and Business Fixed Broadband Subscriptions 2007-2009

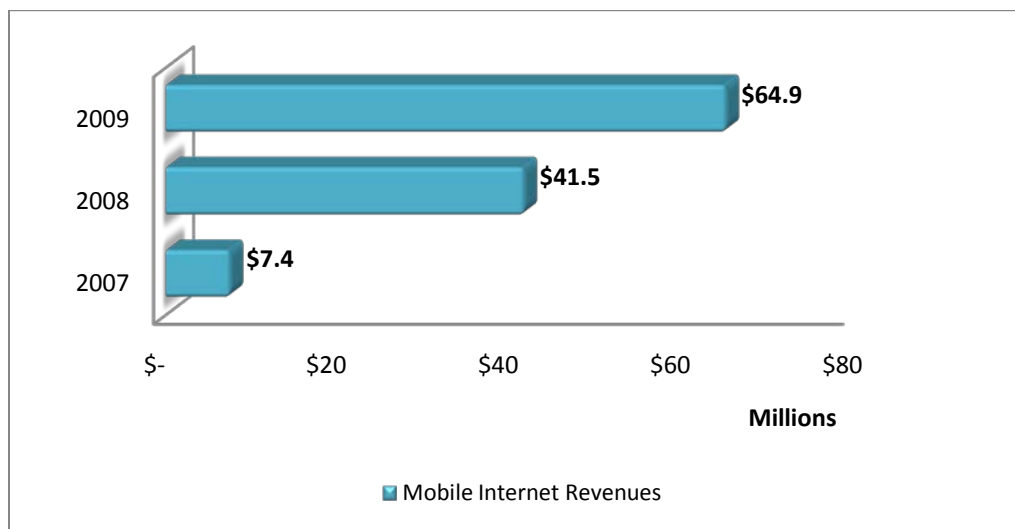


Source: TATT

4.3.2 Mobile Internet Revenues

Total gross revenues for the mobile prepaid and postpaid Internet market totaled TT\$64.9 million, an increase of \$23.4 million or 56.4 per cent over 2008. Figure 84 highlights annual trend for total revenues received from mobile subscriptions with Internet access. This overall growth in mobile Internet revenues is a direct result of the significant take-up of mobile Internet subscriptions as mentioned in Section 4.1.

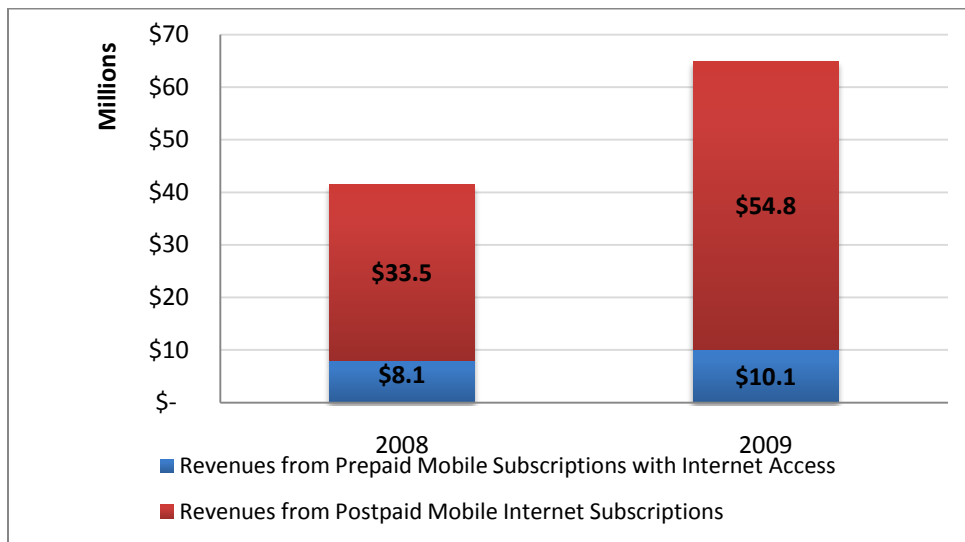
Figure 84: Total Mobile Internet Revenues 2007-2009



Source: TATT

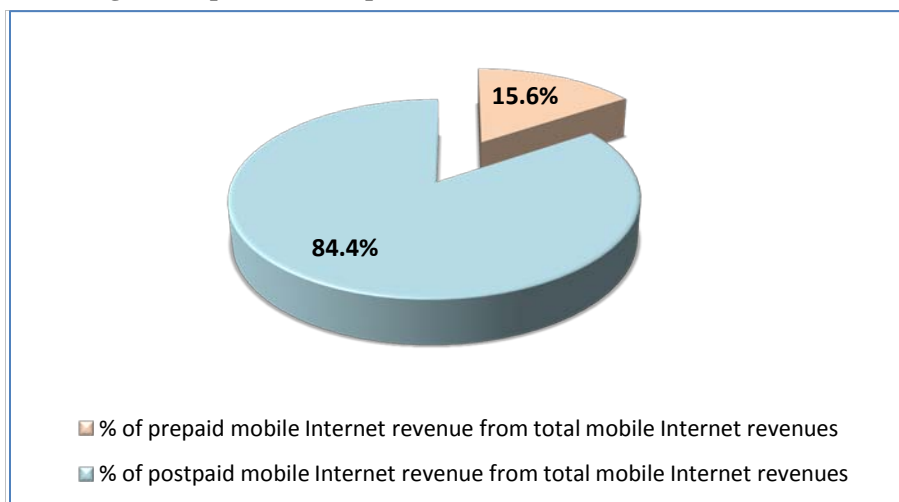
Prepaid subscriptions with Internet access contributed TT\$10.1 million, or 15.6 per cent to total mobile Internet revenues, while postpaid subscriptions accounted for TT\$54.8 million or 84.4 per cent. Undoubtedly, postpaid mobile Internet subscriptions are more profitable for service providers thereby supporting their initiatives to encourage customers to subscribe to their postpaid packages. Figure 85 shows the separation of the revenues into prepaid and postpaid for 2008 and 2009, while Figure 86 depicts the percentage revenue contributions of the individual prepaid and postpaid categories.

Figure 85: Revenues from Prepaid and Postpaid Mobile Internet Subscriptions 2009



Source: TATT

Figure 86: Percentage of Prepaid and Postpaid Revenues to Mobile Internet Revenues

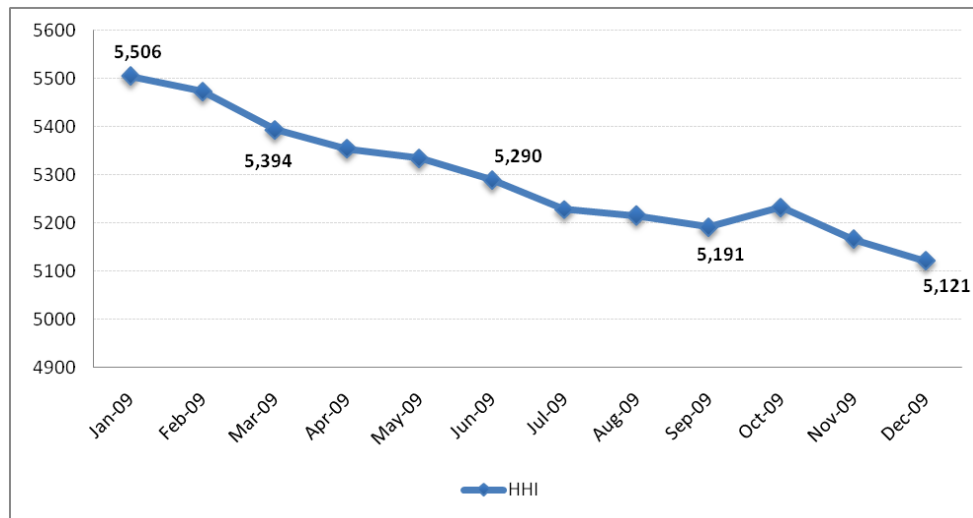


Source: TATT

4.4 Internet Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the fixed Internet market⁴² of Trinidad and Tobago for the year ending December 2009. The result revealed that the market was more competitive with a HHI of 5,121, a decrease of 7.5 percent from 2008.

Figure 87: Hirschman-Herfindahl Index of Fixed Internet Market January–December 2009



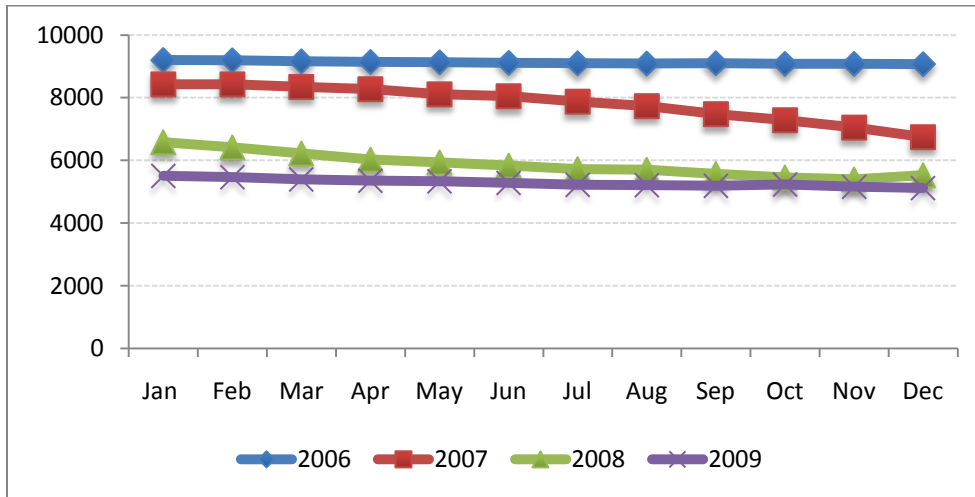
Source: TATT

Figure 87 reflects a steady decline in market concentration throughout the 2009 period. As mentioned in Section 4.1.1, this may be directly attributed to the competitive marketing promotions pursued by service providers to increase subscription uptake in the market. The strategies used by service providers included lowering the price of Internet services, especially broadband services and increasing the speeds available to customers. However, it must be noted that even though there was a number of Internet providers in the market, the HHI of 5,121 indicated that the market is still contested and there may be the existence of few players who control significant shares of the market.

On comparing the last three years, Figure 88 shows the effects of market competition reducing the HHI from 9,076 in 2006 to 5,121 in 2009.

⁴² Subscriber market share was used in the calculation of the HHI.

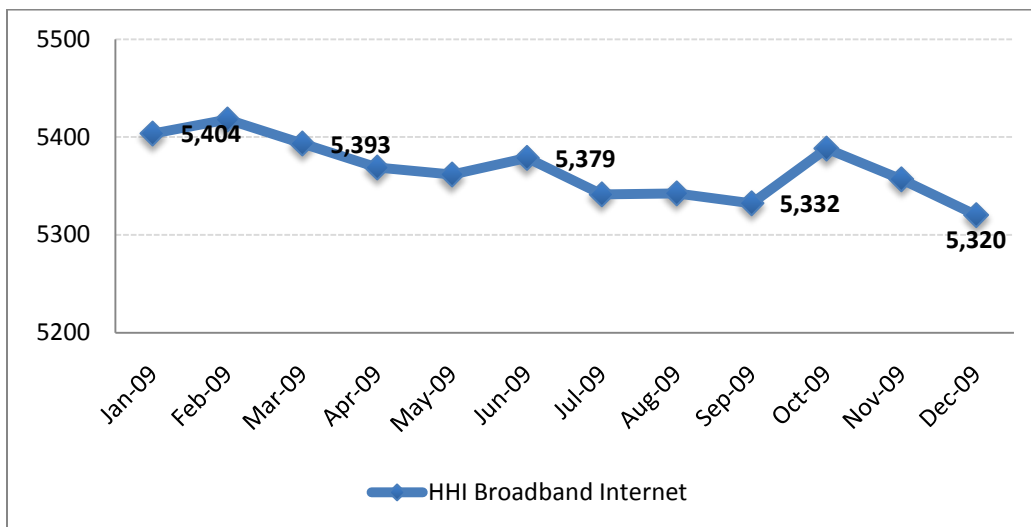
Figure 88: HHI of Fixed Internet Services 2006- 2009



4.4.1 HHI for Broadband and Narrowband Services

In an attempt to pinpoint the reason for the concentration level mentioned above, the HHI was separately examined for the fixed broadband market and the narrowband market. The calculation for fixed broadband services showed an HHI of 5,320 for the year ended 2009. Figure 89 below depicts the HHI results which seem to be fluctuating throughout the year.

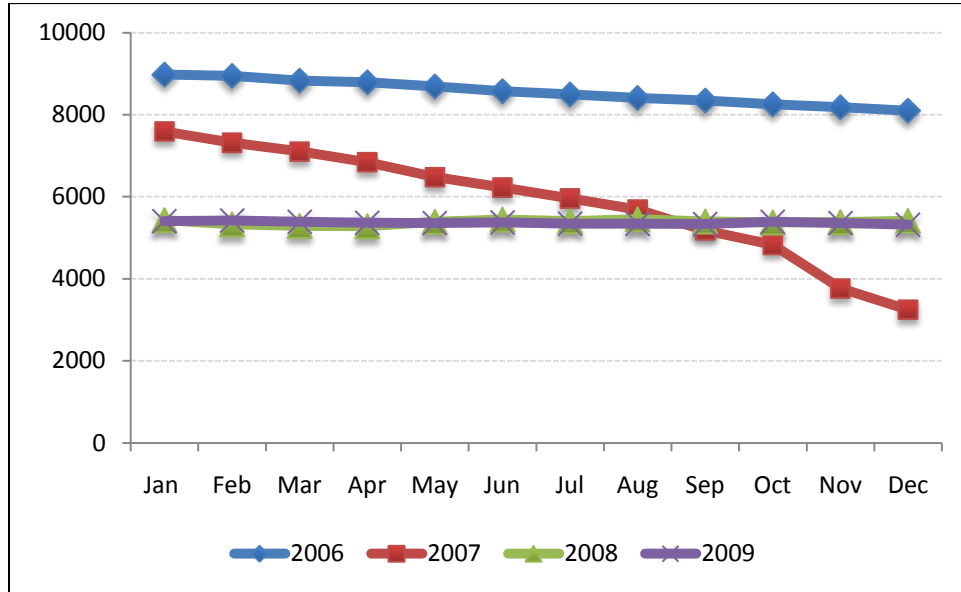
Figure 89: 2009 HHI for Fixed Broadband Services



Source: TATT

As seen in Figure 90, effects of the three year period 2006 to 2009 has increased market competition and reduced the HHI from 8,097 in 2006 to 5,320 in 2009.

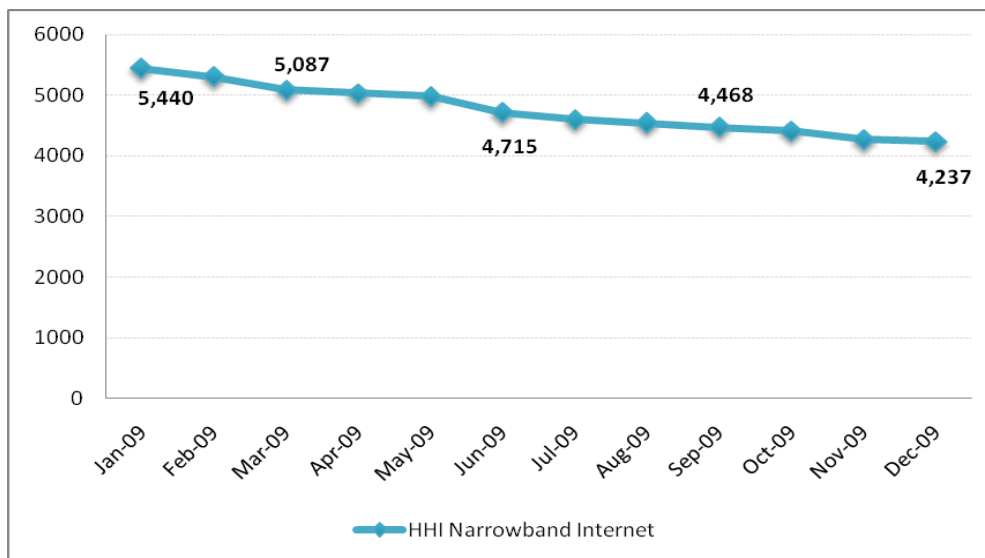
Figure 90: HHI of Fixed Broadband Services 2006- 2009



Source: TATT

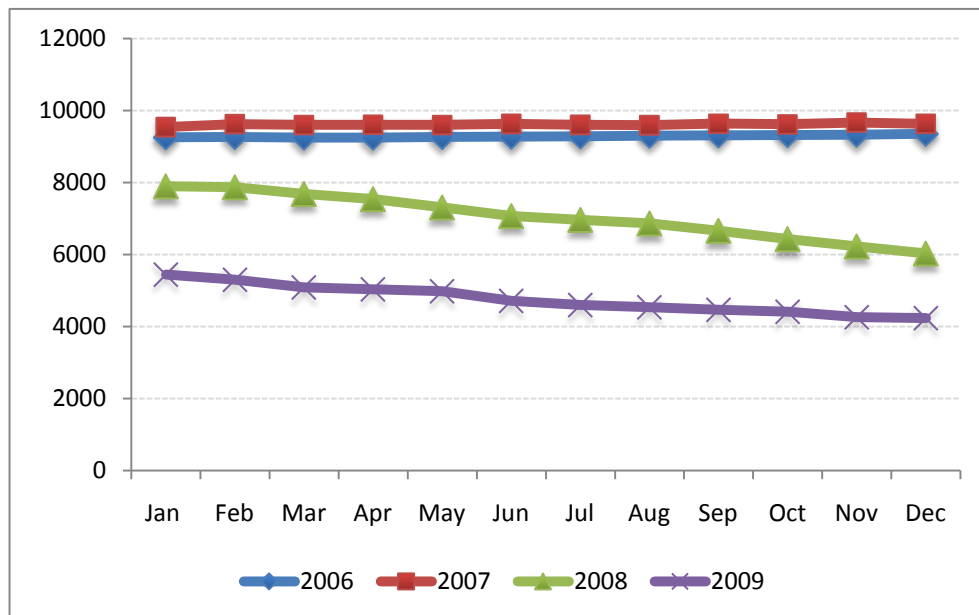
On the other hand, narrowband services recorded an HHI of 4,237 for the 2009 period. While the HHI has been decreasing throughout the year, the market continues to be contested with only four players competing. Figure 91 illustrates the narrowband HHI trends throughout 2009.

Figure 91: 2009 HHI for Fixed Narrowband Services



On comparing the last three years, Figure 92 shows the effects of market competition reducing the HHI from 9,351 in 2006 to 4,237 in 2009.

Figure 92: HHI of Fixed Narrowband Services 2006- 2009



Source: TATT

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

4.5 Average Revenue per User

During the review period, persons with Internet subscriptions spent an average of TT\$868⁴³ for Internet services. For fixed Internet services, customers spent approximately \$2,729⁴⁴. This represents a decrease of \$370 or 11.9 per cent in the average revenue per user (ARPU) over the amount recorded for 2008. This decrease

⁴³ ARPU for fixed and mobile Internet subscriptions combined.

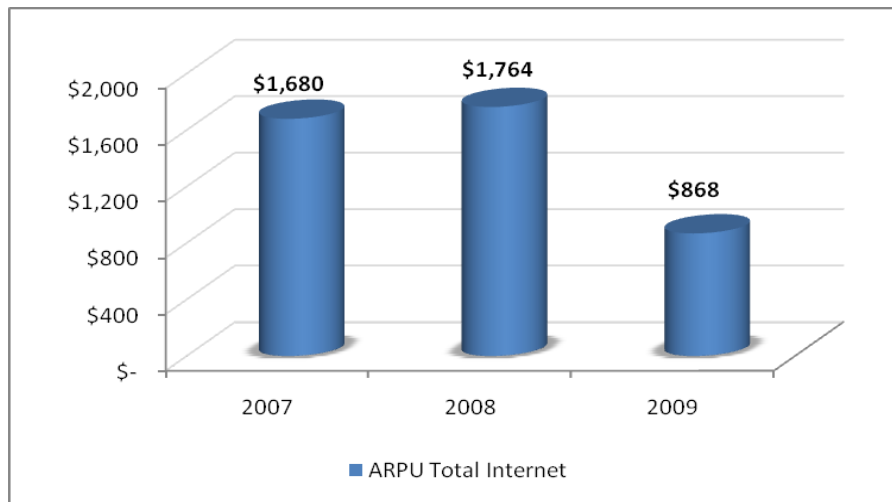
⁴⁴ ARPU for fixed Internet services is measured by the revenue generated by one subscription. It is calculated = (Total revenues from fixed Internet subscriptions / Total number of fixed Internet subscriptions)

resulted from the number of fixed Internet subscriptions increasing at a faster rate than revenues generated for the periods 2008 and 2009.

For mobile Internet services, customers spent an average of \$169⁴⁵. This represents a decrease of \$209 or 55.4 per cent over the ARPU for mobile Internet recorded for 2008.

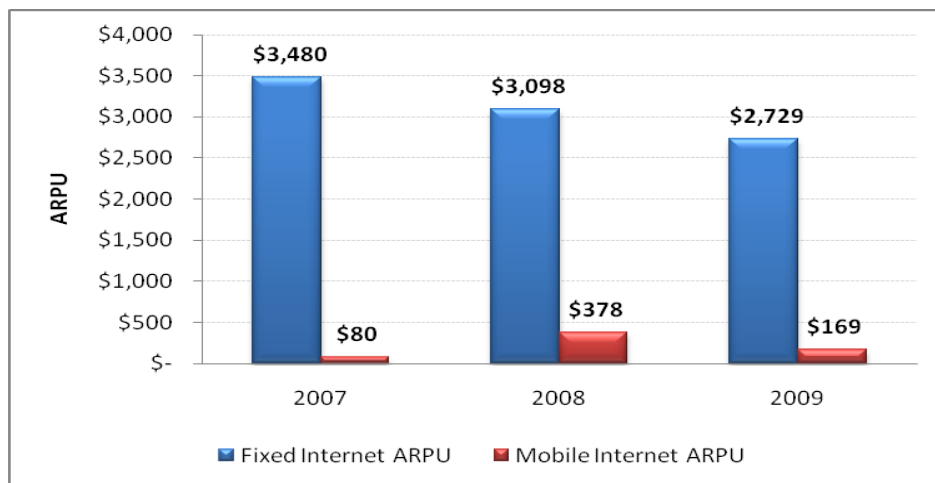
Figure 93 and 94 show the ARPU trends for the individual categories over the last three years.

Figure 93: ARPU for Total Internet Services 2007-2009



Source: TATT

Figure 94: ARPU for Fixed and Mobile Internet Services 2007-2009



⁴⁵ ARPU for mobile Internet services is calculated = (Total revenues from prepaid and postpaid mobile subscriptions with Internet access / Total number of mobile prepaid and postpaid subscriptions with Internet access)

5. International Voice Traffic Data

In 2009, ten (10) concessionaires were authorized to provide public international telecommunications services, which included the provision of international voice services. These operators included:

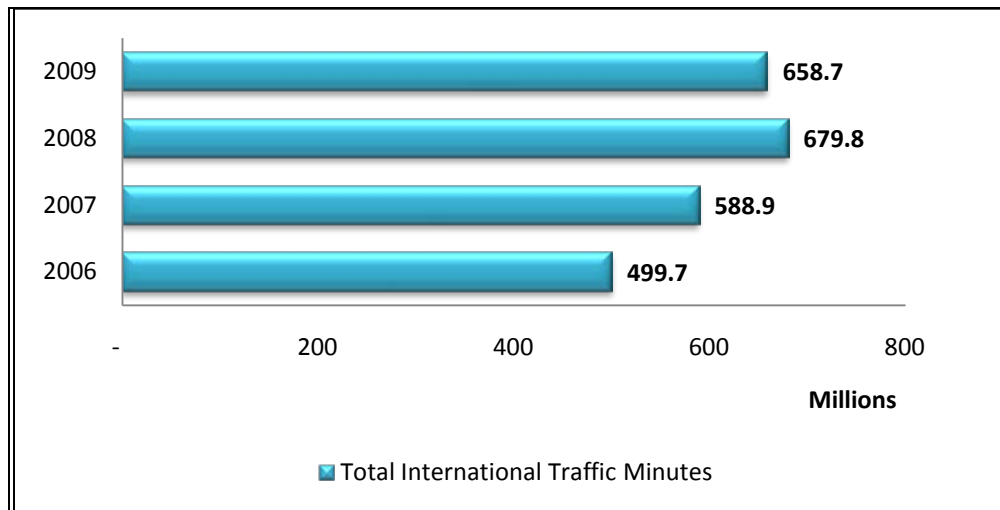
- Telecommunications Services of Trinidad and Tobago, TSTT,
- Digicel Trinidad Limited,
- Laqtel Limited,
- Open Telecom,
- 360 Degrees Communications,
- Lisa Communications Limited,
- Columbus Networks International Limited,
- Columbus Communications Trinidad Limited
- Windward Telecom Limited, and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

At the end of 2009, Green Dot Limited was the only concessionaire yet to launch its international services.

5.1 International Voice Traffic Minutes

For the review period, traffic volumes for both incoming and outgoing international calls made via the fixed and mobile networks were recorded to be approximately 658.7 million minutes, that is a decrease of 3.1 per cent or 21.1 million minutes, when compared to 2008 figures. The fall in minutes is attributed to the large decrease in the number of outbound minutes estimated for the period. As seen in the Figure 95, for the first time over the past three years the market has experienced a decline in the growth of international traffic.

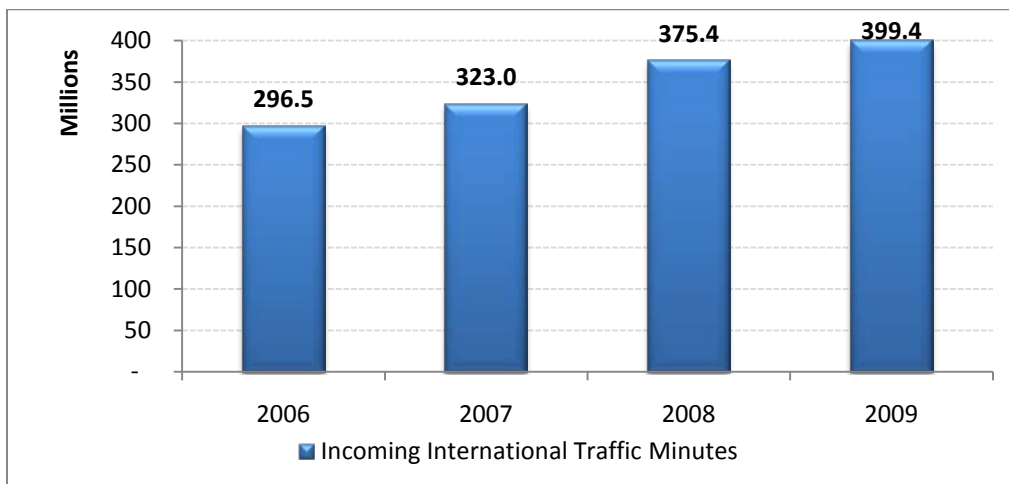
Figure 95: International Traffic Minutes 2006 - 2009



Source: TATT

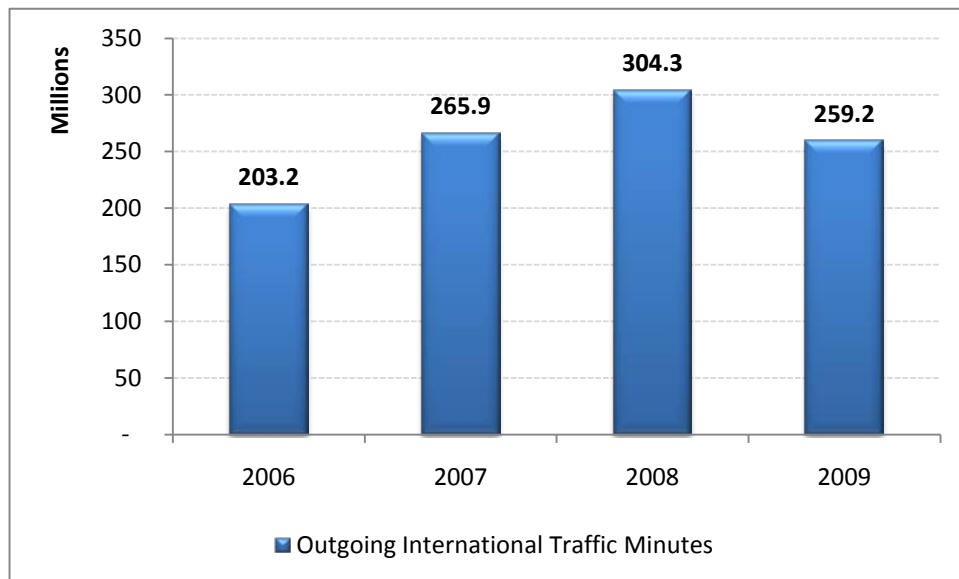
As presented in Figure 96, incoming traffic volumes have consistently increased over period 2006 to 2009. For 2009, incoming international traffic was recorded at 399.4 million minutes, an increase of 24.0 million minutes or 6.4 per cent, over last year's traffic. Information collected from the service providers showed that the majority of international incoming traffic, approximately 53.1 per cent, terminated on mobile networks, whilst the remaining 46.9 per cent of incoming traffic terminated on fixed line networks. This is consistent with the trend in the domestic market which also confirms for the review period that the majority of domestic traffic was terminated on the mobile networks.

Figure 96: Incoming International Traffic Minutes 2006 - 2009



Outgoing international traffic for the 2009 period was estimated to be 259.2 million minutes, a decrease of 45.1 million minutes or 14.8 per cent, over the 2008 figure. Figure 97 shows that this year recorded the first ever decline in outgoing traffic over the last three periods. One contributor to the fall in traffic may be attributed to the increased uptake of VoIP (Voice over Internet Protocol) by former consumers of outgoing international minutes. With the effects of the national recession and the availability of applications like Skype to users free of cost, customers may be choosing the latter option rather than paying to make international calls through the service providers.

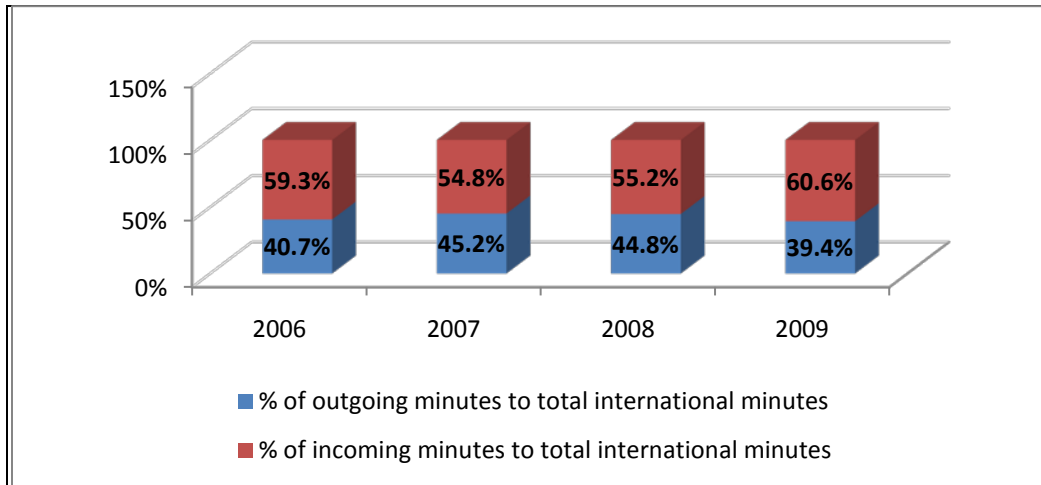
Figure 97: Outgoing International Traffic Minutes 2006 - 2009



Source: TATT

Consistent with the trend in previous years, incoming international traffic minutes continued to surpass outgoing traffic. For 2009, incoming traffic accounted for 60.6 per cent of total international minutes, while outgoing traffic comprises the other 39.4 per cent. Figure 98 illustrates the increasing growth in the proportion of incoming traffic compared to outgoing traffic since 2007 to 2009.

Figure 98: Percentage of Incoming and Outgoing Traffic to Total International Traffic 2009

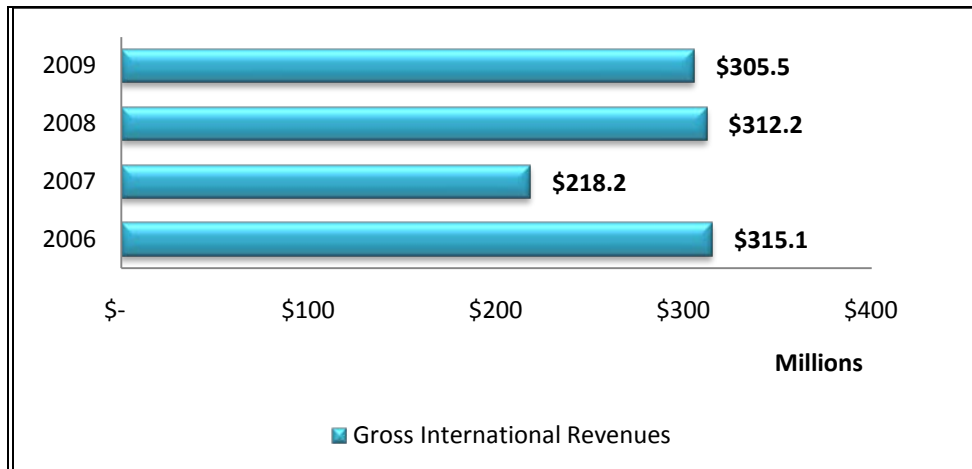


Source: TATT

5.2 International Traffic Revenues

Gross revenues⁴⁶ received from international fixed and mobile traffic totalled \$305.5 million in 2009. This represents a decrease of approximately TT\$6.6 million or 2.1 per cent over the previous year. The fall in revenues is consistent with the 3.1 per cent reduction in international traffic minutes recorded during the period. Figure 99 depicts the fluctuating trend in revenues received from international traffic for the years 2006 to 2009.

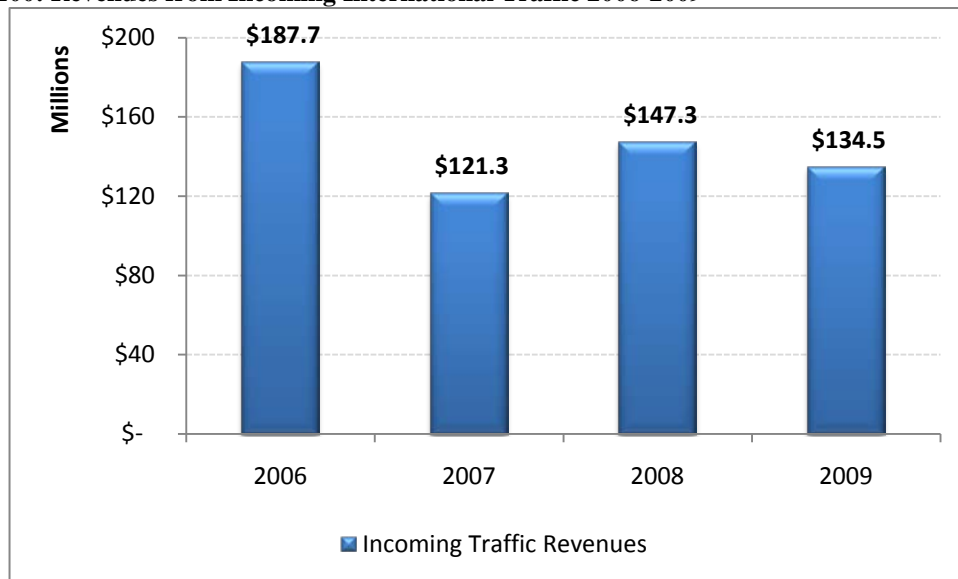
Figure 99: Gross Revenues from International Traffic 2006- 2009



⁴⁶ Gross revenues refer to the total amount of money earned from international calls. Outgoing international call revenue is a collection of revenue earned from residents making calls from the domestic network to persons abroad. Incoming international revenue is settlement revenue earned from foreign exchange carriers who pay service providers to terminate calls locally.

As shown in Figure 100, revenues earned from incoming traffic were estimated at \$134.5 million, a fall of \$12.8 million or 8.7 per cent from 2008. On analysing the average settlement rates for 2009 supplied by service providers, there seems to be almost no change in the mobile settlement rate while the fixed settlement rate has been notably declining. This may have been as a result of the high level of competition existing in the market. Therefore, even though there was an increase in the number of international incoming minutes, the fall in the average settlement rate may have accounted for the decrease in revenues generated. The continuing trend of incoming traffic being greater than outgoing traffic means that Trinidad and Tobago receives net gain on revenues received from international traffic.

Figure 100: Revenues from Incoming International Traffic 2006-2009

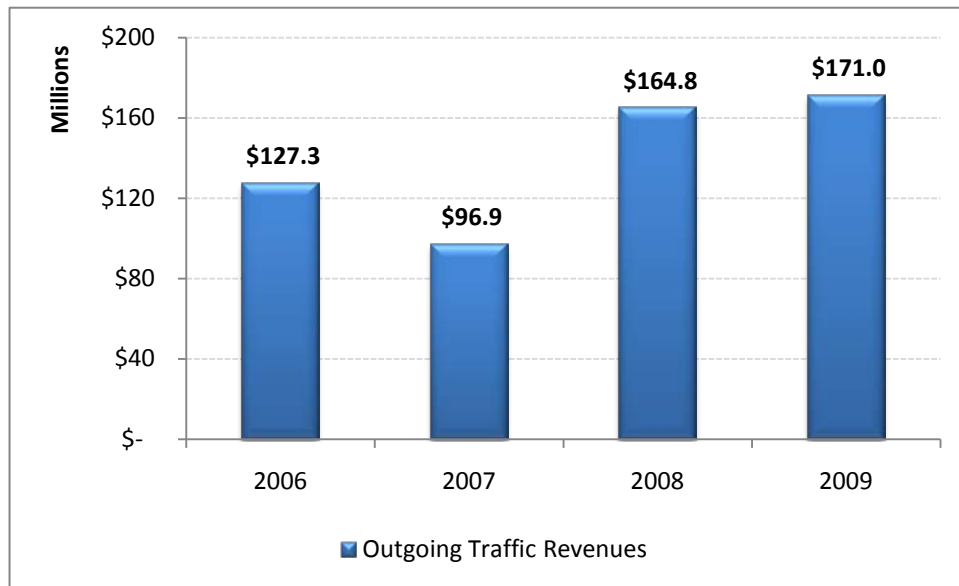


Source: TATT

On the other hand, revenues received from outgoing international traffic totalled \$171.0 million in 2009, increasing by \$6.1 million or 3.7 per cent over the last period. As seen in Figure 101, revenues from this market have been continuously growing since 2007. It must be noted that even though outgoing revenues increased by 3.7 per cent, this figure does not include out-payments to foreign telecommunication operators for the termination of international calls. However, contrary to the recorded fall in traffic mentioned in section 5.1, revenues may have risen as a result of the possible decreases in

the outgoing average termination rates, leading to higher profit margins and hence revenues by the service providers.

Figure 101: Revenues from Outgoing International Traffic 2006-2009

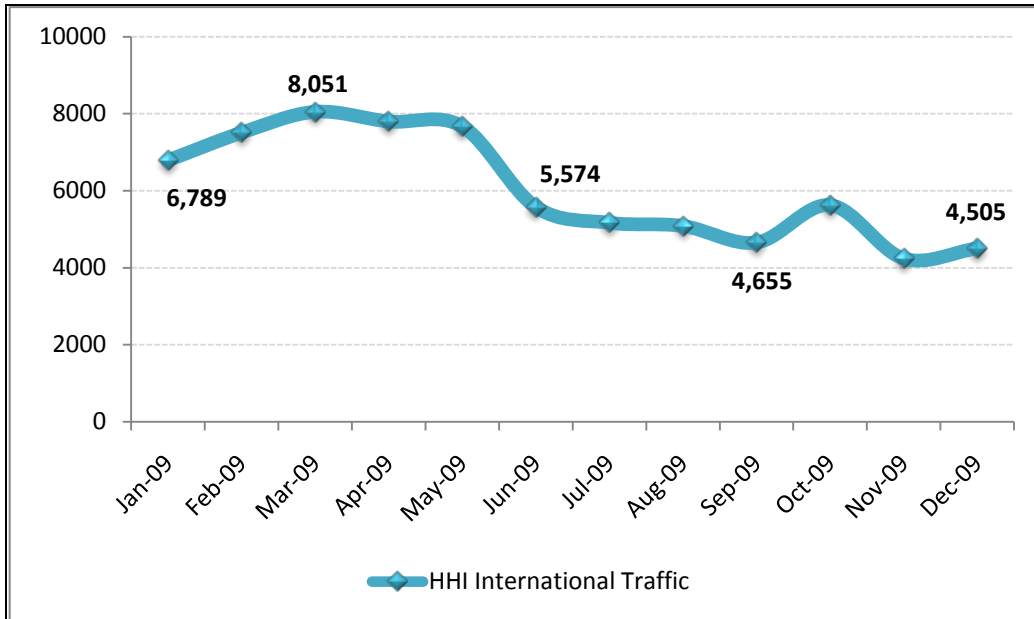


Source: TATT

5.3 International Voice Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the international voice market of Trinidad and Tobago for the year ending December 2009. The market share used in the calculation of the HHI was defined in terms of number of international minutes generated by the service providers. Figure 102 results revealed that there was a HHI of 4,505, showing that the market is highly concentrated as well as contested.

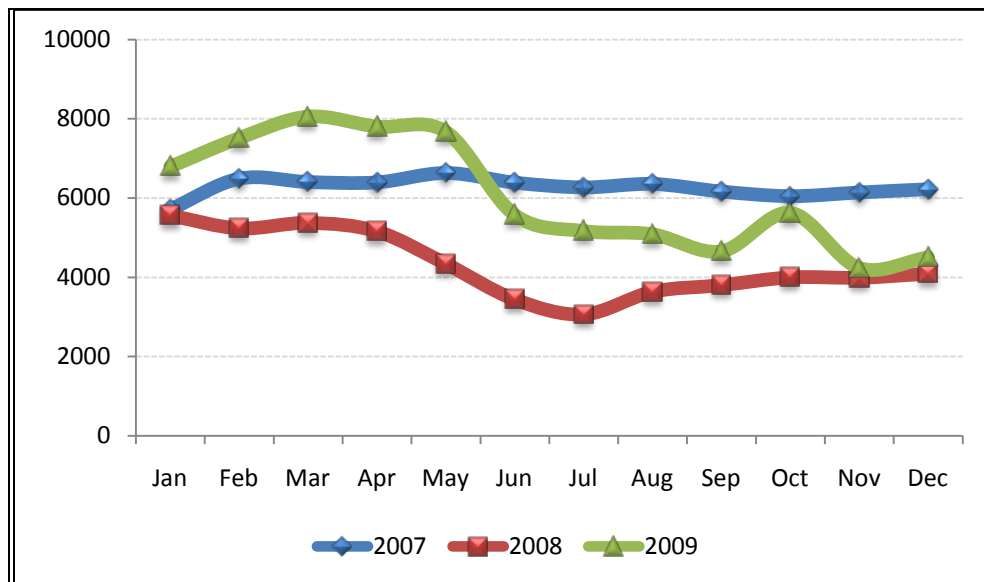
Figure 102: Hirschman-Herfindahl Index of International Voice Market January–December 2009



Source: TATT

On comparing data over the last three periods, Figure 103 maps the effects of market competition reducing the HHI from 6,220 in 2007 to 4,505 in 2009. This is equivalent to a 27.6 per cent increase in the level of competition in the international traffic market.

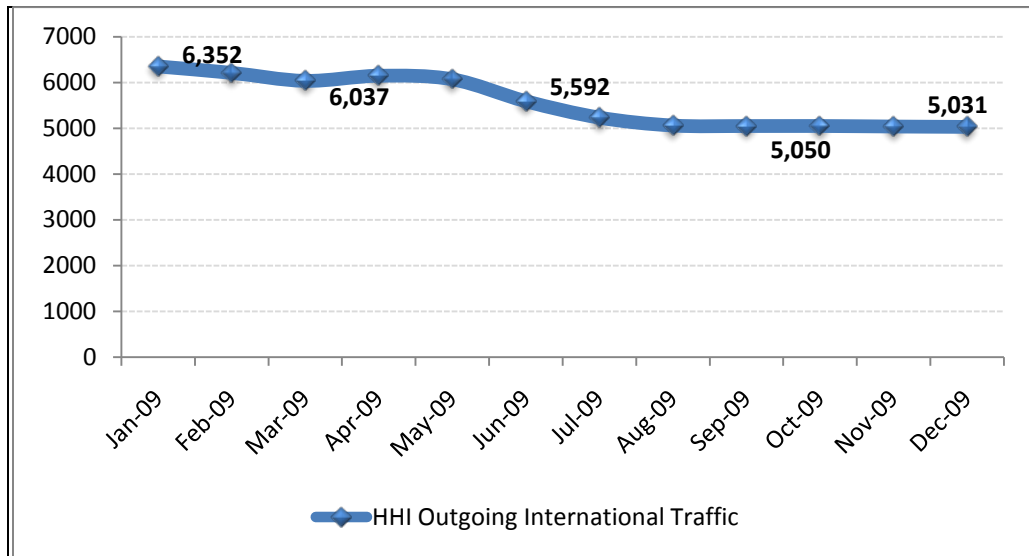
Figure 103: Hirschman-Herfindahl Index of International Traffic Market 2007- 2009



Source: TATT

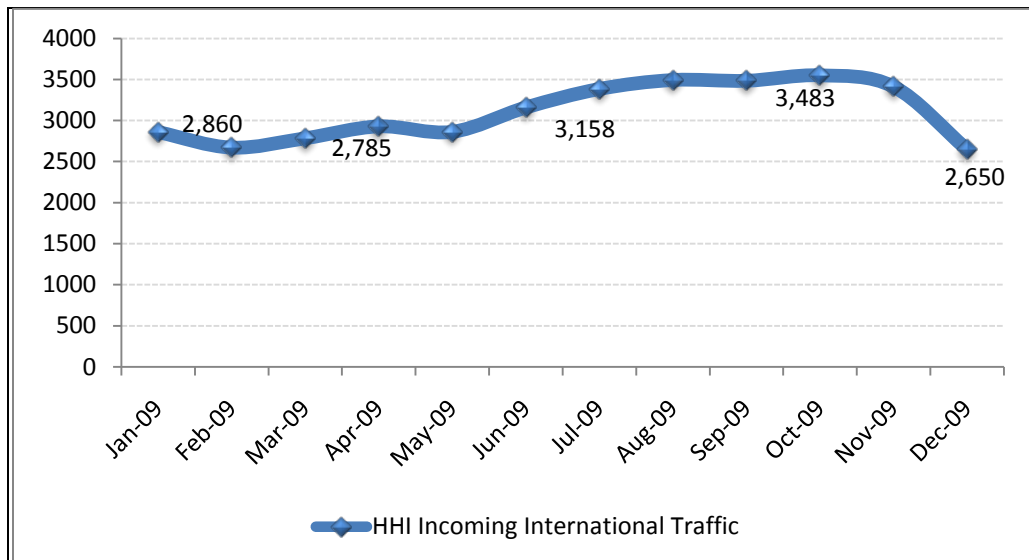
As outlined in Figures 104 and 105 below, the international outgoing market has been increasing in its level of competitiveness during the year, while the level of competition in the international incoming market has been fluctuating. Consequently, on comparison of the graphs, the international incoming market seems to be the more competitive of the two individual markets as at December 2009.

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



Source: TATT

Figure 105: Hirschman-Herfindahl Index of International Incoming Minutes January–December 2009



Box 3: The Impact of the Global Economic Crisis on the Local Telecommunications and Broadcasting Sectors

During the third quarter of 2008, the United States' financial market succumbed to the mounting pressures derived from significant fall-out of investments in the mortgage markets. This crisis eventually led to the collapse of Lehman Brothers and other major financial institutions that were exposed to the risk associated with the downturn of the US sub-prime market. This financial turmoil in the US soon spread to other economies that were exposed to similar investments and later became a global economic crisis.

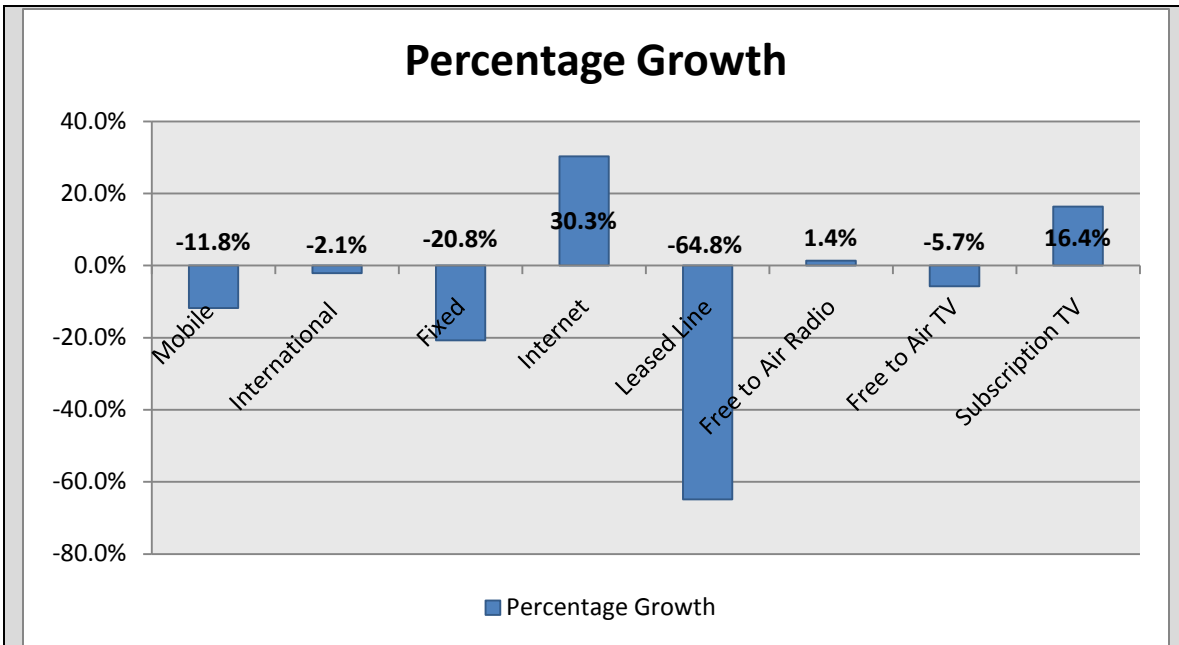
Many countries in the Caribbean have been severely impacted by this global economic crisis and Trinidad and Tobago was no exception. Based on GDP figures by the Central Bank, by the first quarter of 2009 the Trinidad and Tobago economy contracted by 3.3 per cent and by 5.6 per cent in the third quarter of 2009 on a year-on-year basis. This represents the fourth consecutive quarter of negative economic growth and reflected contractions in both the energy (-3.8 per cent) and non-energy (-6.8 per cent) sectors⁴⁷.

The global economic crisis permeated all parts of the economy including the Telecommunications and Broadcasting Sectors. Three main areas which are usually impacted during a financial crisis are explored below.

Revenue

During a financial crisis, revenues are closely monitored given the high potential for significant declines. For the year 2009, the telecommunications and broadcasting sector generated total revenues of \$4.3 million compared with \$4.8 million – a decline of approximately 9.1%. However, during this 12 month period, some markets performed better than others as shown in the graph below:

⁴⁷ Central Bank Economic Annual Report 2010



The largest contributor to revenues in the sector - the mobile market, showed a marked decline in revenues of 11.8% while revenues in the fixed market declined by 20.8%. The leased line market seemed to be most impacted during the review period with a fall in revenue of almost 65%. A reduction in revenue was also evident in the free to air television market with a decline of 5.7%. The free to air radio market performed modestly better during the financial crisis compared to the previous year with an approximate 1.4% growth in revenue. This result is expected as total advertising expenditure is usually cut at most firms during a financial crisis. Given that radio advertising costs is relatively cheaper compared to television, it is probable that during 2009 firms have utilized more radio advertising than television.

The Internet and subscription television markets proved to be the exception to the rule by showing positive growth in revenue during 2009. With a 30.3% growth in revenues, the Internet market exhibits great potential and highlights the growing importance of Internet services to Trinidad and Tobago. Revenues in the subscription television market increased by 16.4% in 2009. Once considered to be a luxury good, it's now possible to imply that subscription television services is becoming more and more an essential fabric of our society.

Consumer Behavior

Closely associated with a global financial crisis is a fall in real incomes and consequently, a change in consumer behavior usually ensues. The Central Bank noted in its Annual Economic Bulletin 2010 that a slowdown in demand was noticed during the period 2009. Was this slowdown in demand also evident in the telecommunications and broadcasting sector? While industry revenues fell in 2009, subscriber numbers tell a different story, with just one exception. When compared to 2008, fewer consumers subscribed to fixed line services, which continually decreased throughout 2009. As at December 2009, the number of fixed line subscribers was 4% less than that as at December 2008. Consumers subscribing to mobile phone voice services increased marginally by only 2% at year end. However, consumers of Internet and subscription television services seemed to not be adversely affected by the effects of the economic downturn. As such, subscribers to Internet services grew by approximately 9% while subscribers to subscription TV services grew by a significant 27% from December 2008 to December 2009. According to an Ovum Report, the impact of the financial meltdown and recession on the telecom industry⁴⁸, "...most existing broadband and television subscriptions are likely to remain in place, since these exhibit a "consumer stickiness" similar to mobile services." Revenues from Internet and TV services may actually get a boost as consumers turn to these relatively low-cost services more often, while curtailing spending on cinema-going, DVDs, CDs, and eating out." This observation was also evident in the local telecommunications and broadcasting industry as subscriber growth was experienced in the internet and subscription television markets as well at the mobile market, albeit minimal.

How have consumer changed their behavior with respect to call patterns during the financial crisis? A close look at the domestic mobile market, the largest market in the telecommunications sector, may provide some insight. During 2009 domestic call traffic in terms of number of calls significantly increased while the number of minutes decreased. Despite the economic downturn, consumers made more calls in 2009

⁴⁸John Lively et al, The impact of the financial meltdown and recession on the telecom industry, November 14 2008

compared to 2008 (an increase of 165%) with a higher increase in the number of consumers making off-net calls than on-net calls. Similarly, the number of call minutes by consumers increased, but only marginally by 12% with a decrease in the number of off-net minutes and an increase in the number of on-net minutes. It should be noted that the increase in on-net minutes was offset by a significant decrease in mobile to mobile off-net minutes. Hence, it would appear that during the financial crisis consumers did not cut back on the number of calls made. It would seem that they reduced the number of minutes spent on off-net calls which generally has a higher price than on-net minutes.

Employment

A Contraction in the labour market is also probable during a global financial crisis. In fact, the Central Bank indicated that for 2009 there had been a decline in employment which was apparent in most sectors especially in the services sector. Data from the Central Bank indicates that the unemployment rate rose to 5.25% in 2009 from 4.62% in 2008. This trend was also evident in the telecommunications and broadcasting sectors which showed a reduction in average employment in the sector by 14%. A closer look at the industry indicates that with the exception on the Subscription TV market, all other markets experienced a fall in employment, with the internet and mobile market being affected most significantly.

6. Broadcasting Market Data

For the 2009 period, concessions were held by nine operators of free-to-air TV broadcasting services, eight operators of subscription-broadcasting services, one operator of TV Broadcasting service via cable, and thirty-seven operators of free-to-air FM radio broadcasting services. These figures remained unchanged from 2008 as no new concessions were granted due to the moratorium placed on the free to air broadcasting market. Table 6 below gives a breakdown of the number of concessions in the broadcasting market from 2007 to 2009.

Table 6: Number of Concessionaires in the Broadcasting Market 2007-2009

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

Source: TATT

6.1 Free-to-Air Television Broadcasting Market

In 2009, the market for free-to-air TV broadcasting service comprised nine (9) operational concessionaires. They were:

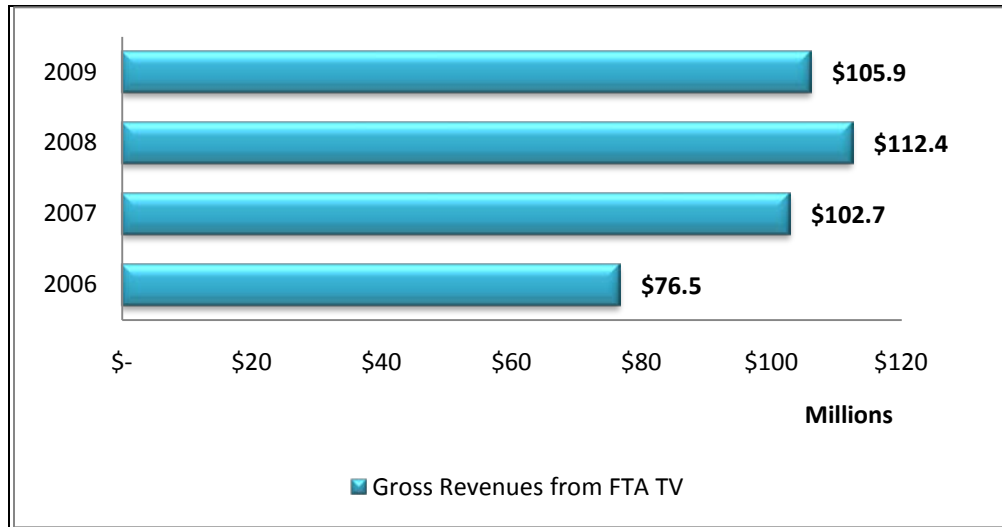
- Advance Community Television Network Limited (ACTN),
- Caribbean Communications Network Limited (TV6),
- Gayelle Limited,
- Caribbean New Media Group (CNMG),
- Trinidad Publishing Company Limited,
- Parliament of the Republic of Trinidad and Tobago,
- Synergy Entertainment Network Limited,
- World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

6.1.1 Free to Air Television Revenues⁴⁹

Throughout 2006 to 2008 gross revenues for the free-to-air (FTA) television broadcasting market had been steadily increasing, however between 2008 and 2009, gross revenues recorded its first decline in four years. In 2008, total estimated gross revenues for this market stood at TT\$112.4 million, but in 2009 gross revenues stood at TT\$105.9 million, a \$6.4 million or 5.7 per cent decrease over the previous year. This decrease in revenues may have resulted from the reduction in advertising revenues generated by the television broadcasters due to the impact of the economic downturn for the 2009 period. Figure 106 shows the trend in revenues for the free-to-air television broadcasting market since 2006.

⁴⁹ For the review period, two concessionaires did not submit market data to the Authority, as a result, revenue figures were estimated.

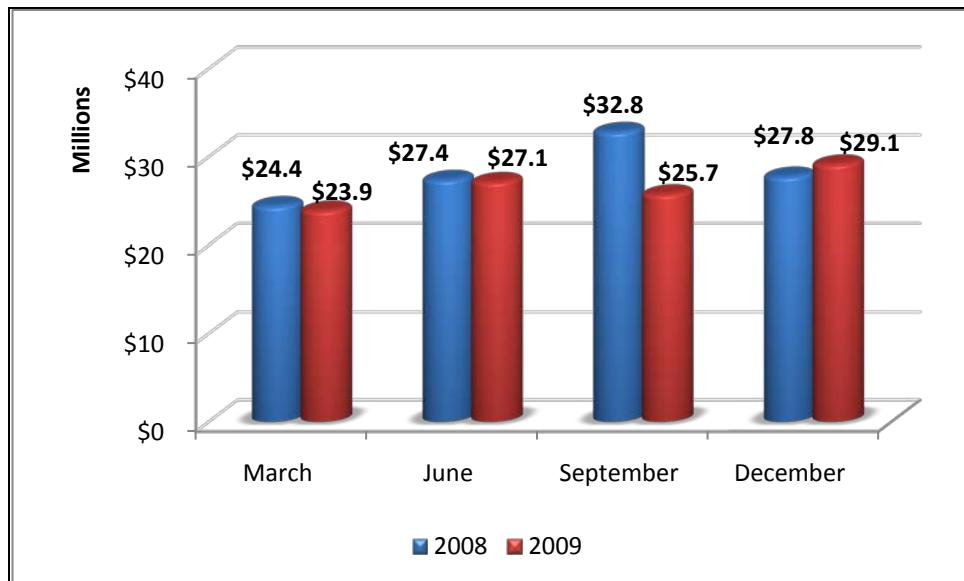
Figure 106: Gross Revenues for FTA Television Broadcasting Service Providers 2006-2009



Source: TATT

On a quarterly basis, revenues showed steady increases with the exception of the third quarter of 2009. This may be evidence of the impact of the economic downturn as the demand for advertising by customers may have declined for that quarter. A comparison of quarterly revenue trends for 2008 and 2009 are shown in Figure 107.

Figure 107: Quarterly Gross Revenues FTA Television Service Providers 2008 and 2009

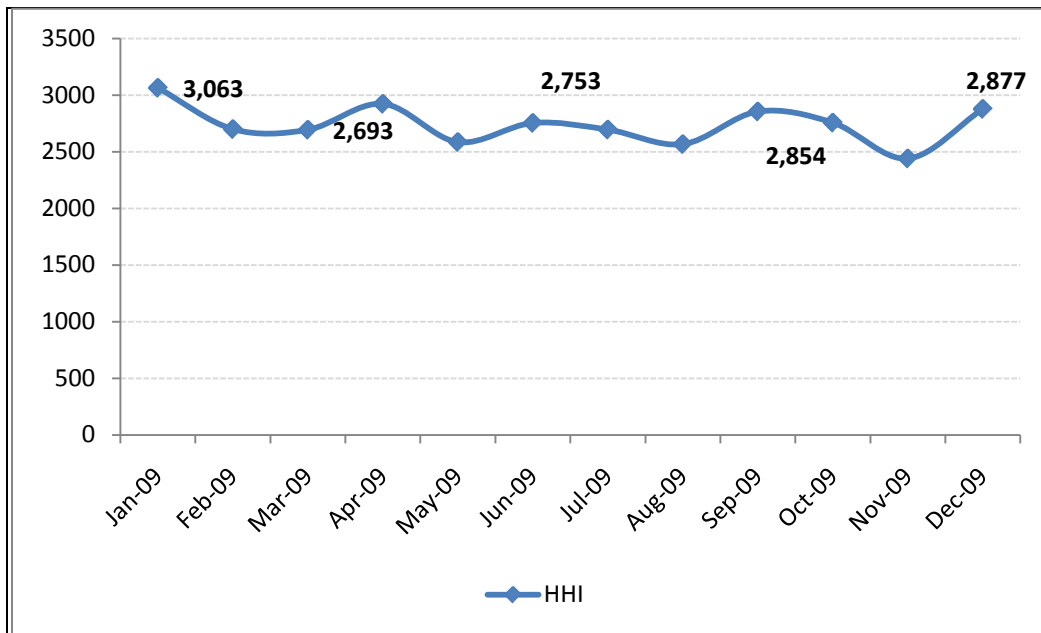


Source: TATT

6.1.2 Market Concentration Free to Air Television

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the free to air television broadcasting market⁵⁰ for the year ending December 2009. The result revealed that there was an HHI of 2,877 at the end of December 2009.

Figure 108: HHI for FTA Television Broadcasting Market 2009

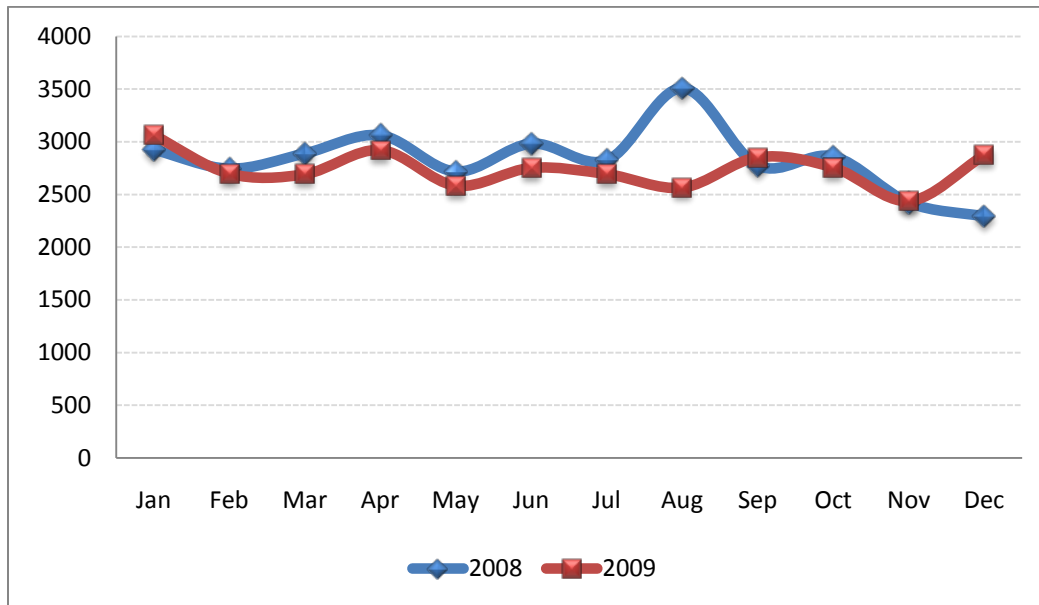


Source: TATT

As shown in Figure 108, the market can be labelled as highly competitive. However when compared to 2008, results have shown that the level of competitiveness in the FTA television has slightly declined for the December period. Figure 109 looks at the HHI readings for 2008 and 2009.

⁵⁰ The revenue market share was used in the calculation of the HHI

Figure 109: HHI for FTA Television Market 2008 and 2009



Source: TATT

6.2 Free-to-Air Radio Broadcasting Market

In 2009, the free-to-air (FTA) radio broadcasting market consisted of one (1) AM and thirty six (36) FM concessions which were operational. Although this number is relatively large, it must be noted that some concessionaires within this market operate more than one radio station.

During 2009, free-to-air radio broadcasting market earned an estimated \$153.7 million in gross revenues. This represents a 1.4 per cent, or \$2.1 million thousand increase over the previous year. Figure 110 compares gross revenues from 2007 to 2009.

Figure 110: Gross Revenues for FTA Radio Service Providers 2008-2009

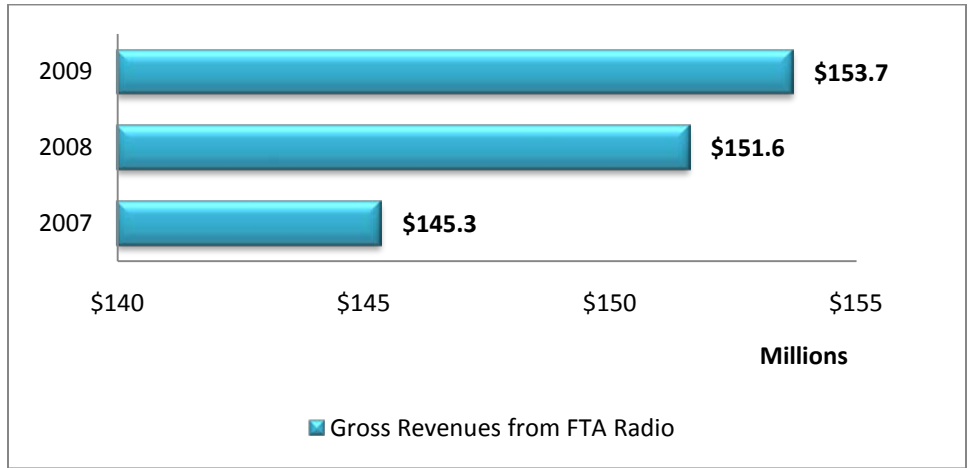
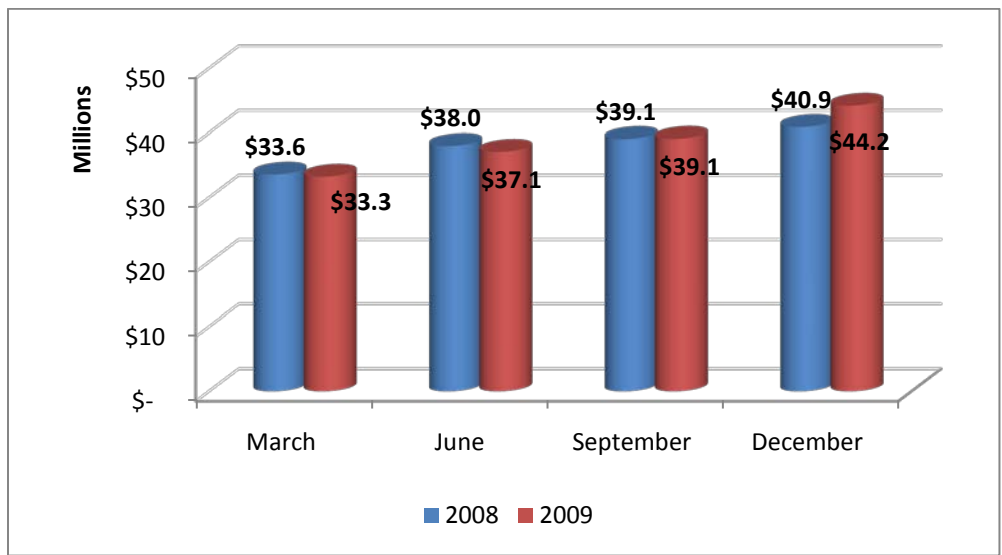


Figure 111 highlights fluctuating increases in gross revenues per quarter during 2009. During the first quarter gross revenues increased by 11.6 percent, while in the last two quarters revenues increased by 5.4 and 13.0 per cent respectively. Contrary to the gross revenues trend reported in the free-to-air television section (Figure 106), gross revenues for radio broadcasters were increasing for each quarter of 2009. Interestingly, with the exception of the final quarter, there was little change in the level of revenues when compared across corresponding quarters for 2008 and 2009.

Figure 111: Quarterly Gross Revenues for FTA Radio Service Providers 2008-2009

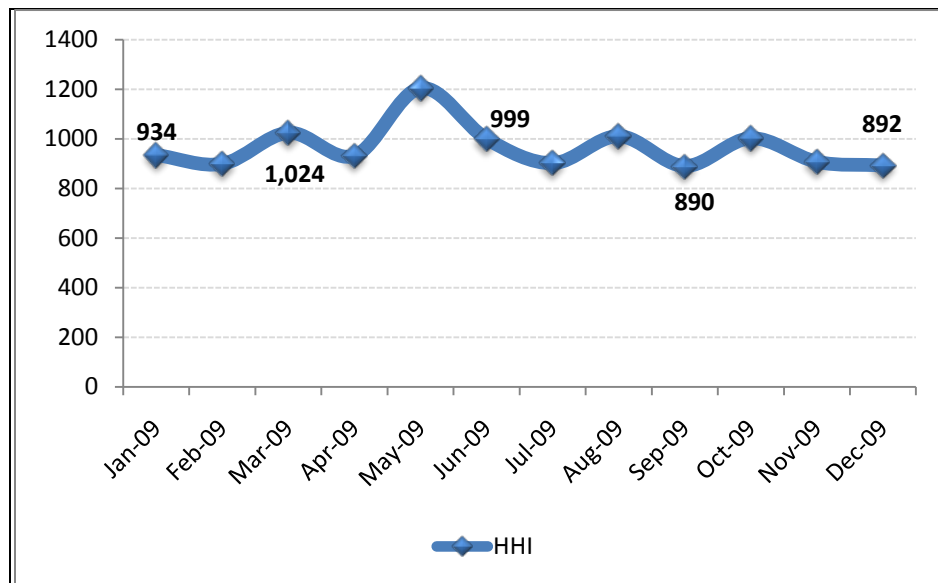


Source: TATT

6.2.1 Market Concentration Free to Air Radio

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the free to air radio broadcasting market⁵¹ for the year ending December 2009. The result revealed that there was a HHI of 892 at the end of December 2009.

Figure 112: HHI Free to Air Radio Broadcasting Market 2009

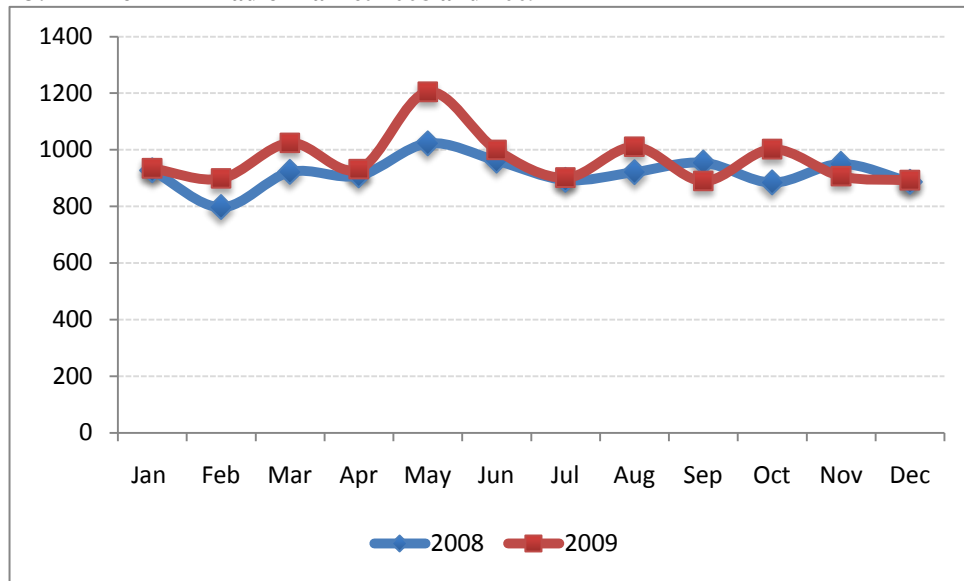


Source: TATT

As seen in Figure 112, the market can be labelled as not concentrated such that there is a high level of competition due to the number of broadcasters in the market. However when compared to December 2008, there was a marginal increase in the HHI by 0.7 per cent. Figure 113 compares the HHI between 2008 and 2009.

⁵¹ The revenue market share was used in the calculation of the HHI

Figure 113: HHI for FTA Radio Market 2008 and 2009



Source: TATT

Box 4: Observing Competition in the Free-to-air Market

Amongst the various markets in the telecommunications and broadcasting sectors, the free-to-air broadcasting markets are of particular interest. These are the broadcasting markets which use terrestrial transmission to distribute content to the consuming public, satisfying demand for information and of course entertainment. Another unique characteristic of this market segment is the mechanism through which service providers finance their operations. In contrast with public telecommunications services and subscription broadcasting services, consumers of free-to-air radio and television (listeners and viewers) do not directly pay for service. Notwithstanding the fact there exist specific broadcasters who operate on a non-commercial basis, free-to-air broadcasters are generally funded through the commercial receipts of advertising revenues.

Because of the convenience of access and usage, free-to-air broadcasting services are enjoyed widely and extensively, and have important social and economic roles. In the case of free-to-air television, liberalization has seen the transformation of the market where viewers can currently enjoy the services of nine (9) local television broadcasters. Additionally, the local television market is also expanding with the rapid growth of the subscription television market, where most local free-to-air stations are carried on subscription television networks, increasing their market penetration.

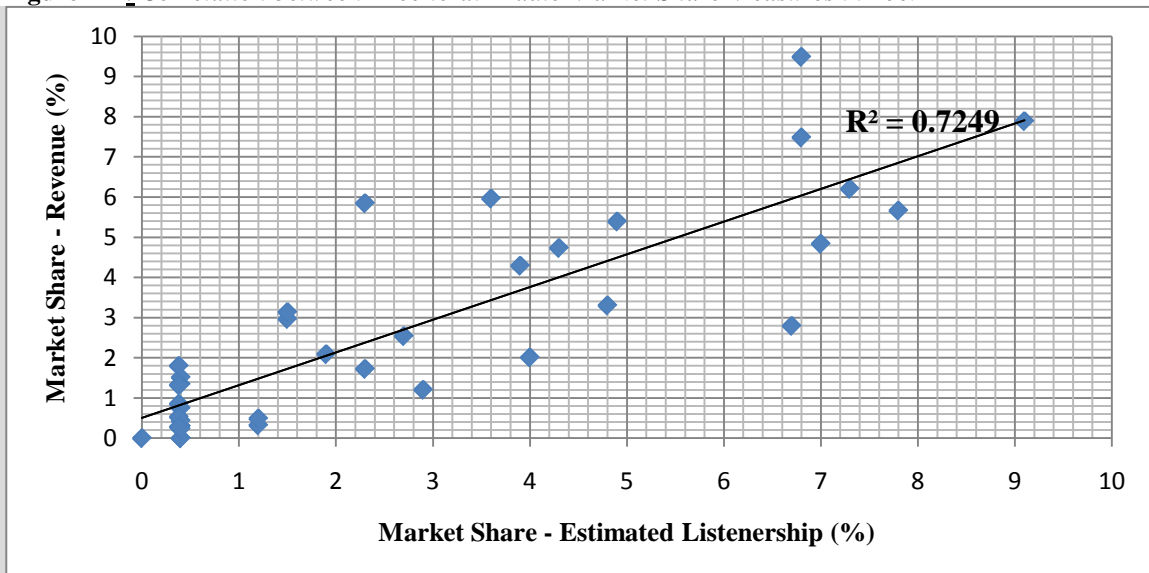
Additionally, convergence of services facilitates more robust competition in the subscription television market, where various recent entrants have been traditional telecommunications service providers. The trend would suggest further expansion of the television market, as liberalization benefits consumers with greater choice of providers, greater variety of content, and lower prices for subscription-based services.

In terms of the free-to-air radio market, consumers now enjoy the services of thirty-seven (37) service providers, who provide a wide range of broadcast content – including news and current events, educational content, and a wide range of musical genres. While it is easy to observe the results of competition in telecommunication and subscription television markets, free-to-air broadcasting is quite different. Since consumers do not

directly pay for services, the most evident benefit is the wider range of content, as opposed to lower prices due to competition. As stated above, the HHI in the free-to-air radio market was 892 in 2009, suggesting a relatively competitive market environment. This HHI measure is calculated using broadcaster market shares based on revenues (individual broadcaster's revenue as a percentage of total market revenue). However, to analyze competition in this market segment, it is important to consider that these revenues are derived from advertising sales.

In a competitive market, broadcasters advertising rates reflect the market value of advertising time (usually measured in specific minute-length blocks), which is conditioned by the broadcaster's competitive position. Two important factors which determine this position are the broadcaster's content format, and the listenership/viewership attracted. The market remains competitive, as the greater the size of the audience attracted, the greater the value of advertising time (and hence revenues). One would thus expect that in a competitive market, there would be a strong correlation between market share as measured by share of total revenue, and as measured by share of total audience. Figure 114 below analyses this linkage for the domestic free-to-air radio market in 2010.

Figure 114: Correlation between Free-to-air Radio Market Share Measures in 2009



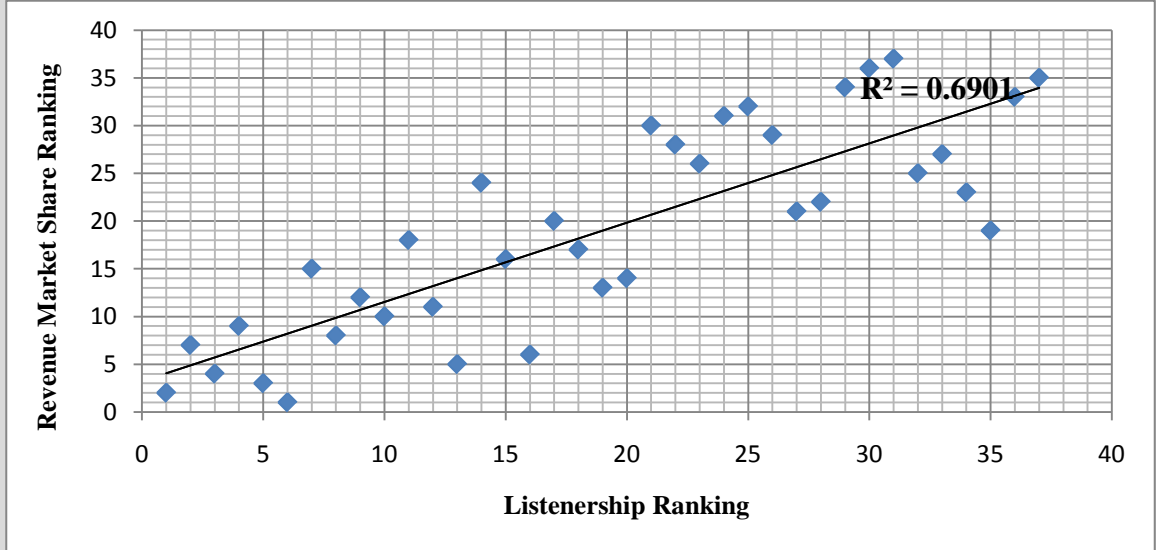
As can be seen in Figure 114, there is a strong positive correlation between market share and estimated listenership in the free-to-air radio market. This is evidence that not only is this market segment competitive in terms of a large number of service providers, but also in terms of market share distribution.

Furthermore, deviations from the link between revenue and listenership inevitably exist as advertising rates (hence revenues) are also influenced by content formats. This means that there are differences in advertising value which are based on the various audiences that particular broadcasters' formats appeal to.

This points to a further major benefit of a competitive free-to-air broadcasting market, where advertisers also have greater variety in choice of sources of commercial air-time, which can be used to target particular market demographics. Hence, not only do consumers benefit from a greater range of content, but the market plays an important role in the growth of the overall economy via its function as an advertising platform.

To control for deviations in absolute revenues due to format-influenced advertising rates, the radio broadcasters can be ranked in terms of their market share and estimated listenership. Since the free-to-air radio broadcasting market has a larger number of service providers than any other market in the domestic telecommunications and broadcasting sectors, the market can also be analyzed based on such relative rankings, as opposed to the magnitude of market shares (as done in Figure 1). This analysis is shown in Figure 115, where a strong positive correlation can be seen between broadcasters' relative rankings in estimated listenership and revenue-based market share.

Figure 115: Correlation between Free-to-air Radio Market Share Rankings in 2009



While the main trend in the broadcasting sector in 2009 is the rapid growth in the subscription television market, there are other important trends in the free-to-air markets which contribute to the social and economic importance of the broadcasting sector. If continued into 2010 as anticipated, these trends show that both consumers and businesses will benefit from competition in broadcasting sectors of Trinidad and Tobago.

6.3 Subscription Television ('Pay TV') Broadcasting Market

For the 2009 period, the pay TV market comprised eight authorised and operational service providers. They were as follows:

Table 7: List of Pay TV Providers 2009

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

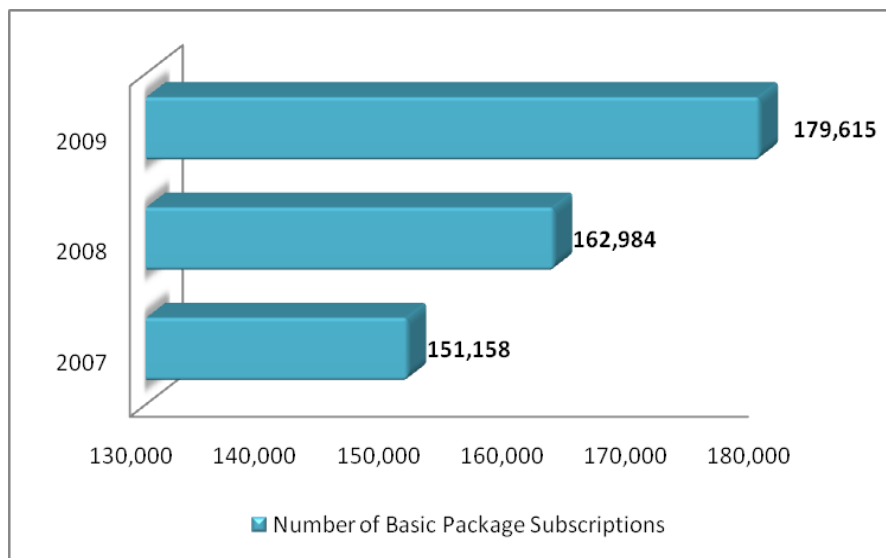
It should be noted that even though TSTT and Green Dot were authorised to provide pay TV services since 2005 and 2008 respectively, their services were only launched to the public during the 2009 period.

6.3.1 Total Pay TV Subscriptions

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

As at December 2009, the total number of subscriptions to pay TV services stood at approximately 179.6 thousand, an increase of 16.6 thousand subscriptions or a 10.2 per cent increase when compared to December 2008. This would evidently also represent the number of subscriptions to basic packages. Figure 116 shows the increasing trend in subscriptions to Pay TV for the period 2007 to 2009.

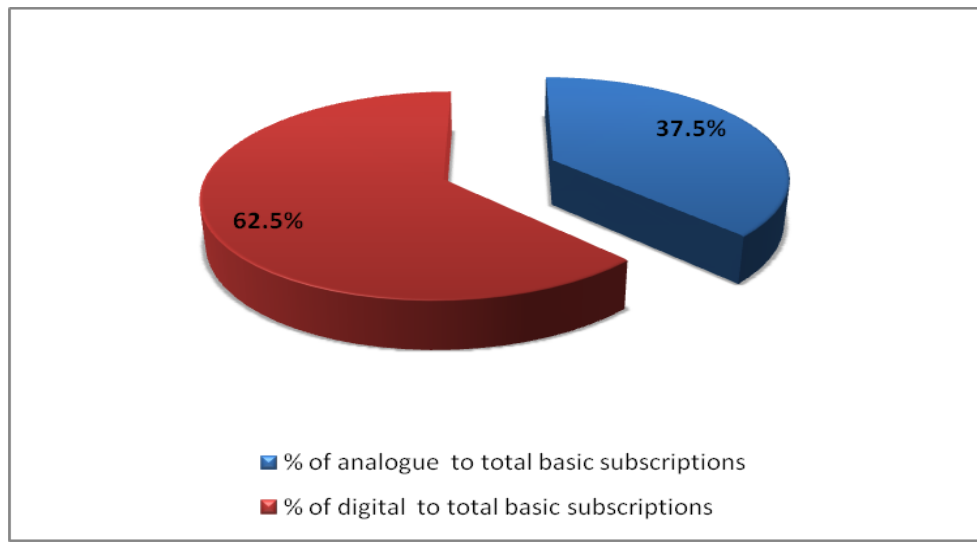
Figure 116: Number of Pay TV Subscriptions (Basic Package Subscriptions) 2007 – 2009



Source: TATT

Of the total number of pay TV subscriptions, analogue subscriptions represented 67.3 thousand or 37.5 per cent, whilst digital subscriptions contributed 112.3 thousand or 62.5 per cent. Figure 117 below presents a percentage breakdown of the number of pay TV subscriptions per platform for 2009.

Figure 117: Pay TV Subscriptions (Basic Package Subscriptions) by Platform for 2009



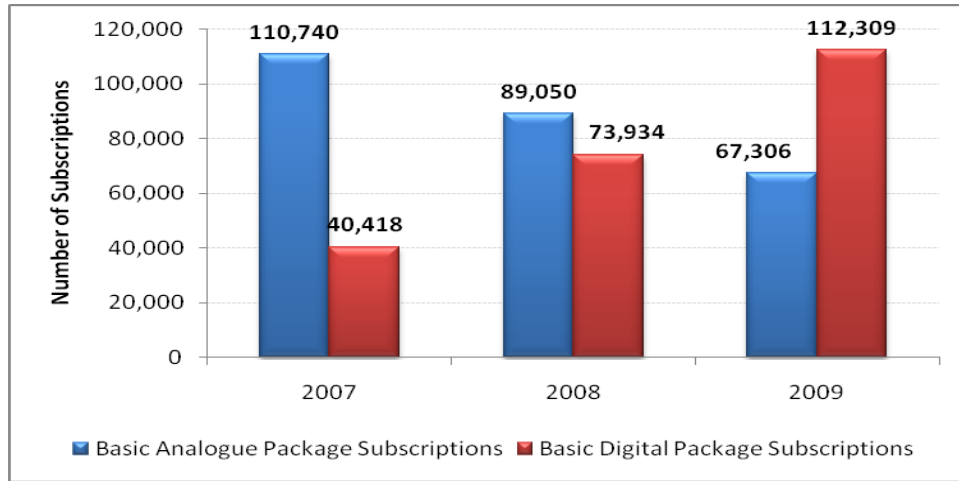
Source: TATT

As seen in Figure 117, the number of digital subscriptions comprised the larger category in 2009, with an increase of 38.4 thousand subscribers or 51.9 per cent when compared to 2008. Analogue subscriptions, however, decreased by 21.7 thousand or 24.4 per cent for the same period under review. This noticeable trade-off between digital and analogue subscriptions is evident as the main cable provider in Trinidad, CCTL, continued on its drive to upgrade its analogue network to a digital platform. Also contributing to the increase in digital subscriptions, although on a smaller scale, was the entrance of TSTT and Green Dot into the market during the review period. This annual change in subscribership via platform is shown in Table 8 and illustrated in Figure 118.

Table 8: Growth Rate of Pay TV Subscriptions by Platform

Platform	Number of Pay TV Subscriptions (Basic Package Subscriptions)	Percentage change between 2008 and 2009
Analogue	67,306	(24.4%)
Digital	112,309	51.9%

Figure 118: Pay TV Subscriptions by Platform 2007-2009



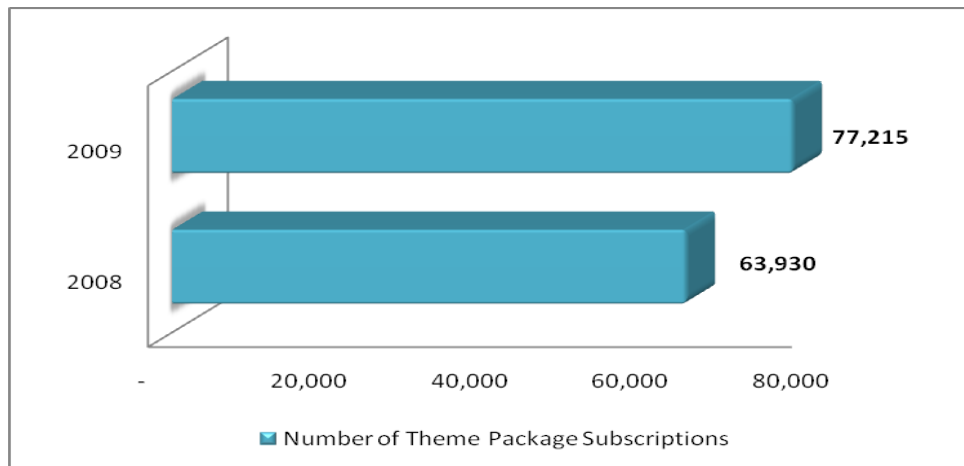
Source: TATT

6.3.2 Premium Packages Subscriptions

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

As at December 2009, the total number of subscriptions to premium packages was approximately 77.2 thousand, an increase of 13.3 thousand subscribers or a 20.8 per cent increase from December 2008 figures. Figure 119 shows the increasing demand for premium packages for the period 2008 to 2009.

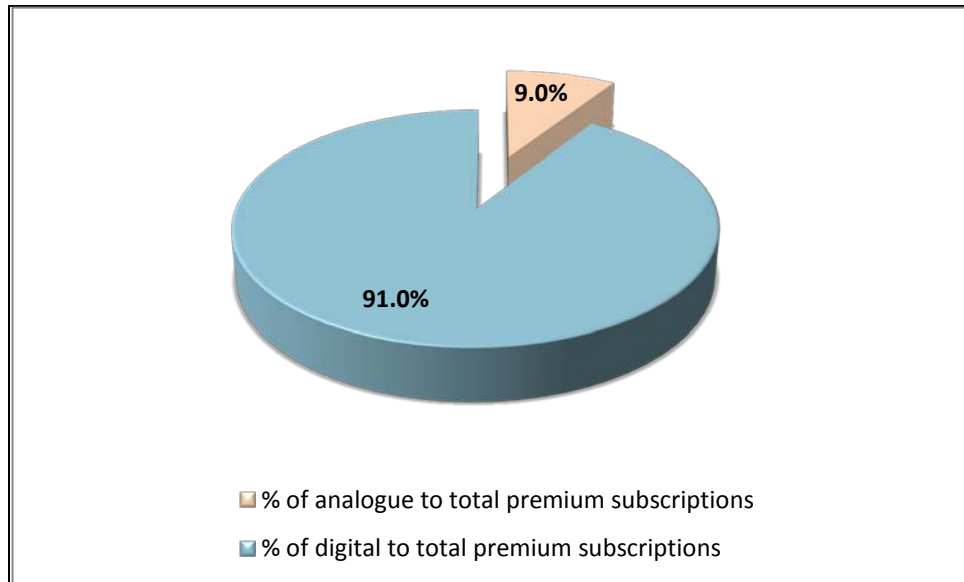
Figure 119: Number of Premium Package Subscriptions 2008 – 2009



Source: TATT

Of the total premium packages subscriptions, 7.0 thousand or 9.0 per cent included analogue premium packages. Digital premium packages contributed the other 70.2 thousand or 91.0 per cent. Figure 120 below presents a percentage breakdown of the number of premium package subscriptions by platform for 2009.

Figure 120: Number of Premium Package Subscriptions by Platform 2009



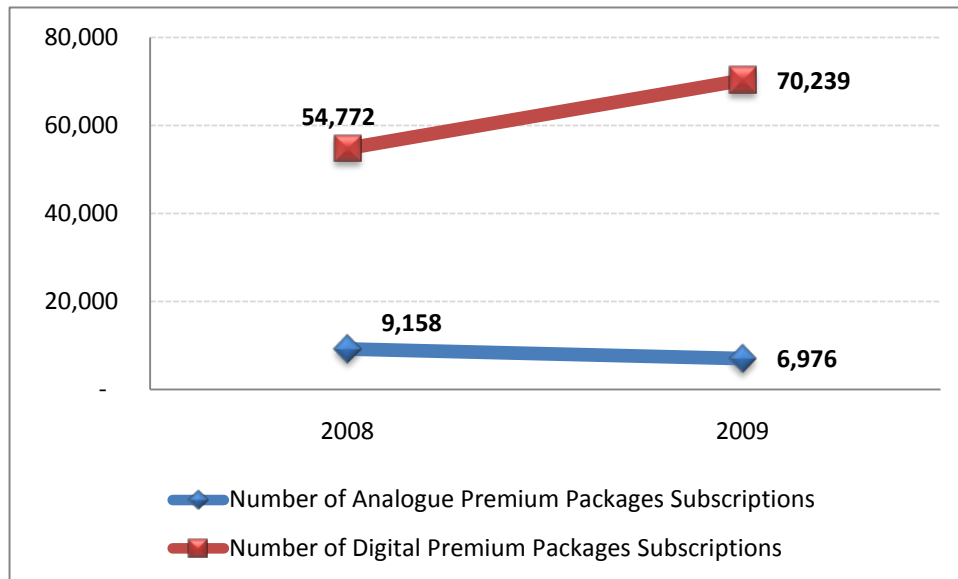
Source: TATT

As seen in Figure 120, the number of subscriptions to digital premium packages represented the largest share of these packages in 2009, with an increase of 15.5 thousand subscriptions or 28.2 per cent when compared to 2008. Subscriptions to analogue premium packages decreased by 2.2 thousand, or 23.8 per cent, for the same period under review. This was expected as, mentioned in Section 6.3.1, the main cable provider in Trinidad, CCTL, is in the process of switching its analogue customers to the digital network. This annual change in subscriptions to premium packages via platform is shown in Figure 121.

Table 9: Growth Rate of Theme Package Subscriptions by Platform

Platform	Number of Premium Package Subscriptions	% Change between 2008 and 2009
Analogue	6,976	(23.8%)
Digital	70,239	28.2%

Figure 121: Subscriptions to Premium Packages 2008-2009



Source: TATT

6.3.3 Pay TV Penetration

Penetration in the Pay TV broadcasting market has been growing consistently over the past seven years. As at December 2009, the penetration of pay TV services (the number of Pay TV subscriptions per 100 inhabitants⁵²) was 13.7 while pay TV household penetration (the number of subscriptions per 100 households⁵³) measured 52.3. This

⁵² Number of pay TV subscriptions per 100 inhabitants = (number of pay TV subscriptions / population) * 100

⁵³ Pay TV penetration per 100 households = (number of pay TV subscriptions / number of households) * 100

means approximately 14 out of every 100 persons and 52 out of every 100 households subscribe to these services.

Figures 122 and 123 highlight the trend in Pay TV since 2003.

Figure 122: Pay TV Penetration 2003 - 2009

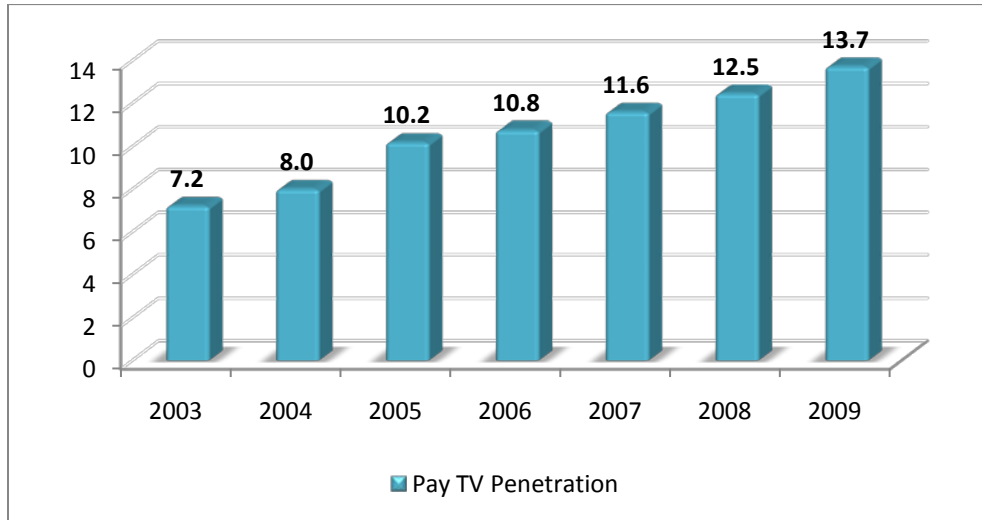
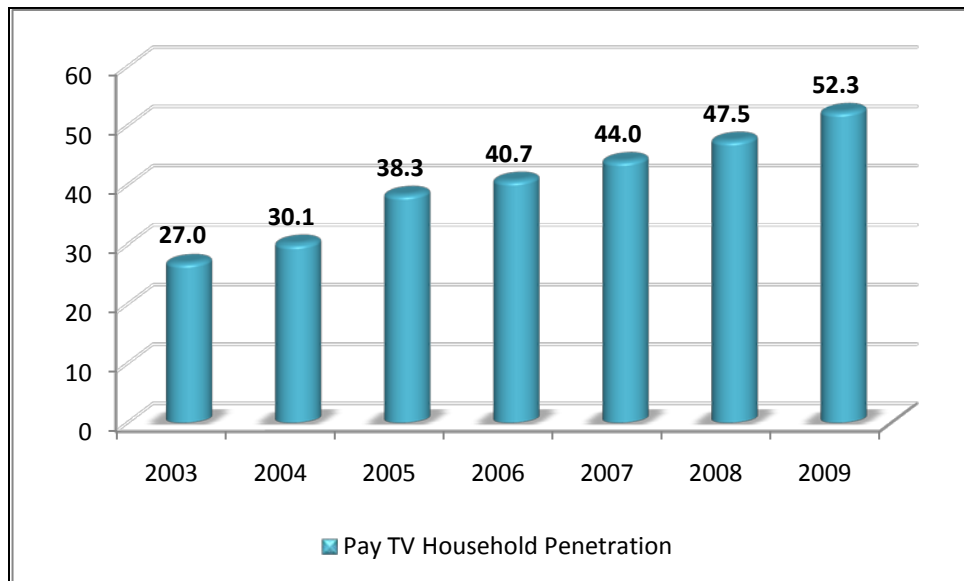


Figure 123: Pay TV Household Penetration 2003 – 2009



Source: TATT

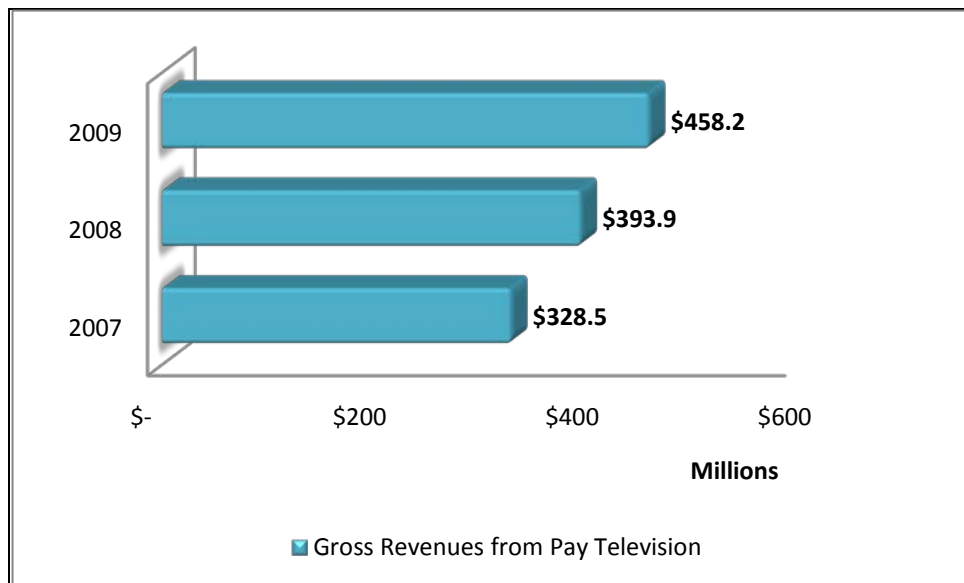
Based on statistics⁵⁴ received from the Central Statistical Office, there are 262,923 households in Trinidad and Tobago with a television. Therefore, households paying for pay TV services represent 68.3 per cent of all homes with a television.

6.3.4 Pay TV Broadcasting Revenues

For 2009, the total estimated gross revenue from the Pay TV broadcasting market was \$458.2 million, an increase of \$64.4 million or 16.3 per cent from 2008. Figure 124 displays the trend in gross revenues from this market from 2007 to 2009.

Of this \$458.2 million, revenues from basic package subscriptions accounted for TT\$353.5 million or 77.1 per cent, whilst revenues from premium package subscriptions recorded TT\$48.9 million or 10.7 per cent. Other revenues⁵⁵ accounted for TT\$56.1 million or 12.2 per cent. The percentage breakdown of pay TV revenues is shown in Figure 125.

Figure 124: Pay TV Gross Revenues 2007-2009

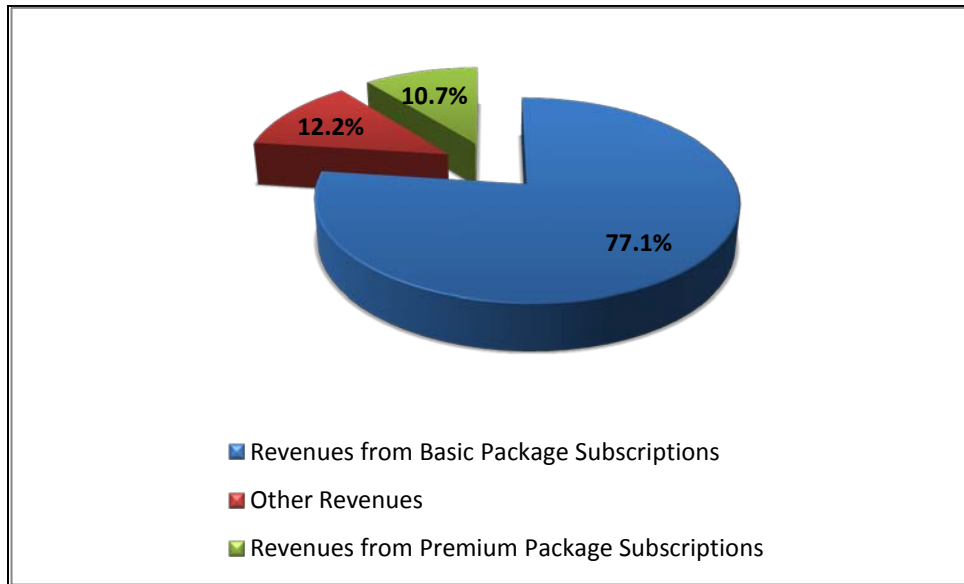


Source: TATT

⁵⁴ These statistics were generated from the 2000 National Census conducted in Trinidad and Tobago.

⁵⁵ Other revenues included installation revenues, additional outlets revenues, reconnection revenues, media revenues etc.

Figure 125: Pay TV Revenues for 2009

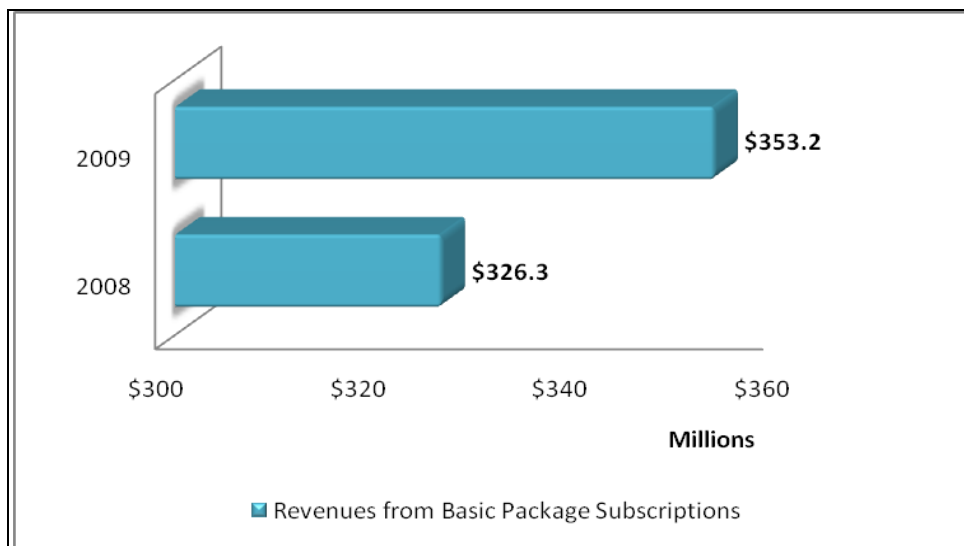


Source: TATT

6.3.5 Revenues from Basic Packages Subscriptions

For the 2009 period, total revenues received from basic package subscriptions totalled \$353.2 million, a \$30.0 million or 8.3 per cent increase from 2008. Figure 126 presents the totals of revenues collected from basic subscriptions for 2008 to 2009.

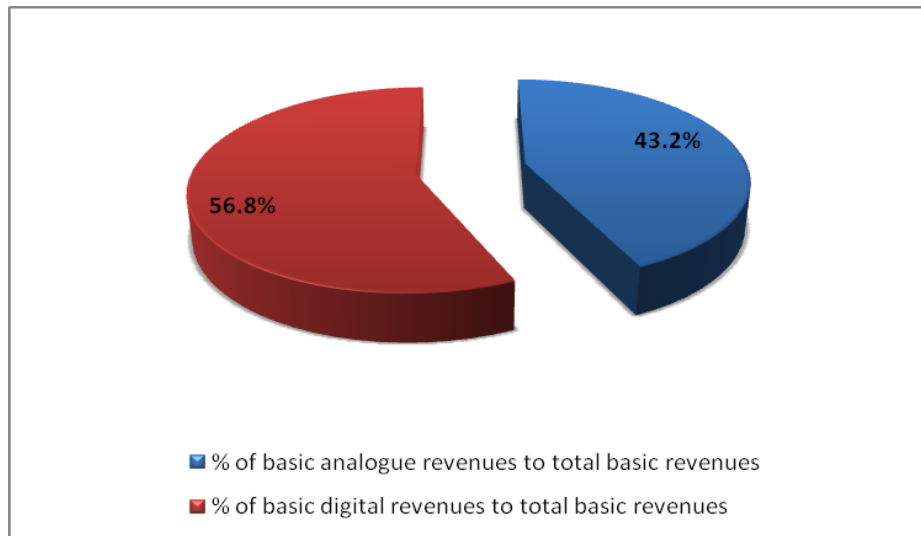
Figure 126: Revenues from Basic Package Subscriptions 2008-2009



Source: TATT

The basic package subscription market gained the largest proportion of gross revenues from its digital subscriptions, with 56.8 per cent of total revenues from basic package subscriptions. Contributing to the remainder of the revenues was analogue subscriptions with 43.2 per cent. Figure 127 illustrates the revenue percentage breakdown by platform.

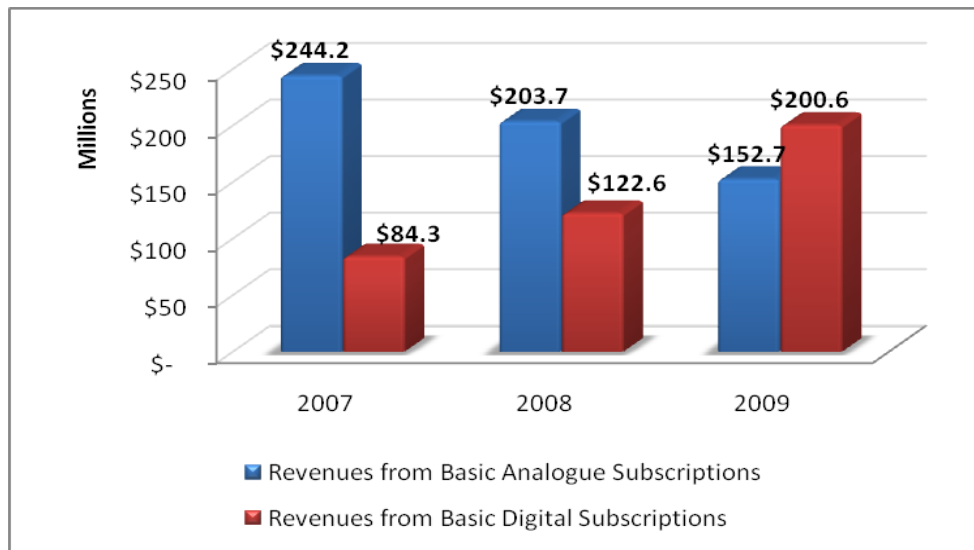
Figure 127: Revenues from Basic Pay TV Packages by platform 2009



Source: TATT

During the review period, revenues from basic analogue package subscriptions amounted to \$152.7 million, a \$51.0 million decrease or 25.0 per cent fall from 2008. On the contrary, revenues from basic digital package subscriptions contributed \$200.6 million, a \$78.0 million or 63.6 per cent increase from last year. Again, the trade-off between analogue and digital revenues is explained by CCTL's rollout plan to switch analogue subscriptions over to their digital cable network. The revenues generated from the new entrants in the market, TSTT and Green Dot contributed a minute percentage towards the increase in digital revenues. Figure 128 below shows the 2007 to 2009 trend in the revenue market for basic pay TV services by platform, while Table 10 illustrates the growth rate.

Figure 128: Revenues from Basic Pay TV by Platform 2007-2009



Source: TATT

Table 10: Growth Rate of Revenues from Basic Subscriptions by Platform

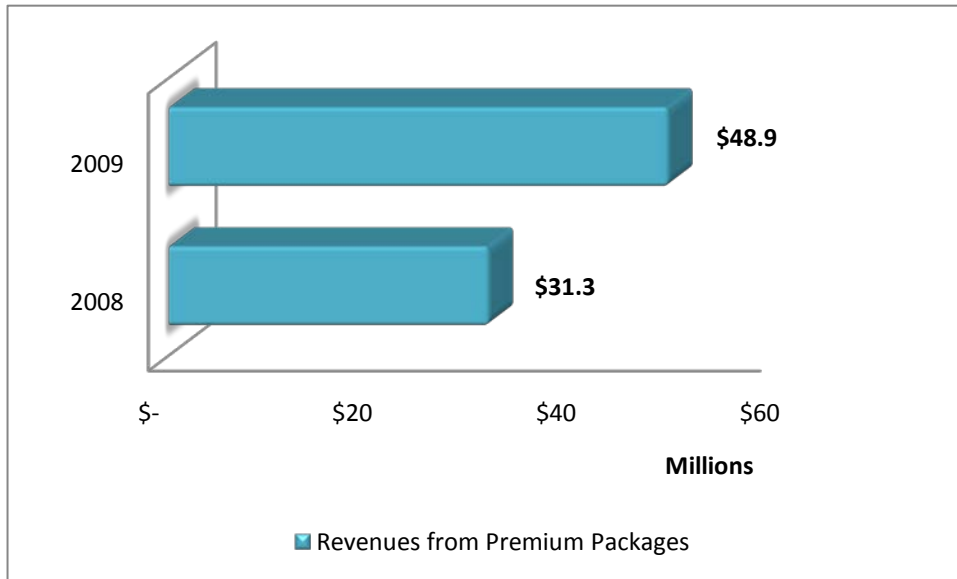
Platform	Revenues from Basic Package Subscriptions	% Change between 2008 and 2009
Analogue	\$152,692,111	(25.0%)
Digital	\$200,555,823	63.6%

Source: TATT

6.3.6 Revenues from Premium Package Subscriptions

Total revenues received from premium package subscriptions totalled \$48.9 million, a \$17.6 million or 56.1 per cent growth from 2008. Figure 129 highlights the total revenues collected from this service for 2008 to 2009.

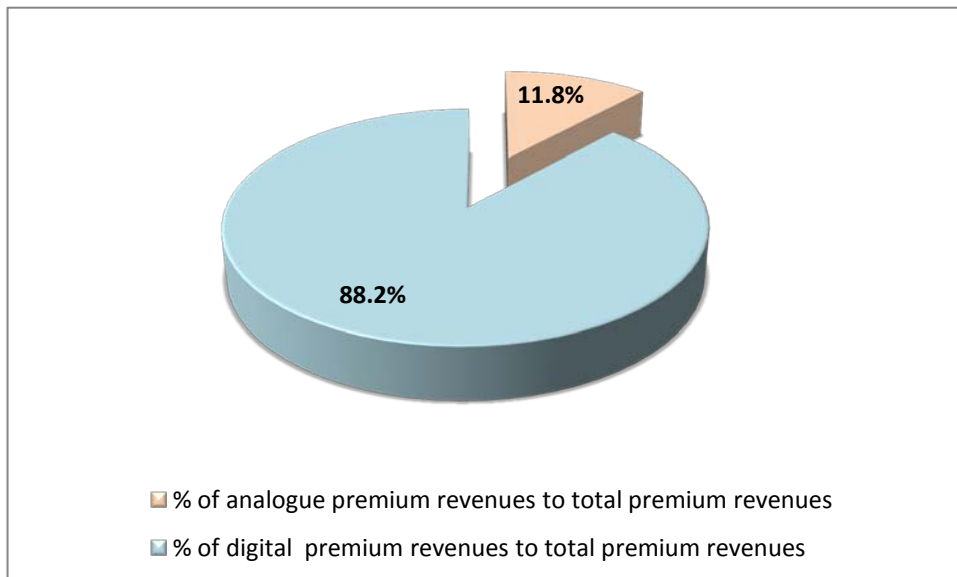
Figure 129: Revenues from Premium Package Subscriptions 2008-2009



Source: TATT

Of the \$48.9 million generated, digital contributed the largest proportion with 88.2 per cent of total premium package revenues. Analogue accounted for the remaining 11.8 per cent of revenues. Figure 130 illustrates the premium revenue percentage breakdown by platform.

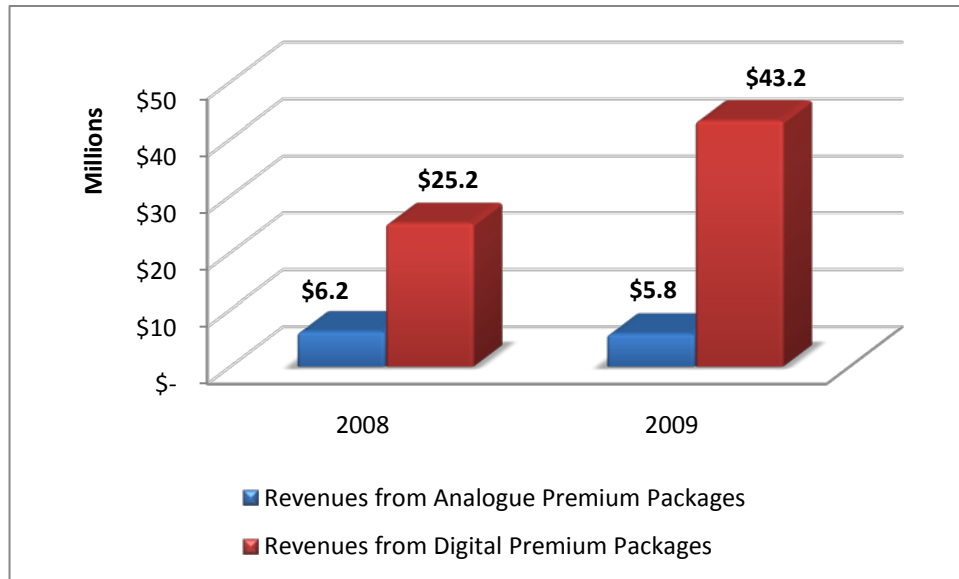
Figure 130: Breakdown of Premium Revenues by Platform 2009



Source: TATT

Revenues from analogue premium package subscriptions amounted to \$5.7 million, a \$385.4 thousand decrease or 6.3 per cent fall from 2008. Revenues from digital premium package subscriptions summed to \$43.2 million, a \$18.0 million or 71.4 per cent significant increase from last year. As mentioned in section 6.1.4, this may be as a result of CCTL’s continued roll-out of digital services throughout Trinidad. In addition, when compared to 2008 service providers offered a wider variety of premium packages to their customers. This may have also contributed to the increase in revenues from premium packages. Figure 131 below shows the trend in the revenue market for pay TV premium packages by platform, while Table 11 illustrates the rate of growth.

Figure 131: Revenues from Premium Packages 2008-2009



Source: TATT

Table 11: Growth Rate of Revenues from Basic Subscriptions by Platform

Platform	Revenues from Premium Package Subscriptions	% Change between 2008 and 2009
Analogue	\$5,766,487	(6.3%)
Digital	\$43,153,356	71.4%

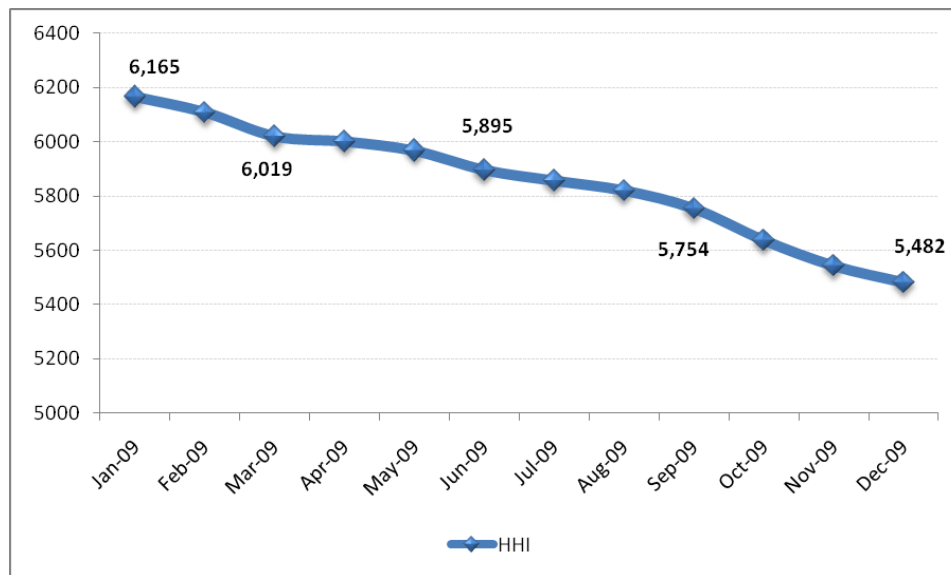
Source: TATT

6.3.7 Subscription Television Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the Pay TV market⁵⁶ for the year ending December 2009. The HHI for this market stood at 5,482 at the end of December 2009. While this number reveals that the market is concentrated, there have been slight declines in the HHI throughout the year. This is shown in Figure 132.

The decline in the HHI is evidence that the Pay TV market has become more competitive as new competitors launched services in the market during the review period.

Figure 132: Hirschman-Herfindahl Index of Pay TV Market January – December 2009

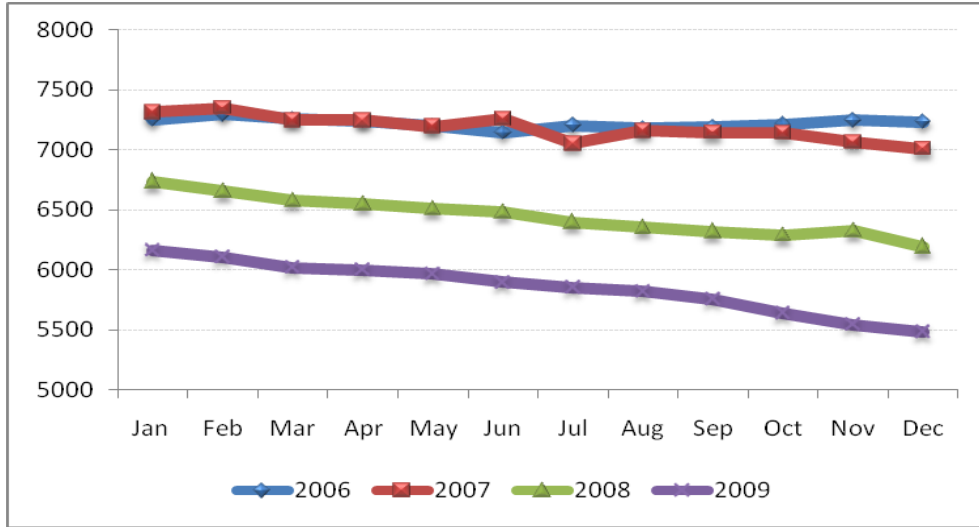


Source: TATT

Figure 133 below provides further evidence that the levels of HHI have been decreasing over the period 2006 to 2009, as a result of more competition in the Pay TV market.

⁵⁶ Subscriber market share was used in the calculation of the HHI.

Figure 133: HHI for Pay TV Market 2006-2009



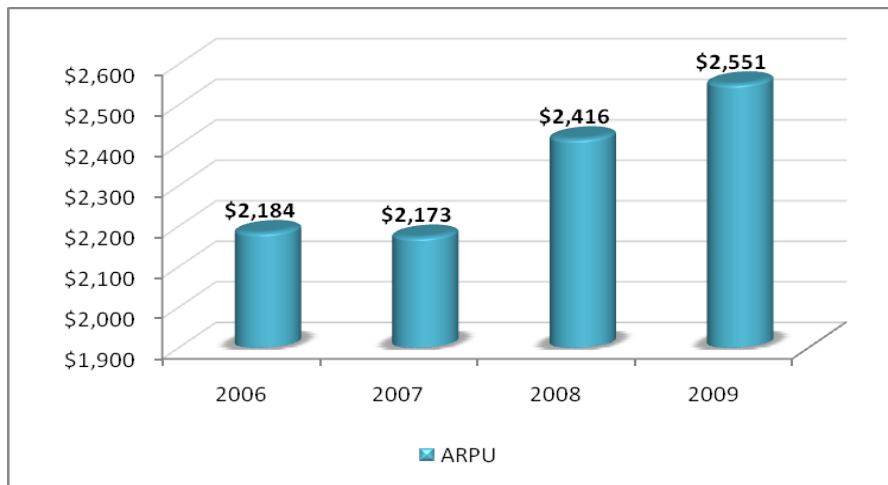
Source: TATT

6.3.8 Average Revenue per User (ARPU)

During 2009, consumers spent an average of TT\$2,551 for Pay TV services. This represents an increase of TT\$136 or 5.6 per cent in the average revenue per user (ARPU) over the amount recorded for 2008. This increase was supported by the 16.3 per cent growth in revenues outweighing the 10.2 per cent growth of subscriptions.

Figure 134 highlights the changes in ARPU over the last four years.

Figure 134: Pay TV Average Revenue per User (ARPU) 2006 – 2009



Source: TATT

7. Appendix I: Domestic Telecommunications Statistics

Table 12: Domestic Telecommunications Statistics

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
General	Population (millions)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	GDP per capita (US\$) ⁵⁷	5,950.7	6,891.6	7,166.3	8,246.2	8,470.3	11,560.2	14,576.4	16,008.1	24,151.6	21,206
	Telecom revenue (US\$ million)	243.5	298.9	326.0	346.3	357.0	379.3	497.9	521.3	775.3	685.2
	Total telephone subscriptions ('000s)	413.2	453.3	592.2	683.3	849.3	1,246.4	1,844.3	1,817.1	2,120.9	2,150.0
	Total telephone penetration	31.9	34.9	45.5	52.4	65.0	95.2	140.8	138.7	163.1	165.3
	Average revenue per user ⁵⁸ (ARPU) US\$		659.4	550.4	506.8	420.3	304.3	239.5	286.9	365.6	318.7
Fixed Voice	Fixed Voice subscriptions('000s)	271.6	293.2	308.3	317.3	318.9	322.3	325.5	307.3	314.8	303.2
	Fixed Voice penetration	21.0	22.6	23.7	24.4	24.4	24.6	24.9	23.5	24.1	23.2
	Fixed Voice household penetration	-	-	-	-	-	-	77.4	71.5	73.3	70.1

⁵⁷ GDP per capita is recorded at current market prices

⁵⁸ ARPU is calculated as the total revenues generated from the service divided by the total number of subscriptions to the service

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Average revenue per user (ARPU) US\$		349.1	362.1	267.9	254.8	272.1	277.9	422.4	486.5	403.5
	Fixed Voice Subscription growth (%)	-2.6	8.0	5.2	2.9	0.5	1.1	1.0	-5.6	2.4	-3.7
Mobile	Mobile subscriptions ('000s)	141.6	160.1	283.9	366.0	530.4	924.1	1,518.8	1,509.8	1,806.1	1,846.3
	Mobile penetration	10.9	12.3	21.8	28.1	40.6	70.5	115.9	115.3	138.2	141.1
	Average revenue per user (ARPU) US\$		225.8	212.4	213.5	203.8	153.1	159.1	206.6	196.6	169.7
	Mobile subscription growth (%)	266.4	13.0	77.3	28.9	44.9	74.2	64.4	-0.6	19.6	2.2
Internet	Total Internet subscriptions ⁵⁹ ('000s)	26.5	34.8	39.9	44.2	55.2	62.3	73.3	93.3	129.7	238.3
	Fixed Internet subscriptions ⁶⁰ ('000s)	26.5	34.8	39.9	44.2	55.2	62.3	73.3	82.6	114.1	145.0
	Mobile Internet subscriptions ⁶¹ ('000s)	-	-	-	-	-	-	-	10.7	15.6	93.3
	Fixed Broadband	-	-	-	-	-	14.0	21.1	35.5	85.4	130.1

⁵⁹ Total Internet subscriptions is the sum of fixed Internet subscriptions and mobile postpaid Internet subscriptions

⁶⁰ Fixed Internet subscriptions – total number of subscriptions with fixed wired or fixed wireless Internet access

⁶¹ Mobile Internet subscriptions – postpaid mobile customers who subscribe to monthly Internet airtime and who are billed accordingly

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	subscriptions ⁶² (‘000s)										
	Fixed Internet users ⁶³ (‘000s)	100.0	120.0	138.0	153.0	160.0	184.5	198.4	429.0	456.4	579.8
	Total Internet penetration	2.0	2.7	3.1	3.4	4.2	5.5	5.7	7.1	9.9	18.2
	Fixed Internet penetration	2.0	2.7	3.1	3.4	4.2	5.5	5.7	6.3	8.7	11.1
	Mobile Internet penetration	-	-	-	-	-	-	-	0.8	1.2	7.1
	Fixed Internet users penetration	7.6	9.2	10.5	11.7	12.2	14.1	15.2	32.8	34.9	44.3
	Fixed Internet household penetration	-	-	-	-	-	-	-	4.9	21.4	40.1
	Fixed Internet users household penetration	29.1	35.0	40.2	44.6	46.6	53.8	57.8	125.0	133.0	169.0
	Average revenue per user (ARPU) US\$ for fixed Internet	-	-	-	-	-	-	392.3	552.3	491.8	433.2
	Internet subscription growth (%)	51.0	31.4	14.7	10.8	24.8	12.9	17.7	27.4	38.9	83.8
Traffic	International - Outgoing (min.	78.5	81.7	84.1	91.9	117.2	160.2	203.2	265.9	304.3	259.2

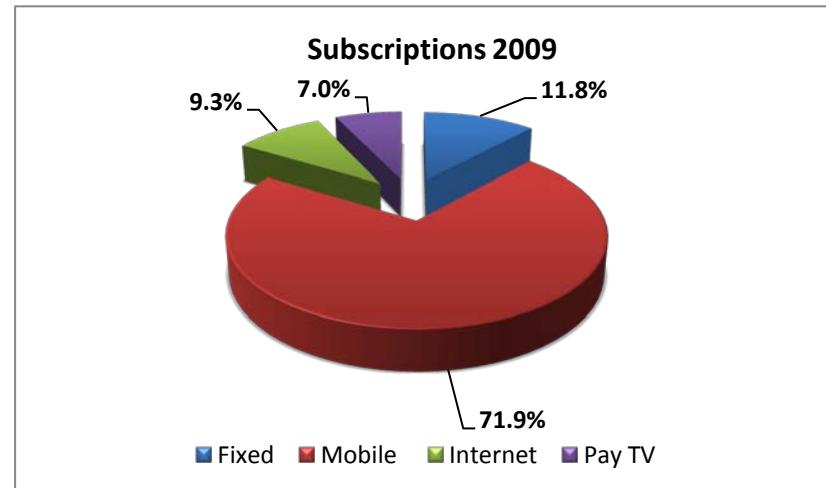
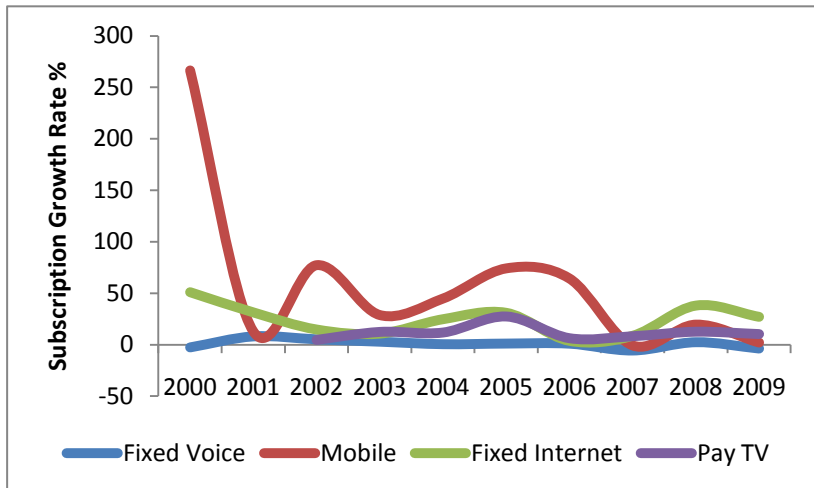
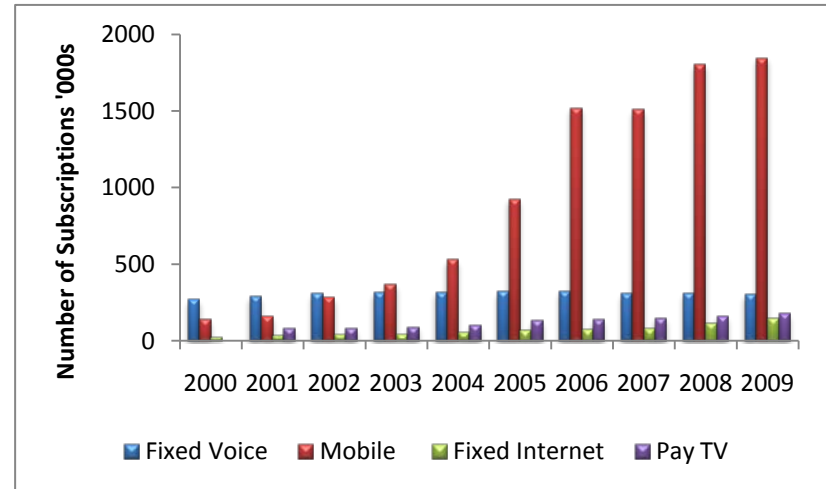
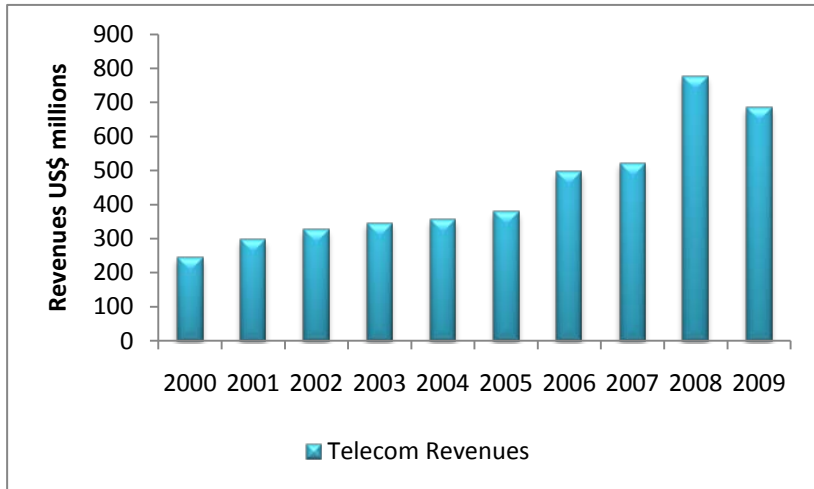
⁶² Fixed Broadband subscriptions –the number of Internet subscribers with access to download speeds of 256kbps or above

⁶³ Fixed Internet users – the number of persons who regularly use fixed Internet services

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	million)										
	International - Incoming (min. million)	175.6	198.6	279.0	328.4	379.2	337.8	296.5	323.0	375.4	399.4
	Inbound/Outbound int'l traffic ratio	2.2	2.4	3.3	3.6	3.2	2.1	1.5	1.2	1.2	1.5
Pay TV	Pay TV subscriptions ('000s)		78.9	82.4	92.5	103.4	131.6	139.8	151.2	163.0	179.6
	Pay TV penetration		6.0	6.3	7.1	7.9	10.1	10.7	11.6	12.5	13.7
	Pay TV household penetration	-	-	-	27.0	30.1	38.3	40.7	44.0	47.5	52.3
	Average revenue per user (ARPU) US\$		376.7	395.3	380.9	376.5	337.3	318.9	344.9	337.0	404.9
	Pay TV subscription growth (%)			4.5	12.3	11.7	27.3	6.2	8.1	7.8	10.2

Source: TATT

Figure 135: Domestic Telecom Statistics



8. Appendix II: List of Concessionaires

Table 13: List of Concessionaires

CONCESSIONS GRANTED BY THE TELECOMMUNICATIONS AUTHORITY OF TRINIDAD & TOBAGO

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	3 Years	21 August 2006	20 August 2009	N/A
Columbus Networks International (Trinidad) Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Columbus Networks International (Trinidad) Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Green Dot Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 October 2007	30 September 2017	N/A
Laqtel Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Laqtel Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Lisa Communications Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Lisa Communications Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	1 September 2006	31 August 2016	N/A
Open Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Open Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Southern Caribbean Fibre Limited	Public International Telecommunications Network	N/A	Type 1	10 Years	17 August 2006	16 August 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Three Sixty Communications Limited [Transferred from Illuminat (Trinidad and Tobago) Limited]	Public International Telecommunications Network	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A
Three Sixty Communications Limited [Transferred from Illuminat (Trinidad and Tobago) Limited]	Public International Telecommunications Services	N/A	Type 2	10 Years	4 April 2006	3 April 2016	N/A
Windward Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Windward Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
FREE-TO-AIR RADIO BROADCASTING							
21st Century Arts and Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.5 FM
British Broadcasting Corporation	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	15 June 2007	14 June 2017	98.7FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.1 FM
Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.1 FM

Caribbean New Media Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	100.1 FM
Central Broadcasting Services Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	21 September 2006	20 September 2016	102.7 FM
Central Radio FM90 Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.5 FM
Citadel Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.5 FM
Family Focus Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	98.1 FM
Heritage Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.7 FM
Inner City Broadcasting Company Ltd.	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.1 FM
Kaisoca Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	92.7 FM
Kenny Phillips	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	90.1 FM
Marcel Mahabir	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	107.7 FM
Mohan Jalkaran	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.1 FM
Nell "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
PBCY Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.7 FM
Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	93.5 FM
Radio News Network	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.1 FM
Radio Vision Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	102.1 FM
Sidewalk Radio Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	92.3 FM
Superior Infinite Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.1 FM
Telemedia Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	97.1 FM
The Q Corporation Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.7 FM
Trinidad and Tobago Citizen's Agenda Network	Broadcasting Services (Free to Air FM)	Minor Territorial/Niche - Toco and environs	Type 5	10 Years	1 March 2006	28 February 2016	106.7 FM
Trinidad and Tobago Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	96.1 FM
Trinidad Publishing Company Limited	Broadcasting Services (Free to Air AM)	National	Type 5	10 Years	23 February 2006	22 February 2016	730 AM
Trinidad Publishing Company Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	95.1 FM
Trinidad Publishing Company Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	105.1 FM
Trinidad Publishing Company Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	106.1 FM
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
United Cinemas Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	103.5 FM
Upward Trend Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	97.5 FM
VL Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.7 FM
Wilfred Ajeong Broadcasting Company Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	103.1 FM
Wonderland Entertainment Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	100.5 FM
MOBILE TELECOMMUNICATIONS							
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A

Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
FREE-TO-AIR TELEVISION BROADCASTING							
Advance Community Television Network Limited	Broadcasting Services (Free to Air Television)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	UHF 25
C.C.N. Television Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	1 March 2006	28 February 2016	VHF 6, UHF 18, 19
Caribbean New Media Group Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	23 February 2006	22 February 2016	VHF 9, UHF 13, 20
Gayelle Limited	Broadcasting Services (Free to Air Television)	Major Territorial	Type 5	10 Years	1 March 2006	28 February 2016	UHF 23
Mohan Jalkaran	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	1 March 2006	28 February 2016	UHF 35, 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
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
SUBSCRIPTION TELEVISION BROADCASTING							
Air Link Communications	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Environs	Type 5	10 Years	1 May 2010	30 April 2020	N/A
Columbus Communications Trinidad Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	5 January 2006	4 January 2016	N/A
DirecTV Trinidad Limited	Subscription Broadcasting Service (direct from Satellite only)	National	Type 5	10 Years	28 February 2006	27 February 2016	N/A
Green Dot Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	11 July 2008	10 July 2018	N/A
Independent Cable Network of Trinidad & Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Major Territorial	Type 5	10 Years	1 November 2006	31 October 2016	N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Mayaro and Guayaguayare	Type 5	10 Years	5 January 2006	4 January 2016	N/A
RVR International Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Rio Claro	Type 5	10 Years	5 January 2006	4 January 2016	N/A
Telecommunications Services of Trinidad and Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	30 December 2005	29 December 2015	N/A
TRICO Industries Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Minor Territorial	Type 5	10 Years	1 September 2006	31 August 2016	N/A
TELEVISION BROADCASTING SERVICE VIA CABLE							

IETV Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5					N/A
FIXED TELECOMMUNICATIONS								
Air Link Communications	Public Domestic Fixed Telecommunications Network	Niche - Princes Town and Environs	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Air Link Communications	Public Domestic Fixed Telecommunications Services	Niche - Princes Town and Environs	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Columbus Communications Trinidad Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	5 January 2006	4 January 2016		N/A
Columbus Communications Trinidad Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	5 January 2006	4 January 2016		N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Green Dot Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 October 2007	30 September 2017		N/A
Green Dot Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 October 2007	30 September 2017		N/A
Independent Cable Network of Trinidad & Tobago Limited	Public Domestic Fixed Telecommunications Network	Major Territorial	Type 2	10 Years	1 November 2006	31 October 2016		N/A
Independent Cable Network of Trinidad & Tobago Limited	Public Domestic Fixed Telecommunications Services	Major Territorial	Type 2	10 Years	1 November 2006	31 October 2016		N/A
Lisa Communications Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Lisa Communications Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Public Domestic Fixed Telecommunications Network	Niche - Mayaro and Guayaguayare	Type 2	10 Years	5 January 2006	4 January 2016		N/A
Network Technologies Limited (Transferred from Computer Technologies and Services Limited)	Public Domestic Fixed Telecommunications Services	Niche - Mayaro and Guayaguayare	Type 2	10 Years	5 January 2006	4 January 2016		N/A
Open Telecom Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 May 2010	30 April 2020		N/A
Open Telecom Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 May 2010	30 April 2020		N/A
RVR International Limited	Public Domestic Fixed Telecommunications Network	Niche - Princes Town and Rio Claro	Type 2	10 Years	5 January 2006	4 January 2016		N/A
RVR International Limited	Public Domestic Fixed Telecommunications Services	Niche - Princes Town and Rio Claro	Type 2	10 Years	5 January 2006	4 January 2016		N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015		N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015		N/A
Three Sixty Communications Limited	Public Domestic Fixed Telecommunications Network	National	Type 2	10 Years	1 December 2009	30 November 2019		N/A

Three Sixty Communications Limited	Public Domestic Fixed Telecommunications Services	National	Type 2	10 Years	1 December 2009	30 November 2019	N/A
TRICO Industries Limited	Public Domestic Fixed Telecommunications Network	Minor Territorial	Type 2	10 Years	1 September 2006	31 August 2016	N/A
TRICO Industries Limited	Public Domestic Fixed Telecommunications Services	Minor Territorial	Type 2	10 Years	1 September 2006	31 August 2016	N/A

9. Appendix III: Tariffs

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

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

10. Appendix IV: Glossary of Terms

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

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

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