



Annual Market Report
Telecommunications and Broadcasting
Sectors

January – December 2008

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**Notice of Errata – Annual Market Report Telecommunications and
Broadcasting Sectors
January – December 2008**

22nd March, 2010

The Telecommunications Authority of Trinidad and Tobago wishes to advise of the following amendments to Annual Market Report January – December 2008, published by the Authority on 31st July, 2009. Other minor amendments have also been included in the body of the report.

Section of Document	Description of Modification	Previous Text	Correction/Modification
1.1. Figure 2: Growth in fixed lines, mobile cellular subscribers, estimated Internet users and subscribers to mobile Internet within the Trinidad and Tobago market	<ul style="list-style-type: none"> Graph has been modified based on updated 2008 figures for Internet users. 	<ul style="list-style-type: none"> Internet users were estimated to be 212,800 	<ul style="list-style-type: none"> Internet users updated to 456,400
1.2.1 Revenue Contributions to the Industry	<ul style="list-style-type: none"> Footnote inserted to describe the composition of gross revenues. Amendment to the recorded GDP figure Figure 3 modified to include revenues from leased lines 	<ul style="list-style-type: none"> TT\$1.5 billion 	<ul style="list-style-type: none"> This figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services. TT\$150 billion Leased Line Market \$222 million
3.2.2 Quarterly Mobile Revenues	<ul style="list-style-type: none"> Sentences deleted. 	<ul style="list-style-type: none"> On a smaller scale, prepaid revenues decreased by 3.4 per cent between Quarter 1 and Quarter 4 while postpaid revenues increased by 15.4 percent for the same period. Reasons for these trends may include the Authority's Arbitration Panel decision in April 2008 which ruled the addition of a symmetrical interconnection rate between both mobile 	<ul style="list-style-type: none"> On a smaller scale, prepaid revenues decreased by 3.4 per cent between Quarter 1 and Quarter 4 while postpaid revenues increased by 15.4 percent for the same period. The increase in postpaid revenues during the quarters is consistent with the rise in postpaid subscribers as service providers attempt to encourage prepaid subscribers to switch to postpaid packages.

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		<p>providers contrary to the previous ‘sender keep all’ agreement. As the price of off-net calls increased, prepaid subscribers reduced their demand for off-net airtime leading to the fall in prepaid revenues during the quarters. Additionally, the increase in postpaid revenues during the quarters is consistent with the rise in postpaid subscribers as service providers attempt to encourage prepaid subscribers to switch to postpaid packages.</p>	
3.4 Mobile Market Concentration	<ul style="list-style-type: none"> Sentences deleted. 	<ul style="list-style-type: none"> Although there continues to be a decline in market concentration over 2007, the mobile market for Trinidad and Tobago was found to be still highly concentrated as well as contested. This result is expected for a market where there only exist two mobile providers and oligopolistic behaviour prevails. Between February and March 2008, there was a fall in the level of market concentration as seen in Figure 36. A possible explanation for this occurrence may be a result of the Arbitration Panel decision in April 2008 which ruled the addition of a symmetrical interconnection rate between both mobile providers contrary to the previous ‘sender keep all’ agreement. As the price of off-net calls increased, this had a negative effect on prepaid revenues leading to a rise in the HHI. 	<ul style="list-style-type: none"> Although there continues to be a decline in market concentration over 2007, the mobile market for Trinidad and Tobago was found to be still highly concentrated as well as contested. This result is expected for a market where there only exist two mobile providers and oligopolistic behaviour prevails.
5.1.2 Mobile Internet Subscribers	<ul style="list-style-type: none"> Sentence removed. 	<ul style="list-style-type: none"> Therefore it should be noted that the number of prepaid mobile Internet subscribers may be grossly overestimated since the reported figures measure access rather than actual subscribership. 	
5.3.1 Internet User Penetration	<ul style="list-style-type: none"> Paragraph revised with updated information. 	<ul style="list-style-type: none"> Another useful indicator to measure Internet penetration is the number of Internet users per 100 inhabitants. In 2008, the 	<ul style="list-style-type: none"> Another useful indicator to measure Internet penetration is the number of Internet users per 100 inhabitants. In 2007, the

Section of Document	Description of Modification	Previous Text	Correction/Modification																																																						
		<p>International Telecommunications Union reported Trinidad and Tobago with a score of 16.0 which means that 16 out of every 100 persons in Trinidad and Tobago is an Internet user. Out of the countries highlighted in Figure 52, Trinidad and Tobago placed tenth, while Barbados topped the list with a score of 73.9.</p>	<p>Authority conducted a Digital Divide survey¹ which showed that approximately 33 out of every 100 persons (approximately 429, 000 persons) in Trinidad and Tobago regularly used the Internet. The Authority based its estimate for the number of Internet users in 2008 on the number of Internet subscribers for the year multiplied by the estimated number of persons residing within a household². This approximates to 456,000 Internet users or 35.1 out of every 100 persons. Out of the countries highlighted in Figure 52, Trinidad and Tobago placed eighth, while Barbados topped the list with a score of 73.9. However, the Authority is investigating the extent to which there is consistency in the methodology used to estimate 'Internet User' figures by other countries reporting to the ITU.</p>																																																						
<p>8. Appendix 1: Domestic Telecommunications Statistics</p>	<ul style="list-style-type: none"> Internet Users figures updated for 2007 and 2008 International traffic figures updated for 2000 - 2005 	<table border="1" data-bbox="803 849 1362 953"> <thead> <tr> <th></th> <th>2007</th> <th>2008</th> </tr> </thead> <tbody> <tr> <td>Internet users (000s)</td> <td>212.8</td> <td>212.8</td> </tr> </tbody> </table> <table border="1" data-bbox="803 1060 1521 1263"> <thead> <tr> <th></th> <th>2000</th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> </tr> </thead> <tbody> <tr> <td>International Outgoing (Minutes millions)</td> <td>15.8</td> <td>15.2</td> <td>81.0</td> <td>91.9</td> <td>108.4</td> <td>141.0</td> </tr> <tr> <td>International</td> <td>163.4</td> <td>147.0</td> <td>233.0</td> <td>328.4</td> <td>354.7</td> <td>414.5</td> </tr> </tbody> </table>		2007	2008	Internet users (000s)	212.8	212.8		2000	2001	2002	2003	2004	2005	International Outgoing (Minutes millions)	15.8	15.2	81.0	91.9	108.4	141.0	International	163.4	147.0	233.0	328.4	354.7	414.5	<table border="1" data-bbox="1596 849 2085 953"> <thead> <tr> <th></th> <th>2007</th> <th>2008</th> </tr> </thead> <tbody> <tr> <td>Internet users (000s)</td> <td>429.0</td> <td>456.4</td> </tr> </tbody> </table> <table border="1" data-bbox="1596 1060 2314 1263"> <thead> <tr> <th></th> <th>2000</th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> </tr> </thead> <tbody> <tr> <td>International Outgoing (Minutes millions)</td> <td>78.5</td> <td>81.7</td> <td>84.1</td> <td>91.9</td> <td>117.2</td> <td>160.2</td> </tr> <tr> <td>International</td> <td>175.6</td> <td>198.6</td> <td>279.0</td> <td>328.4</td> <td>379.2</td> <td>337.8</td> </tr> </tbody> </table>		2007	2008	Internet users (000s)	429.0	456.4		2000	2001	2002	2003	2004	2005	International Outgoing (Minutes millions)	78.5	81.7	84.1	91.9	117.2	160.2	International	175.6	198.6	279.0	328.4	379.2	337.8
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¹ The complete Digital Divide Report 2007 can be found on the Authority's website: www.tatt.org.tt

² The Central Statistical Office has estimated an average of four (4) persons residing within a household.

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		Incoming (Minutes millions)								Incoming (Minutes millions)							
		Inbound/Outbound Int'l traffic ratio	10.3	9.7	2.9	3.6	3.3	2.9		Inbound/Outbound Int'l traffic ratio	2.2	2.4	3.3	3.6	3.2	2.1	

Table of Contents

1.	OVERALL MARKET DATA.....	12
1.1	TOTAL AUTHORIZATION	12
1.2	OVERVIEW OF THE TELECOMMUNICATIONS AND BROADCASTING SECTORS	16
2.	FIXED TELEPHONY MARKET DATA	25
2.1	FIXED VOICE SUBSCRIBERS	26
2.2	FIXED TELEPHONY REVENUES	29
2.3	DOMESTIC FIXED VOICE TRAFFIC	32
2.4	FIXED LINE PENETRATION	35
2.5	FIXED MARKET CONCENTRATION.....	38
2.6	AVERAGE REVENUE PER USER (ARPU).....	39
3.	MOBILE MARKET DATA.....	40
3.1	MOBILE SUBSCRIBERS	40
3.2	MOBILE REVENUES	43
3.3	MOBILE PENETRATION.....	46
3.4	MOBILE MARKET CONCENTRATION.....	48
3.5	AVERAGE REVENUE PER USER.....	49
4.	INTERNATIONAL VOICE TRAFFIC DATA	51
4.1	INTERNATIONAL VOICE TRAFFIC MINUTES.....	51
4.2	INTERNATIONAL VOICE TRAFFIC REVENUES	53
4.3	INTERNATIONAL VOICE MARKET CONCENTRATION	54
5.	INTERNET MARKET DATA	57
5.1	INTERNET SUBSCRIBERS.....	58
5.2	TOTAL INTERNET REVENUES	62
5.3	INTERNET PENETRATION	64
5.4	INTERNET MARKET CONCENTRATION.....	66
5.5	AVERAGE REVENUE PER USER.....	69
6.	BROADCASTING MARKET DATA.....	71
6.1	FREE-TO-AIR TELEVISION BROADCASTING MARKET.....	71
6.2	FREE-TO-AIR RADIO BROADCASTING MARKET	74
6.3	SUBSCRIPTION TELEVISION BROADCASTING MARKET	80
7.	SUMMARY AND OUTLOOK.....	89
8.	APPENDIX I: DOMESTIC TELECOMMUNICATIONS STATISTICS.....	91
9.	APPENDIX II: LIST OF CONCESSIONS	95
10.	APPENDIX III: TARIFFS	100
11.	APPENDIX IV: GLOSSARY OF TERMS.....	103

List of Figures

FIGURE 1: GROWTH IN FIXED LINES, MOBILE CELLULAR SUBSCRIBERS, ESTIMATED INTERNET USERS AND SUBSCRIBERS TO MOBILE BROADBAND NETWORKS WORLDWIDE, IN BILLIONS, 1995-2007.....	15
FIGURE 2: GROWTH IN FIXED LINES, MOBILE CELLULAR SUBSCRIBERS, ESTIMATED INTERNET USERS AND SUBSCRIBERS TO MOBILE INTERNET WITHIN THE TRINIDAD AND TOBAGO MARKET	15
FIGURE 3: INDUSTRY, SECTORS AND MARKETS REVENUES 2008.....	17
FIGURE 4: PERCENTAGE OF GROSS REVENUES CONTRIBUTED BY MARKETS.....	18
FIGURE 5: PERCENTAGE CONTRIBUTIONS OF THE TELECOMMUNICATIONS MARKETS TOWARDS GROSS REVENUES 2006 - 2008.....	19
FIGURE 6: PERCENTAGE CONTRIBUTIONS OF THE BROADCASTING MARKETS TOWARDS GROSS REVENUES 2006 - 2008	20
FIGURE 7: PERCENTAGE CHANGE IN GROWTH REVENUES BETWEEN 2007 AND 2008.....	22
FIGURE 8: MARKET SHARES OF TOTAL SECTOR SUBSCRIBERSHIP BY SERVICE AS AT DECEMBER 2008	23
FIGURE 9: MARKET SHARE OF TOTAL SUBSCRIBERSHIP BY SERVICE FOR 2006-2008.....	23
FIGURE 10: PENETRATION RATE OF SUBSCRIBERS 2006-2008.....	24
FIGURE 11: FIXED VOICE SUBSCRIBERS 2006-2008.....	26
FIGURE 12: 2008 QUARTERLY FIXED VOICE SUBSCRIBERS.....	27
FIGURE 13: RESIDENTIAL AND BUSINESS FIXED VOICE SUBSCRIBERS 2006-2008.....	28
FIGURE 14: QUARTERLY RESIDENTIAL AND BUSINESS FIXED VOICE SUBSCRIBERS 2008.....	29
FIGURE 15: FIXED VOICE SUBSCRIBER REVENUES 2006-2008.....	29
FIGURE 16: RESIDENTIAL AND BUSINESS FIXED VOICE REVENUES 2006-2008.....	30
FIGURE 17: 2008 QUARTERLY GROSS REVENUES FROM VOICE SERVICES	31
FIGURE 18: CLASSIFICATION OF DOMESTIC FIXED TRAFFIC.....	32
FIGURE 19: BREAKDOWN OF FIXED DOMESTIC TRAFFIC MINUTES	33
FIGURE 20: COMPARISON OF FIXED VOICE TRAFFIC TYPE 2007-2008.....	34
FIGURE 21: QUARTERLY FIXED VOICE TRAFFIC TYPE 2008.....	35
FIGURE 22: FIXED LINE PENETRATION PER 100 INHABITANTS 2006-2008.....	35
FIGURE 23: FIXED LINE PENETRATION PER 100 HOUSEHOLDS 2006-2008.....	36
FIGURE 24: 2008 FIXED LINE PENETRATION WITHIN SELECTED CARIBBEAN COUNTRIES.....	37
FIGURE 25: HHI FOR THE FIXED VOICE MARKET JANUARY - DECEMBER 2008	38
FIGURE 26: ARPU FOR FIXED RESIDENTIAL AND BUSINESS VOICE SERVICES 2007-2008.....	39
FIGURE 27: MOBILE SUBSCRIBERS 2005-2008.....	41
FIGURE 28: MOBILE PREPAID AND POSTPAID SUBSCRIBERS 2006 - 2008	42
FIGURE 29: 2008 QUARTERLY PREPAID AND POSTPAID SUBSCRIBERS	43
FIGURE 30: MOBILE MARKET REVENUES 2006 – 2008	43
FIGURE 31: MOBILE MARKET REVENUES PREPAID AND POSTPAID 2006 – 2008.....	44
FIGURE 32: 2008 QUARTERLY MOBILE REVENUES	45
FIGURE 33: 2008 QUARTERLY PREPAID AND POSTPAID REVENUES	46
FIGURE 34: MOBILE PENETRATION LEVEL PER 100 INHABITANTS FOR TRINIDAD AND TOBAGO 2008.....	47
FIGURE 35: 2008 MOBILE PENETRATION FOR SELECTED COUNTRIES	48
FIGURE 36: HIRSCHMAN-HERFINDAHL INDEX FOR THE MOBILE MARKET JANUARY –DECEMBER 2008.....	49
FIGURE 37: ARPU FOR MOBILE SERVICES 2006-2008	50
FIGURE 38: INTERNATIONAL TRAFFIC MINUTES 2006 - 2008.....	52
FIGURE 39: INTERNATIONAL INCOMING AND OUTGOING TRAFFIC 2006-2008.....	53
FIGURE 40: GROSS REVENUES FROM INTERNATIONAL TRAFFIC VOLUME 2006- 2008.....	54
FIGURE 41: HIRSCHMAN-HERFINDAHL INDEX OF INTERNATIONAL VOICE MARKET JANUARY–DECEMBER 2008	55
FIGURE 42: HIRSCHMAN-HERFINDAHL INDEX OF INTERNATIONAL OUTGOING MINUTES JANUARY–DECEMBER 2008.....	56
FIGURE 43: HIRSCHMAN-HERFINDAHL INDEX OF INTERNATIONAL INCOMING MINUTES JANUARY–DECEMBER 2008.....	56
FIGURE 44: INTERNET SUBSCRIBERS 2005-2008.....	59
FIGURE 45: NARROWBAND AND BROADBAND SUBSCRIBERS 2006- 2008	60

FIGURE 46: NUMBER OF MOBILE INTERNET SUBSCRIBERS 2007-2008.....	61
FIGURE 47: NUMBER OF PREPAID AND POSTPAID MOBILE SUBSCRIBERS WITH INTERNET ACCESS FOR 2008 .	62
FIGURE 48: TOTAL INTERNET REVENUES 2006-2008.....	63
FIGURE 49: REVENUES FROM NARROWBAND AND BROADBAND SUBSCRIBERS 2007 - 2008	63
FIGURE 50: REVENUES FROM PREPAID AND POSTPAID MOBILE INTERNET SUBSCRIBERS 2008	64
FIGURE 51: INTERNET SUBSCRIBER PENETRATION PER 100 INHABITANTS FOR SELECTED COUNTRIES 2008	65
FIGURE 52: NUMBER OF INTERNET USERS PER 100 INHABITANTS FOR SELECTED COUNTRIES 2008.....	66
FIGURE 53: HIRSCHMAN-HERFINDAHL INDEX OF INTERNET MARKET JANUARY–DECEMBER 2008.....	67
FIGURE 54: 2008 HHI FOR FIXED BROADBAND SERVICES	68
FIGURE 55: 2008 HHI FOR FIXED NARROWBAND SERVICES	68
FIGURE 56: ARPU FOR INTERNET SERVICES 2006-2008.....	70
FIGURE 57: GROSS REVENUES FOR FREE-TO-AIR TELEVISION BROADCASTING SERVICE PROVIDERS 2002-2008	73
FIGURE 58: QUARTERLY GROSS REVENUES FOR FREE-TO-AIR TELEVISION BROADCASTING SERVICE PROVIDERS 2008	73
FIGURE 59: HHI FOR FREE TO AIR TELEVISION BROADCASTING MARKET 2008.....	74
FIGURE 60: GROSS REVENUES FOR FREE-TO-AIR RADIO BROADCASTING SERVICE PROVIDERS 2007-2008 .	75
FIGURE 61: QUARTERLY GROSS REVENUES FOR FREE-TO-AIR RADIO BROADCASTING SERVICE PROVIDERS 2008	76
FIGURE 62: HHI FREE TO AIR RADIO BROADCASTING MARKET 2008	77
FIGURE 63: SUBSCRIPTION TELEVISION SUBSCRIBERS AS AT DECEMBER 2008.....	81
FIGURE 64: SUBSCRIPTION TELEVISION SUBSCRIBERS BY PLATFORM 2007-2008.....	82
FIGURE 65: 2008 QUARTERLY SUBSCRIPTION TELEVISION SUBSCRIBERS BY PLATFORM	83
FIGURE 66: SUBSCRIPTION TV REVENUES BY PLATFORM FOR 2008	84
FIGURE 67: SUBSCRIPTION TELEVISION REVENUES BY PLATFORM 2008	85
FIGURE 68: SUBSCRIPTION TELEVISION PENETRATION 2003 - 2008.....	86
FIGURE 69: HIRSCHMAN-HERFINDAHL INDEX OF SUBSCRIPTION TV MARKET JANUARY – DECEMBER 2008	87
FIGURE 70: SUBSCRIPTION TV AVERAGE REVENUE PER USER (ARPU) 2006 – 2008	88
FIGURE 71: DOMESTIC TELECOM STATISTICS	94

List of Tables

TABLE 1: NUMBER OF LICENCES AS AT DECEMBER 2008.....	13
TABLE 2: NUMBER OF CONCESSIONS AS AT DECEMBER 2008	13
TABLE 3: PERCENTAGE CHANGE IN GROWTH REVENUES 2007-2008	21
TABLE 4: BROADCASTING MARKET CONCESSIONS 2007/2008	71
TABLE 5: DOMESTIC TELECOMMUNICATIONS STATISTICS	91
TABLE 6: LIST OF CONCESSIONS AS AT DECEMBER 31, 2008	95
TABLE 7: DIGICEL MOBILE TARIFFS (JANUARY TO DECEMBER 2008).....	100
TABLE 8: BMOBILE TARIFFS (JANUARY TO DECEMBER 2008)	101

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 tariffs of the relevant markets. The data 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 primarily based on the results of a survey of concessionaires conducted within the telecommunications and broadcasting sectors for the period 1st January to 31st December 2008, 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)). 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, the Authority has granted a total of 733 licences while 75 concessions were granted by the Minister based on the Authority's recommendations as at December 2008 (Table 1 and Table 2).

Table 1: Number of Licences as at December 2008

Licences		
Spectrum	Cellular Mobile	2
	Land Mobile	182
	Point-to-Point	11
	Point-to-Multipoint	13
General Radiocommunications	Satellite Earth Stations	24
	Amateur Stations	288
	Maritime Stations	59
	Aeronautical Stations	86
Broadcasting		55
Special Events		13
Total		733

Source: TATT

Table 2: Number of Concessions as at December 2008

Concessions	
International Telecommunications	10
Mobile Telecommunications	2
Fixed Telecommunications	7
Free to Air Radio Broadcasting	38
Free to Air Television Broadcasting	9
Subscription Television Broadcasting	8

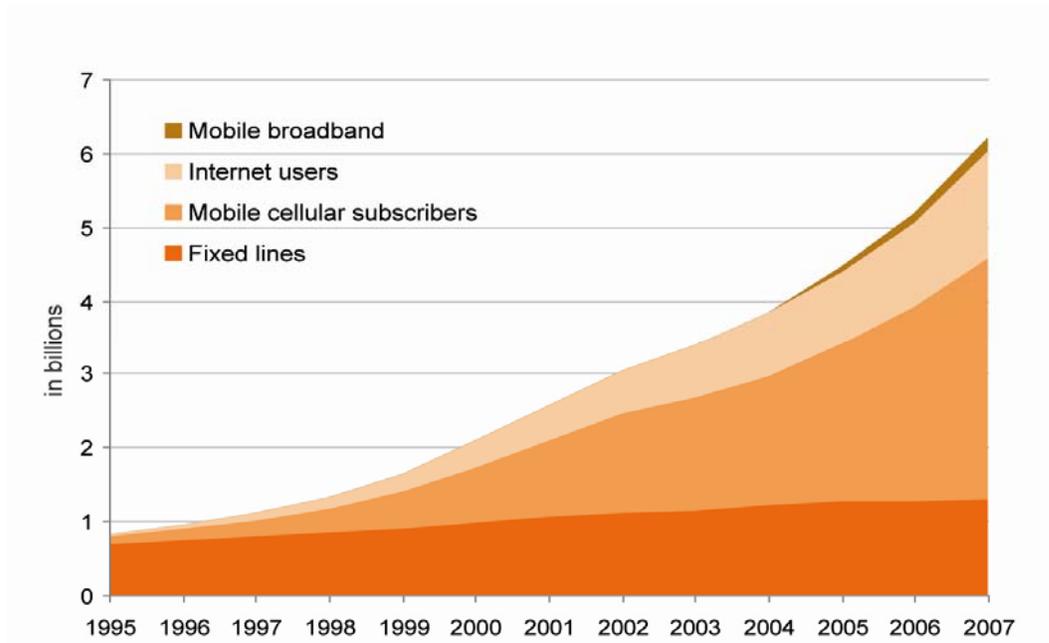
TV Broadcasting via Cable	1
Total	75

Source: TATT

It should be noted that while Tables 1 and 2 above refer to the total number of authorizations granted by the Authority, they may not reflect the total number of telecommunications and broadcasting service providers currently operating in the market. In 2008, there existed a number of service providers, especially in the Internet market, whose concession and licence applications were submitted and were currently under review by the Authority. Therefore while these service providers were operational, they were not yet authorised by the Authority. A detailed list of concessions granted by the Authority can be found in Appendix II and at the website <http://www.tatt.org.tt>

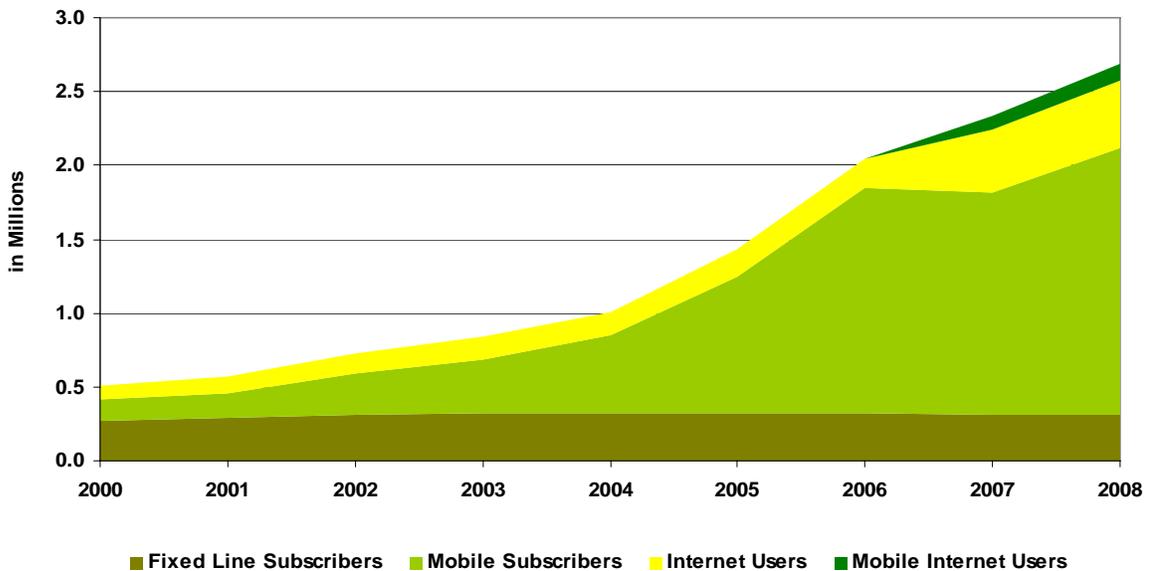
Over the years, the Authority has seen an increase in the number of licences and concessions granted. This is evidence of the continuous growth of the local telecommunications and broadcasting markets, consistent with global trends, as investors recognise the business opportunities prevalent within this industry. Statistics of international growing trends within the industry are highlighted in Figure 1 while the similar trends for the local market are shown in Figure 2.

Figure 1: Growth in fixed lines, mobile cellular subscribers, estimated Internet users and subscribers to mobile broadband networks worldwide, in billions, 1995-2007³



Source: ITU World Telecommunication/ICT Indicators Database

Figure 2: Growth in fixed lines, mobile cellular subscribers, estimated Internet users and subscribers to mobile Internet within the Trinidad and Tobago market



Source: TATT

³ Adopted from “Trends in Telecommunications Reform 2008”, International Telecommunications Union.

1.2 Overview of the Telecommunications and Broadcasting Sectors

1.2.1 Revenue Contributions to the Industry

As at December 2008, the estimated gross revenues obtained by the telecommunications and broadcasting sectors totalled TT\$4.8 billion⁴ or US\$755 million⁵ which comprised approximately 3.1 per cent of GDP⁶ for 2008. This represented a 23 per cent increase in gross revenues when compared to 2007. Of this amount, mobile services contributed the highest with TT\$2.2 billion, or 47 per cent of gross revenues. This was followed by fixed⁷ voice services which contributed approximately TT\$977 million, 20.5 per cent of gross revenues. The next highest revenue earner for the industry was subscription television services allotting TT\$394 million, 8.3 per cent of gross revenues. Following closely behind were Internet services and International⁸ services whose contribution totalled TT\$353 million and TT\$312 million respectively, that is 7.4 and 6.6 per cent of gross revenues. Next in line was leased line services recording TT\$222 million, 4.7 per cent of gross revenues. The lowest contributors were free to air radio and television with earnings of TT\$151 million and TT\$112 million respectively, 3.2 and 2.4 per cent of gross revenues. To summarise the above information, Figure 3 illustrates the revenues earned within the industry while Figure 4 shows the percentage revenue contribution by each market towards overall gross revenue.

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

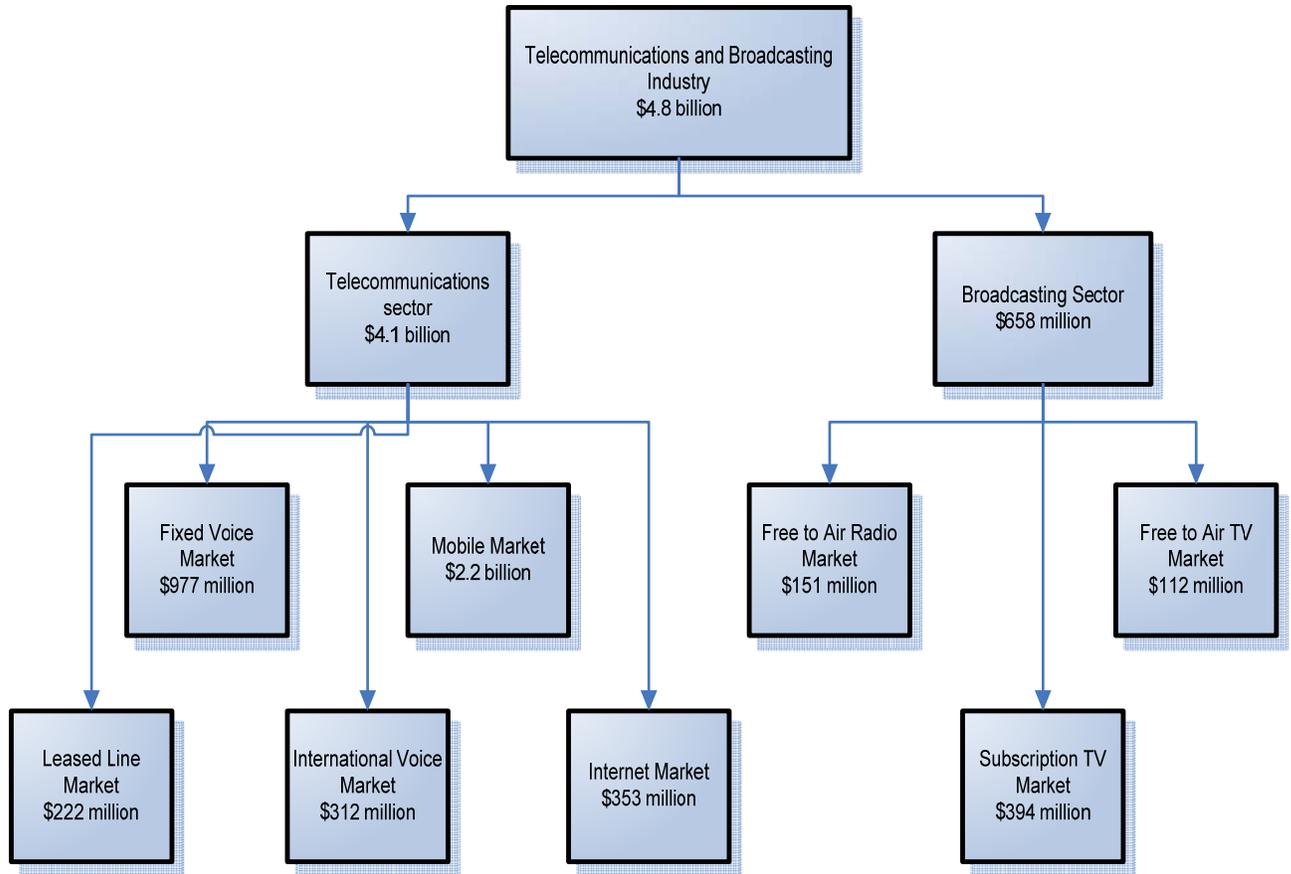
⁵ Estimated exchange rate US\$1=TT\$6.30

⁶ The Central Bank of Trinidad and Tobago has recorded Gross Domestic Product (GDP) at current market prices for 2008 to be TT\$150 billion.

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

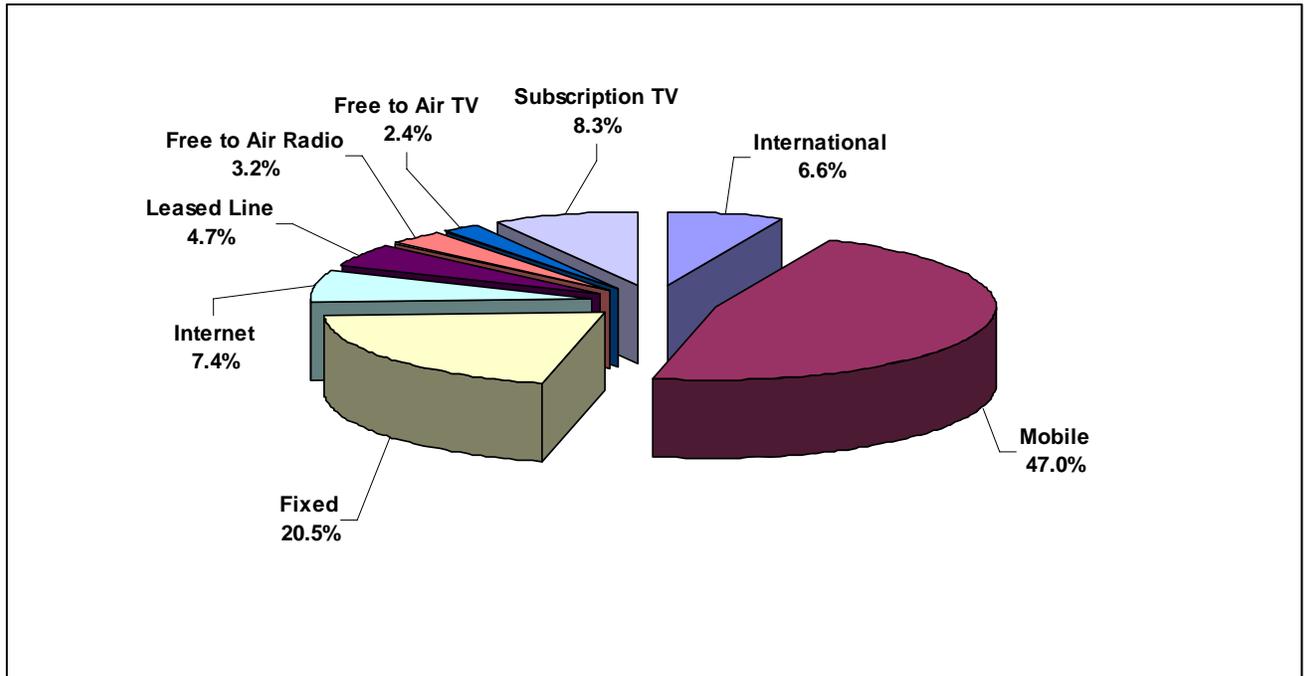
⁸ International market revenues are equal to the sum of gross revenues obtained from outgoing and incoming int'l traffic.

Figure 3: Industry, Sectors and Markets Revenues 2008



Source: TATT

Figure 4: Percentage of Gross Revenues contributed by Markets

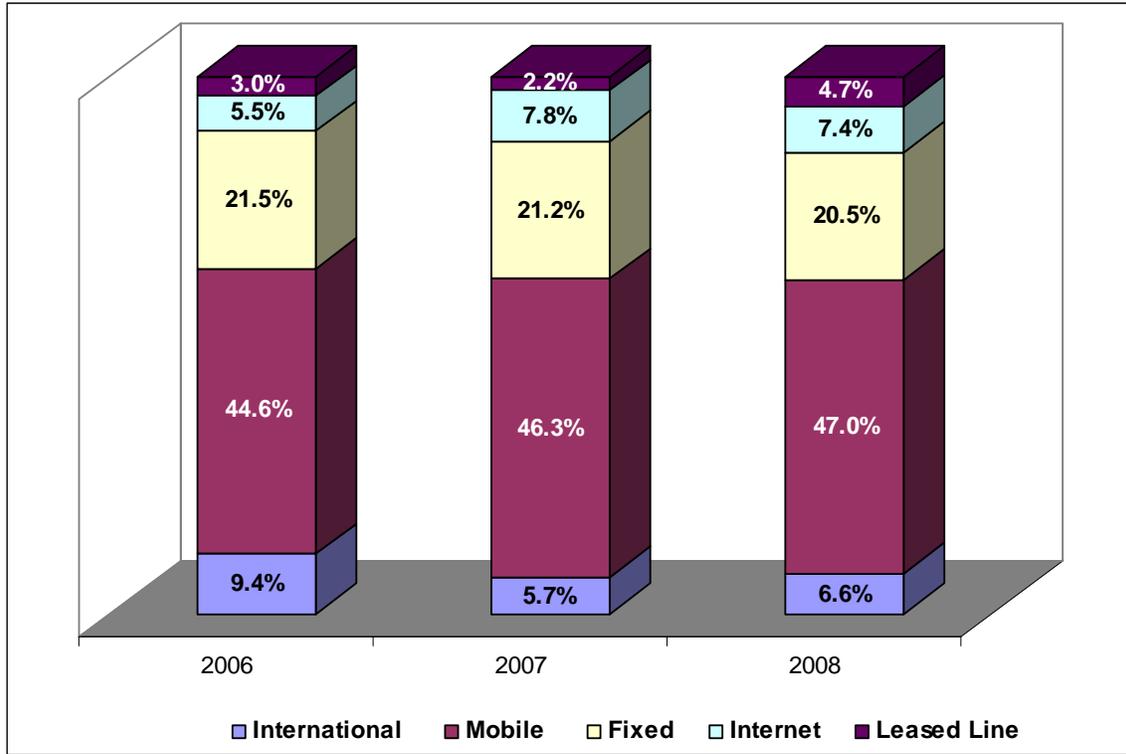


Source: TATT

1.2.2 Trends in Revenue Contributions by the Telecommunications Sector

Revenues from the telecommunications sector contributed an estimated TT\$4.1 billion, that is 85.4 per cent, towards overall industry revenues. From a market perspective, since 2006 the mobile market has always earned the majority of revenues in the telecommunications sector. Figure 5 highlights the yearly trends with respect to the percentage contributions by the individual telecommunications markets towards the gross revenues of the industry.

Figure 5: Percentage Contributions of the Telecommunications Markets towards Gross Revenues 2006 - 2008



Source: TATT

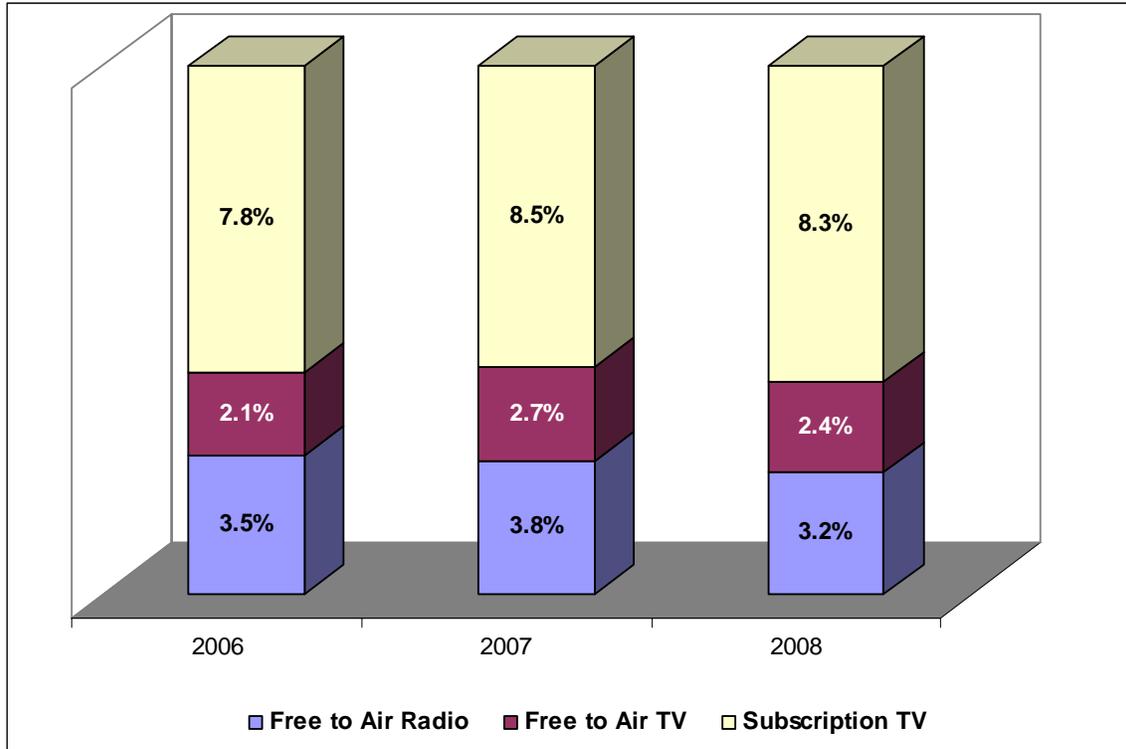
With the exception of the Internet and the fixed line market, all the other telecommunications markets marginally increased their contributions towards total industry revenues between 2007 and 2008. The Internet market has experienced drastic reductions in the price of its services which may have resulted in its fall of contributions towards the industry revenues. In addition, the fixed line market experienced a relatively low level of growth therefore explaining the slow declining rate of contributions towards the industry revenues between 2007 and 2008.

1.2.3 Trends in Revenue Contributions by the Broadcasting Sector

Revenues from the broadcasting sector contributed approximately TT\$658 million, that is 14.6 per cent, towards overall industry revenue. Similar to the trends in 2006 and 2007, the subscription television market continued to earn the majority of the revenues in the

broadcasting sector. Figure 6 highlights the yearly trends with respect to the percentage contributions by the individual broadcasting markets towards the gross revenues of the industry.

Figure 6: Percentage Contributions of the Broadcasting Markets towards Gross Revenues 2006 - 2008



Source: TATT

All sub-markets within the broadcasting sector showed a decline in contribution by less than one (1) percent towards total revenue between 2007 and 2008.

1.2.4 Market Growth in the Industry

As mentioned above, the industry recorded TT\$4.8 billion in revenues for 2008 with the telecommunications sector contributing TT\$4.1 billion in revenues and the broadcasting sector earning TT\$658 million. Overall revenue growth for each individual market is shown below:

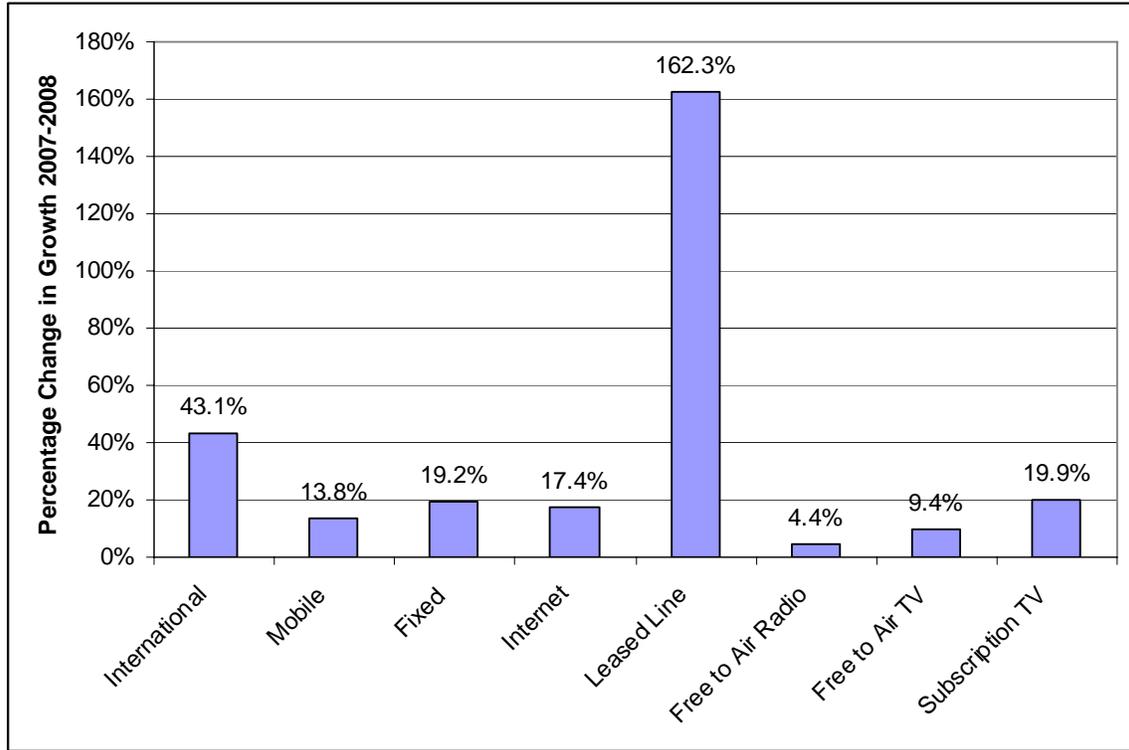
Table 3: Percentage change in growth revenues 2007-2008

Market	2007 revenue earned	2008 revenue earned	% change in growth revenues between 2007 and 2008
Leased Line	TT\$85 million	TT\$222 million	162%
International	TT\$218 million	TT\$312 million	43%
Subscription TV	TT\$328 million	TT\$394 million	19.9%
Fixed	TT\$819 million	TT\$977 million	19.2%
Internet	TT\$301 million	TT\$353 million	17.4%
Mobile	TT\$2 billion	TT\$2.2 billion	13.8%
Free to Air TV	TT\$103 million	TT\$112 million	9.4%
Free to Air Radio	TT\$145 million	TT\$151 million	4.8%

Source: TATT

It can be seen from Table 3 and Figure 7, in terms of market revenues, the leased line market showed the strongest growth while the mobile market, the largest contributor towards gross revenues, showed a small increase in growth.

Figure 7: Percentage change in growth revenues between 2007 and 2008



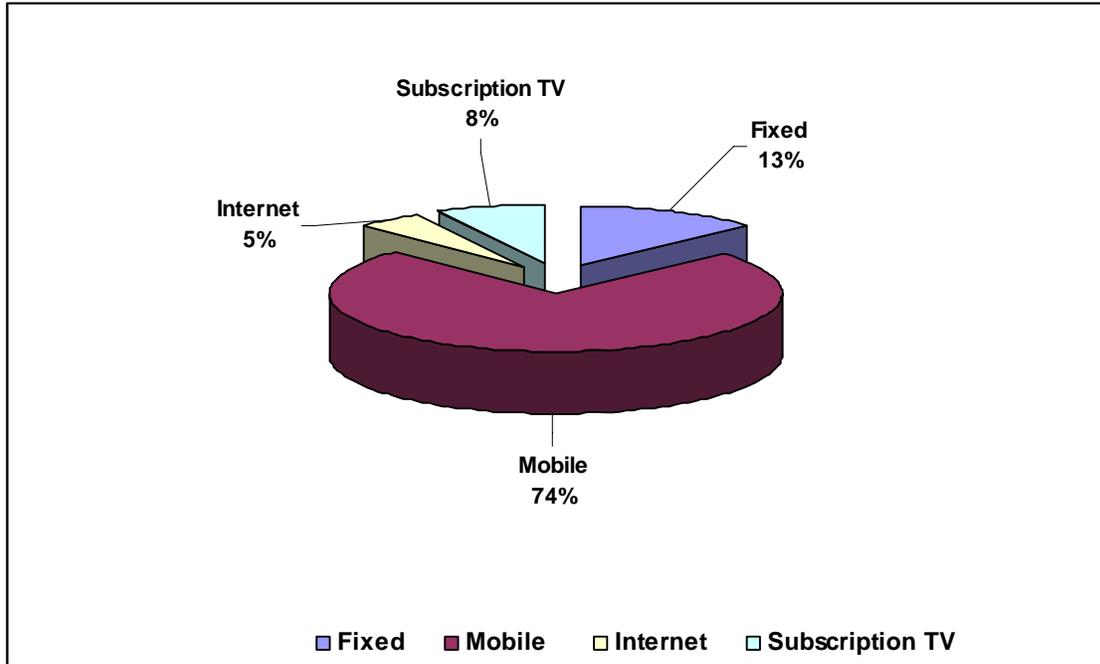
Source: TATT

1.2.5 Telecommunications and Broadcasting Subscribership

For the year ended 2008, the number of subscribers within the fixed, mobile, Internet and subscription Television market segments totalled approximately 2.4 million. This represents an increase of 18 per cent or 368 thousand more subscribers than 2007. While fixed subscribers contributed 13 per cent towards total subscribership⁹, a decline of 2 per cent from last year, mobile subscribers added 74.6 per cent, an increase of 1 percent from 2007. Similarly, both Internet and subscription television minimally grew in their contribution to total subscribership by 0.7 and 0.3 per cent respectively. To graphically summarise, contributions by the various market segments towards total sector subscribership are shown in Figure 8 while Figure 9 compares total sector subscribership for the period 2006-2008.

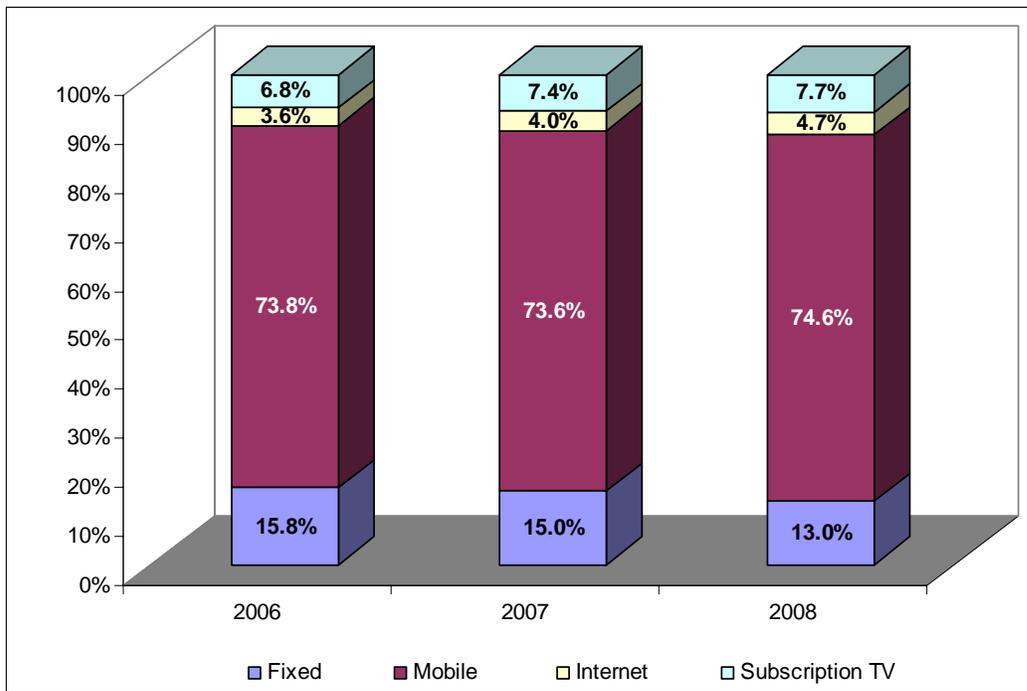
⁹ Subscribership refers to the total number of persons/entities that subscribe to a particular service offering within the relevant market.

Figure 8: Market Shares of Total Sector Subscription by Service as at December 2008



Source: TATT

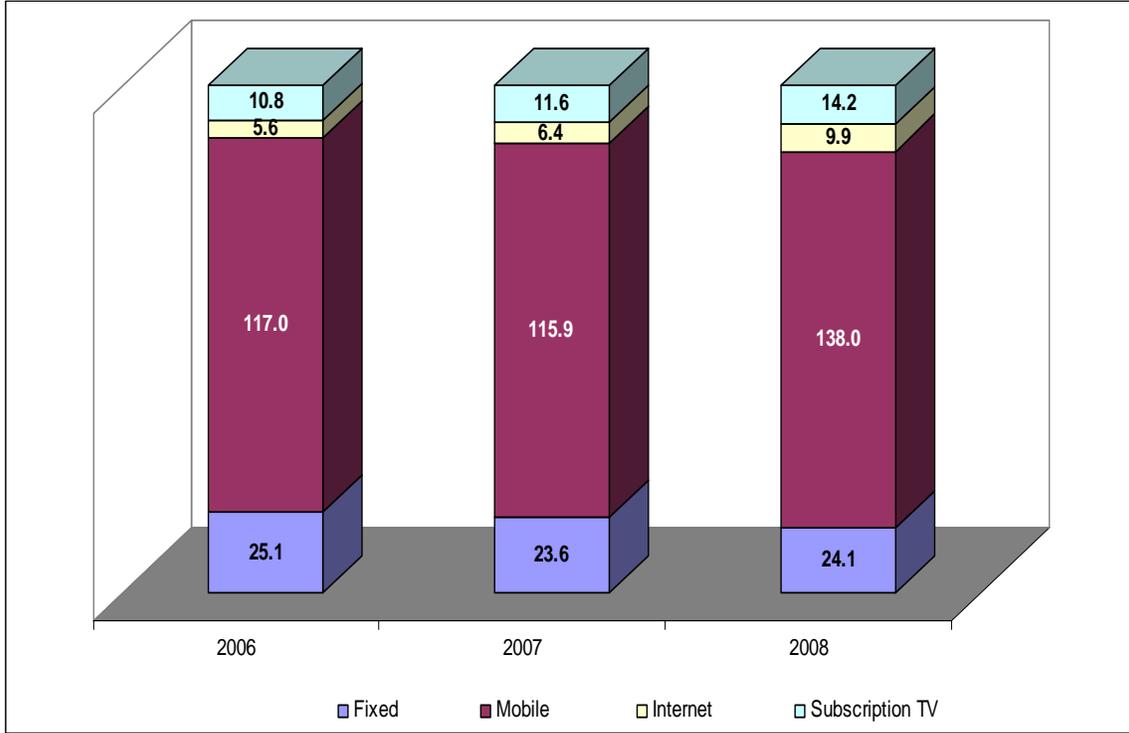
Figure 9: Market Share of Total Subscription by Service for 2006-2008



Source: TATT

1.2.6 Subscriber Penetration Rate

Figure 10: Penetration Rate of Subscribers 2006-2008



Source: TATT

As seen in Figure 10 above, the penetration rates for all subscriber services increased for the 2008 period. The penetration rate¹⁰ is defined as the number of subscribers per 100 inhabitants and as a result gives an estimation of the number of persons that subscribe to telecommunications and broadcasting services. For 2008, mobile services recorded the highest penetration rate of 138 subscribers per 100 inhabitants. Fixed telephony service was the second highest with a penetration rate of 24.1 subscribers per 100 inhabitants whilst subscription TV and Internet¹¹ followed with penetration rates of 14.2 and 9.9 respectively. It may be noted that mobile was the only service where the penetration rate substantially increased whereas the other services showed only marginal improvements.

¹⁰ Penetration rate is calculated as follows: (number of subscribers to the service / population number) * 100

¹¹ Internet penetration includes both fixed and mobile Internet penetration

2. Fixed Telephony Market Data

As at December 2008, there were seven (7) operators authorized to provide fixed domestic telecommunications services to the public over wired or wireless facilities. This number has remained unchanged since 2007 as the Authority has not granted additional concessions for the provision of such services. These operators are classified into the following geographic categories and include:

1. National (100% coverage of Trinidad and Tobago):
 - Telecommunications Services of Trinidad and Tobago (TSTT),
 - Columbus Communications Trinidad Limited (FLOW),
 - Independent Cable Network of Trinidad and Tobago Limited (ICNTT),
 - Greendot Limited.

2. Minor Territorial (100% coverage of Tobago):
 - TRICO Industries Limited.

3. Niche (coverage limited to a specific geographic area):
 - Computer Technologies Services Limited (CTSL) (Mayaro/Guayaguayare only),
 - RVR International Limited (Rio Claro/ Princes Town/ New Grant only).

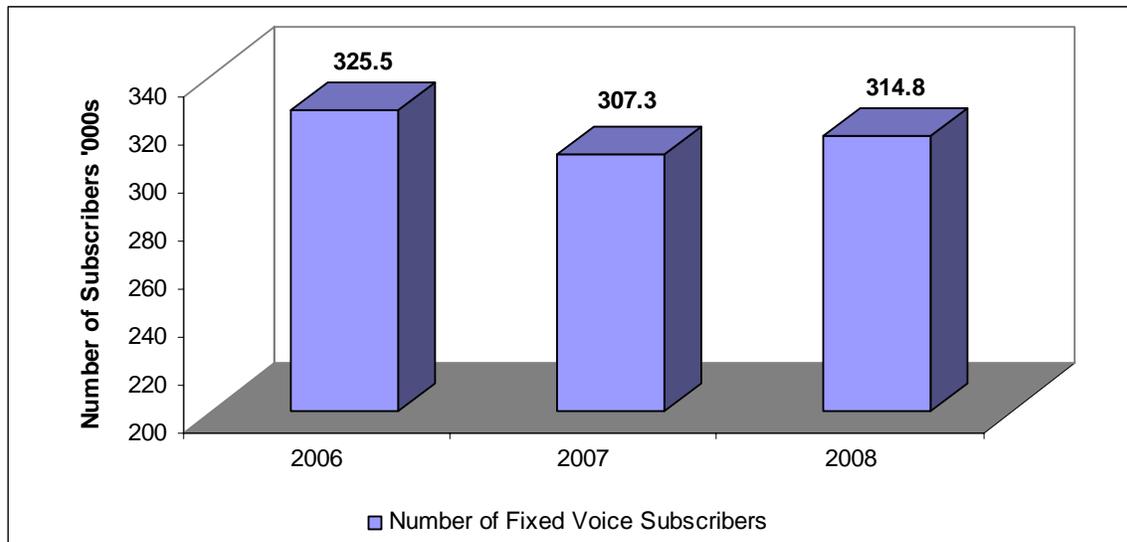
While the above seven operators were authorized by the Authority to provide fixed telecommunications services, only two operators offered domestic voice services in 2008 – TSTT through their Public Switched Telephone Network and FLOW via their cable television network. It should be noted that FLOW launched their fixed voice service in March 2008.

2.1 Fixed Voice Subscribers

2.1.1 Annual Fixed Voice Subscribers

For 2008, the fixed voice market recorded approximately 314.8 thousand subscribers. This represented an overall 2 per cent growth in subscribership from the last period, as opposed to the 6 per cent fall in subscribers between 2006 and 2007. The annual trends are shown in Figure 11.

Figure 11: Fixed Voice Subscribers 2006-2008



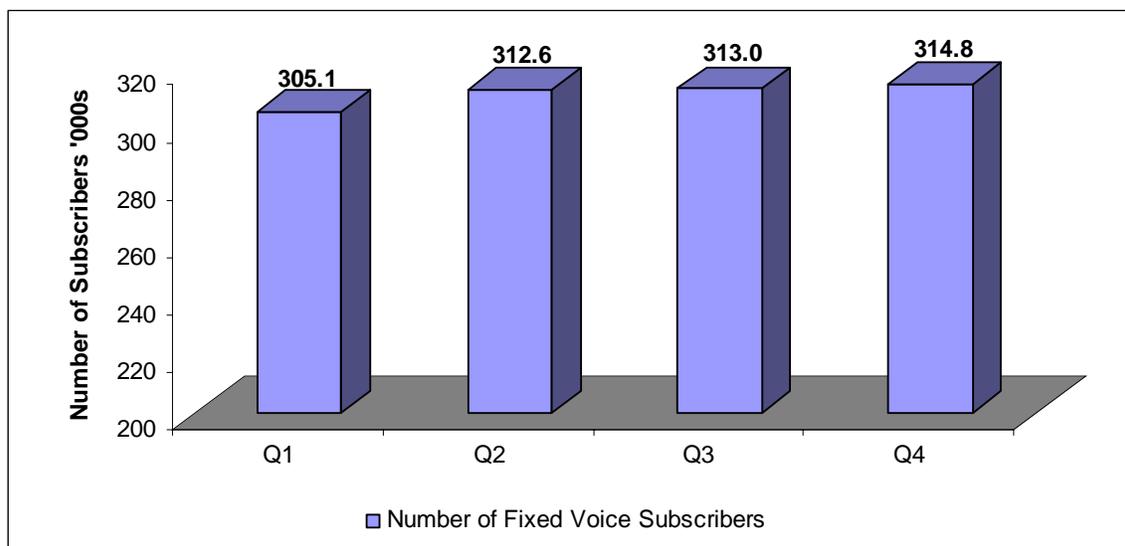
Source: TATT

The increase in the number of subscribers for the period may be explained by the launch of FLOW's voice services in March 2008. From a pricing perspective, FLOW appears to have customer packages comparable with those of TSTT. This may have led to new persons entering the fixed voice market and the reason for the boost in subscribers for 2008. Therefore it may be implied as a result of the increased level of competition, the fixed telephony market has experienced growth in its subscribership.

2.1.2 Quarterly Fixed Voice Subscribers

On a quarterly basis during the period January to December 2008, the fixed voice industry saw an increase in the total number of subscribers with an initial 2.4 per cent growth rate in the first quarter and a 1 per cent increase in growth in the last quarter. This is shown in Figure 12. The introduction of FLOW's fixed voice services during the first quarter may account for the slight increase in subscribers.

Figure 12: 2008 Quarterly Fixed Voice Subscribers



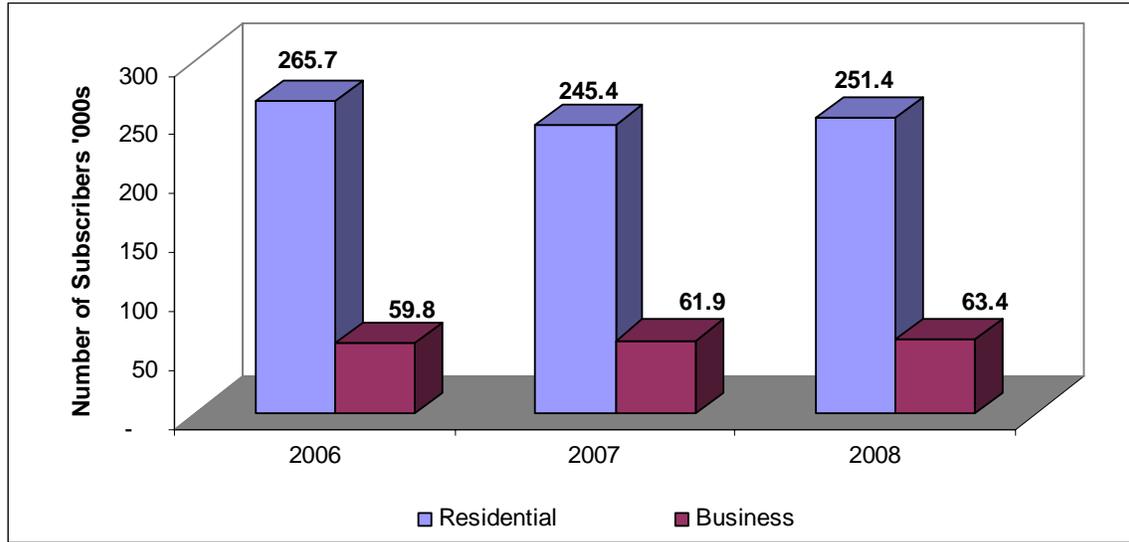
Source: TATT

2.1.3 Residential and Business Fixed Voice Subscribers

At a segmented level, the fixed voice market in Trinidad and Tobago includes two categories - residential subscribers and business subscribers (inclusive of companies subscribing to systems services, e.g. PBXs).

As at December 2008, there were 314.8 thousand fixed voice subscribers of which 251.4 thousand were residential and 63.4 thousand were business subscribers. Figure 13 compares the annual trends of residential and business subscribers for 2006-2008.

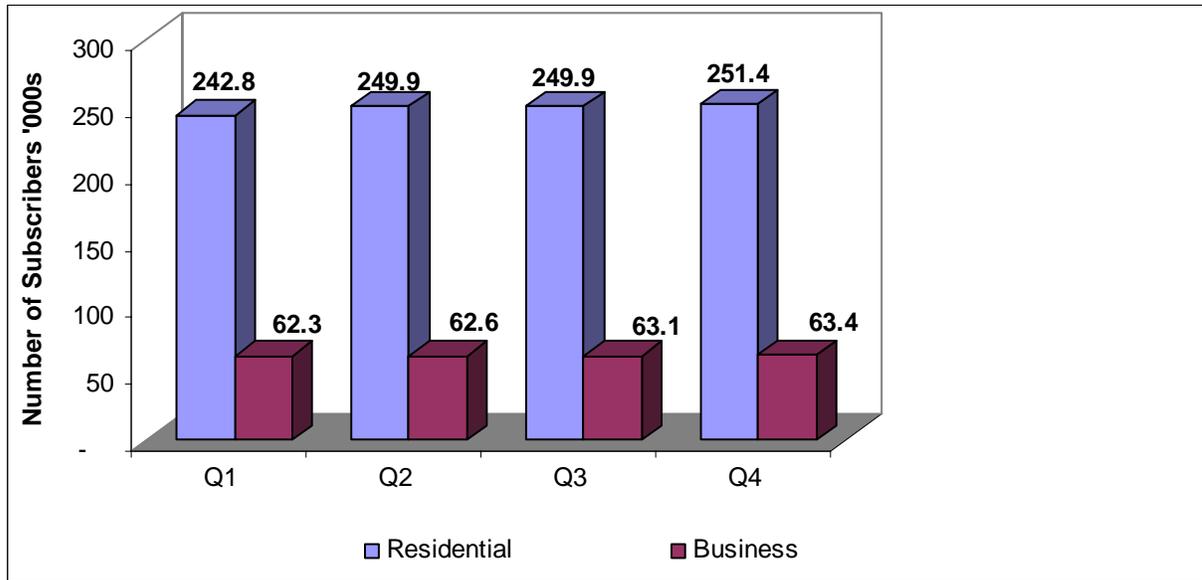
Figure 13: Residential and Business Fixed Voice Subscribers 2006-2008



Source: TATT

Throughout the quarters of 2008, the residential subscribers 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 stable, there were steady increases in the number of subscribers for residential and business fixed voice customers during the quarters of 2008. Residential subscribers increased by 4 percent between the first and last quarter while business subscribers rose by 2 per cent for the same period. Again this occurrence may be the result of the introduction of FLOW’s voice services into the fixed telephony market and their ability to persuade new voice subscribers to enter the market. Figure 14 shows the number of residential and business fixed voice subscribers on a quarterly basis.

Figure 14: Quarterly Residential and Business Fixed Voice Subscribers 2008



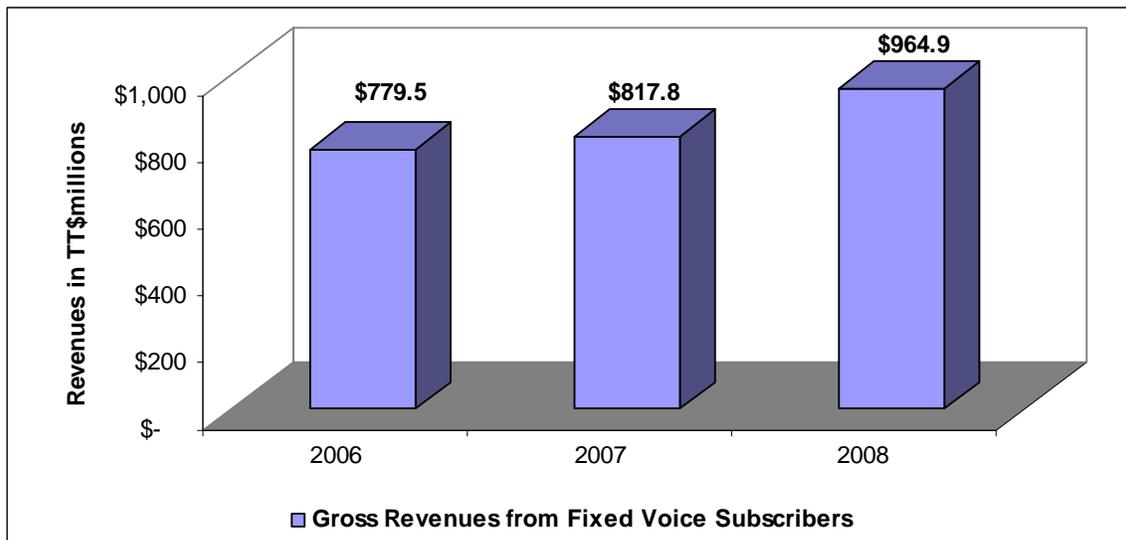
Source: TATT

2.2 Fixed Telephony Revenues

2.2.1 Annual Fixed Voice Revenues

At the end of 2008, total revenues received from fixed voice subscribers amounted to TT\$964.9 million, an increase of TT\$147.1 million or 17.9 per cent over 2007. The annual trends in fixed telephony revenues are illustrated in Figure 15.

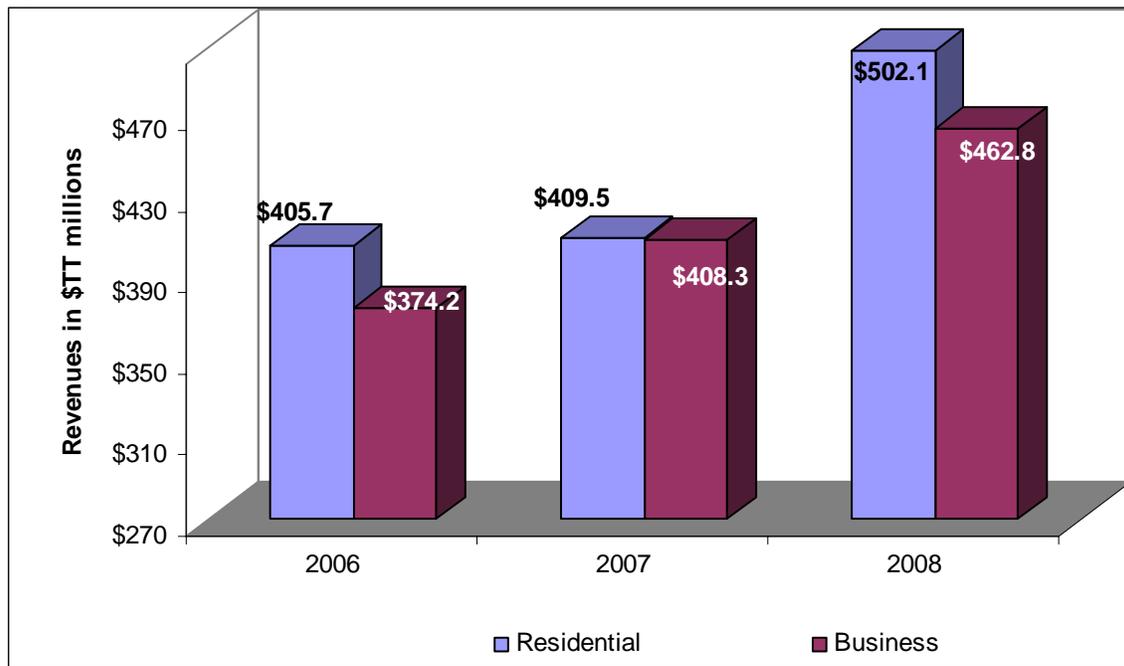
Figure 15: Fixed Voice Subscriber Revenues 2006-2008



Source: TATT

When further subdivided, residential subscribers accounted for TT\$502.1 million or 51.4 per cent of total fixed voice revenue, a 23 per cent rise from 2007. Similarly, business subscribers accounted for \$462.8 million or 47.4 per cent of total fixed voice revenue, a smaller increase of 13 per cent from 2007. Other revenues¹² which were derived from pay phones and calling cards amounted to TT\$11.7 million. The annual increase in fixed voice revenues may be explained by the 2 per cent increase in fixed voice subscribership mentioned in section 2.1. Figure 16 shows the separation of revenues according to residential and business categories and their annual trends.

Figure 16: Residential and Business Fixed Voice Revenues 2006-2008



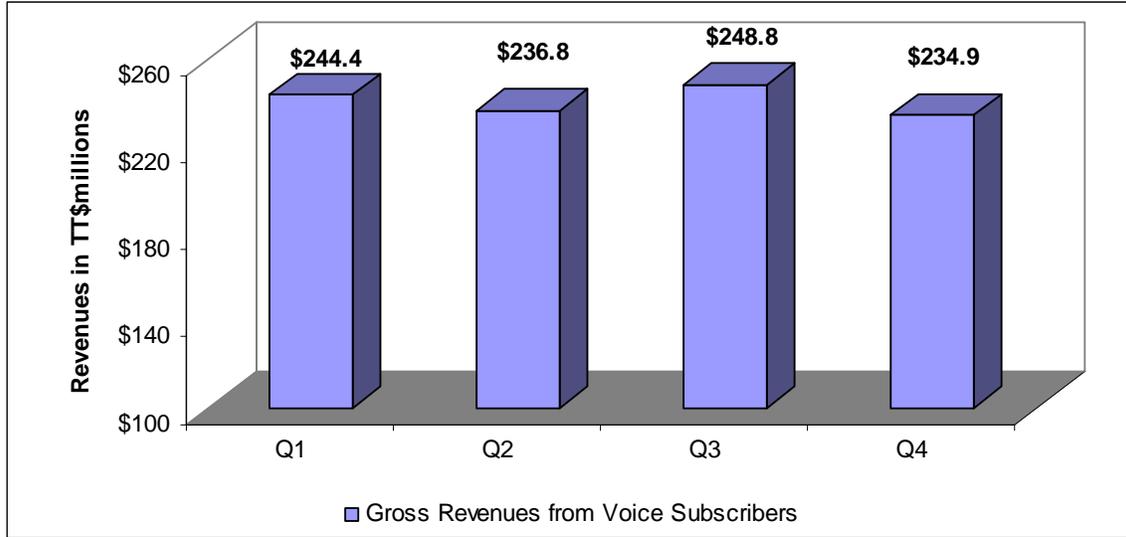
Source: TATT

¹² Other revenues include revenues from payphones and calling cards

2.2.2 Quarterly Fixed Voice Revenues

During 2008 fixed voice revenues generated on a quarterly basis fluctuated resulting in an overall 4 per cent decrease in total voice revenues between Quarter 1 and Quarter 4. The quarterly revenues for 2008 are depicted in the following diagram.

Figure 17: 2008 Quarterly Gross Revenues from Voice Services

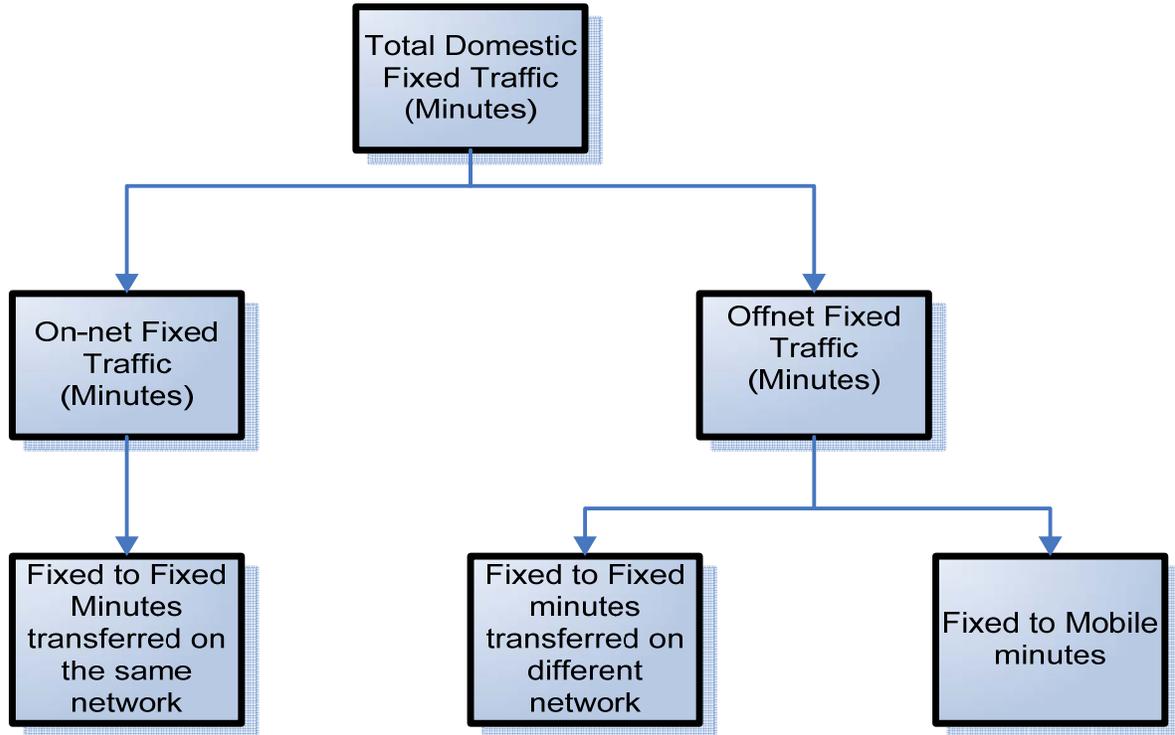


Source: TATT

2.3 Domestic Fixed Voice Traffic

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

Figure 18: Classification of Domestic Fixed Traffic



Source: TATT

2.3.1 Annual Domestic Fixed Voice Traffic

As illustrated in Figure 19 below, the domestic fixed voice traffic totalled 1,734 million minutes for the 2008 period, a 12% decrease from 2007.

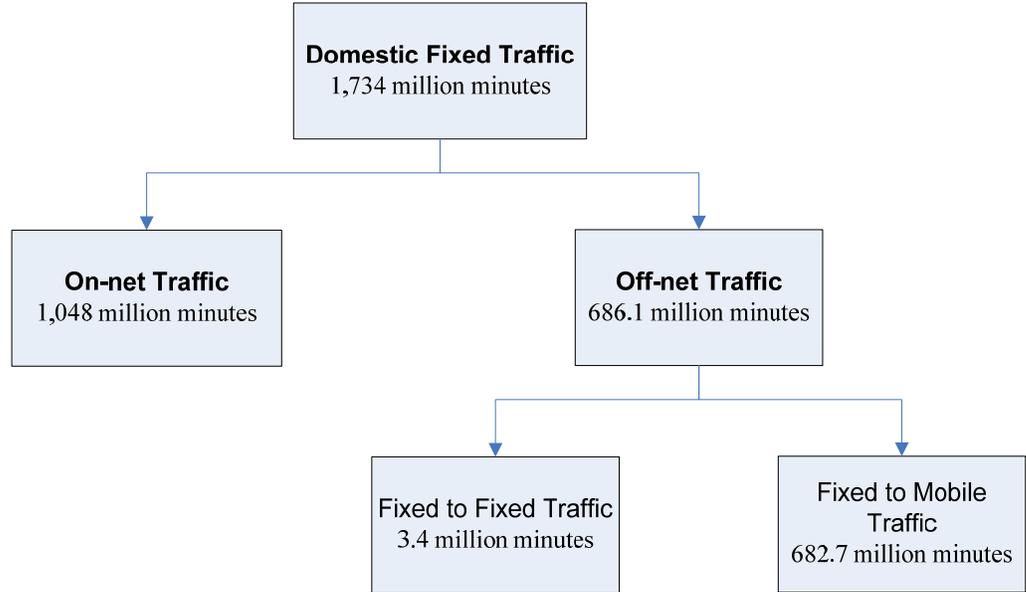
Of the 1,734 million minutes of domestic fixed traffic, on-net¹³ traffic totalled 1,048 million minutes while off-net¹⁴ traffic recorded 686.1 million minutes. There were 3.4 million fixed to fixed off-net minutes and 682.7 million fixed to mobile minutes.

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

¹⁴ Off-net traffic refers to traffic originating on a service provider’s fixed network and terminating on another network.

A breakdown of the subcategories of traffic is shown below.

Figure 19: Breakdown of fixed domestic traffic minutes

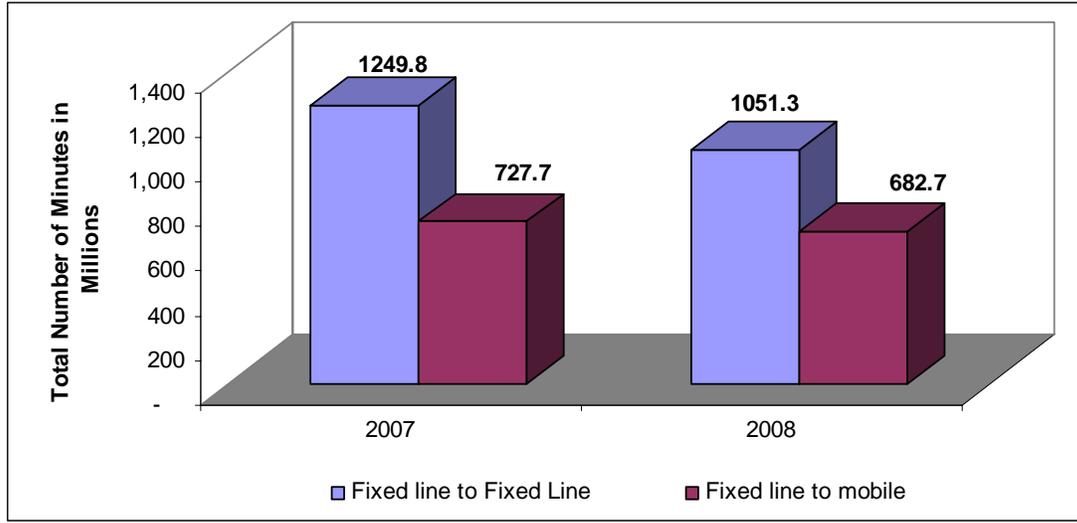


Source: TATT

From a traffic-type perspective, fixed to fixed calls accounted for 1,051.3 million minutes¹⁵ or 60.6 per cent of total minutes while fixed to mobile calls accounted for 682.7 million minutes or 39.4 per cent of total minutes. When compared to 2007 total fixed to fixed minutes decreased significantly by 16 percent while fixed to mobile minutes also declined by 6 per cent. Figure 20 below compares the breakdown of the domestic call volume by traffic type between 2007 and 2008.

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

Figure 20: Comparison of Fixed Voice Traffic Type 2007-2008



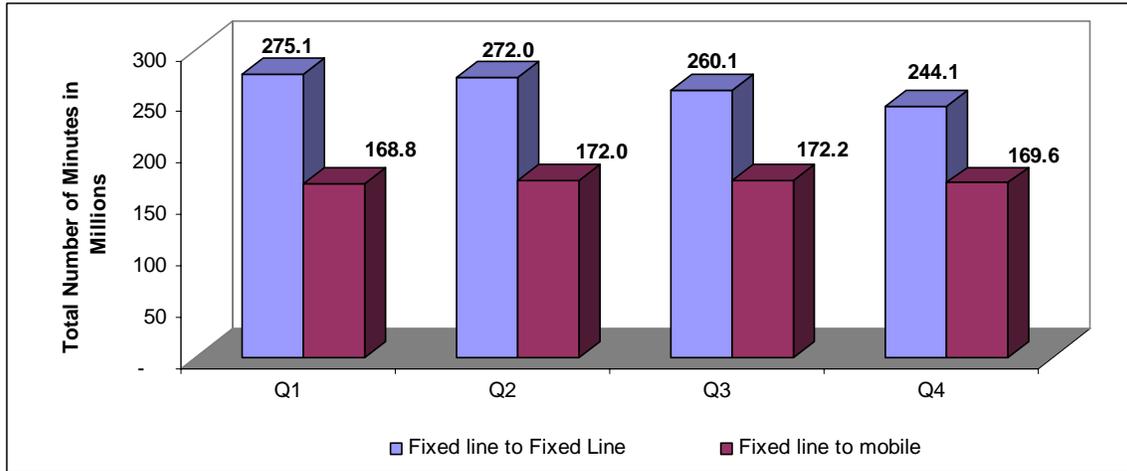
Source: TATT

2.3.2 Quarterly Domestic Fixed Voice Traffic

On a disaggregated level, total domestic fixed voice traffic fell between Q1 and Q4 from 443.9 million minutes to 413.7 million minutes. Additionally, for the first quarter of 2008, fixed-to-fixed call volume totalled 275.1 million minutes or 62 per cent of total domestic fixed voice traffic volume. This share gradually decreased to 244.1 million minutes or to 59 per cent of the total volume of domestic traffic in the fourth quarter. Synonymous with this decrease in the share of fixed-to-fixed call volume is the increase in the share of call volumes to mobile networks. The share of traffic from the fixed voice networks to mobile networks increased from 168.8 million minutes or 38 per cent in Q1 to 169.6 million minutes or 41 per cent of total traffic in Q4 of 2008. 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.

Trends in the quarterly fixed voice traffic for 2008 are shown in Figure 21.

Figure 21: Quarterly Fixed Voice Traffic Type 2008

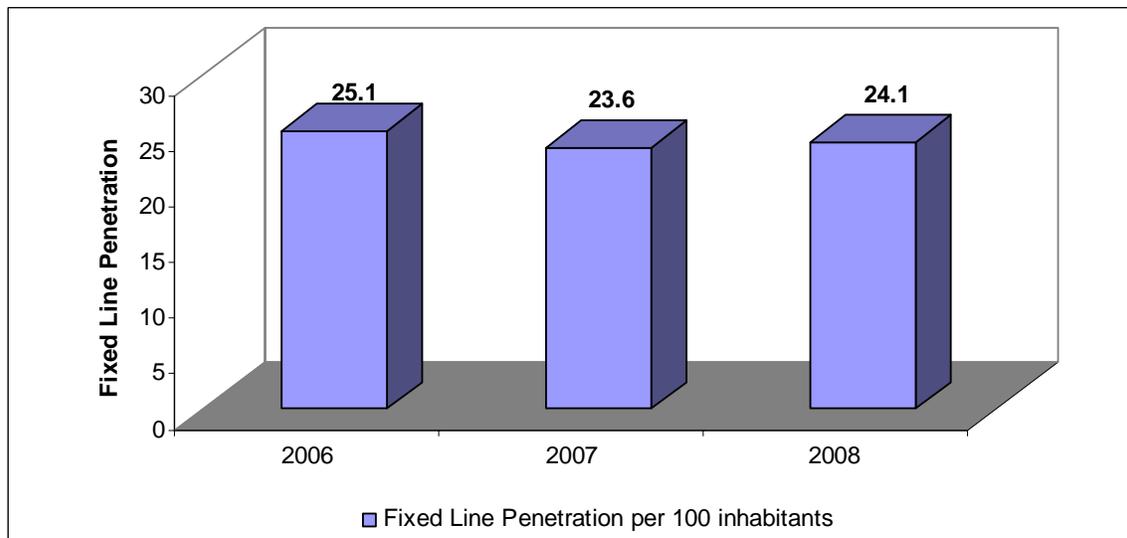


Source: TATT

2.4 Fixed Line Penetration

Fixed line penetration per 100 inhabitants¹⁶ (teledensity) increased slightly from 23.6 in 2007 to 24.1 in 2008. This means that 24 in every 100 persons in Trinidad and Tobago have access to fixed voice services. As mentioned in Section 2.1, this is a result of the increase in fixed subscribers due to the entrance of competition in the fixed voice market. An illustration of fixed line penetration trends is given in Figure 22.

Figure 22: Fixed Line Penetration per 100 Inhabitants 2006-2008



Source: TATT

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

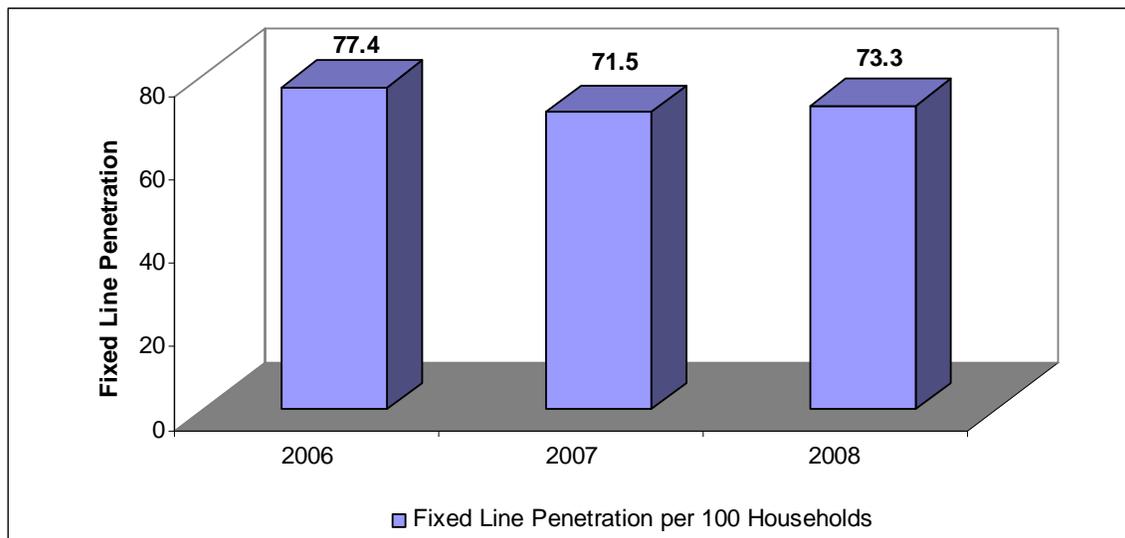
In addition, fixed line penetration per 100 households¹⁷ increased from 71.5 to 73.3 for the same period. This means that approximately 73 out of every 100 households have access to fixed voice services.

For the period 2006-2008, the household penetration rate has recorded noticeable fluctuations. As depicted in Figure 23, between 2006 to 2007 fixed line penetration per 100 households decreased from 77.4 to 71.5, that is, by 6 per cent. On the contrary, for the period 2007 to 2008, fixed line penetration per 100 households rose marginally from 71.5 to 73.3, that is by 2 per cent.

One reason for the small increase in household penetration may be as a result of the rise in subscribership due to competition entering the fixed voice market. Data collected in 2008 showed that residential fixed voice subscribers increased by 2 per cent, while for the same period the number of households¹⁸ recorded by the Central Statistical Office remained static. As a consequence of the number of residential fixed voice subscribers growing at a faster rate than the number of households, fixed line penetration per 100 households recorded an increase.

Figure 23 below shows the trend in fixed line household penetration for the period 2006 to 2008.

Figure 23: Fixed Line Penetration per 100 Households 2006-2008



Source: TATT

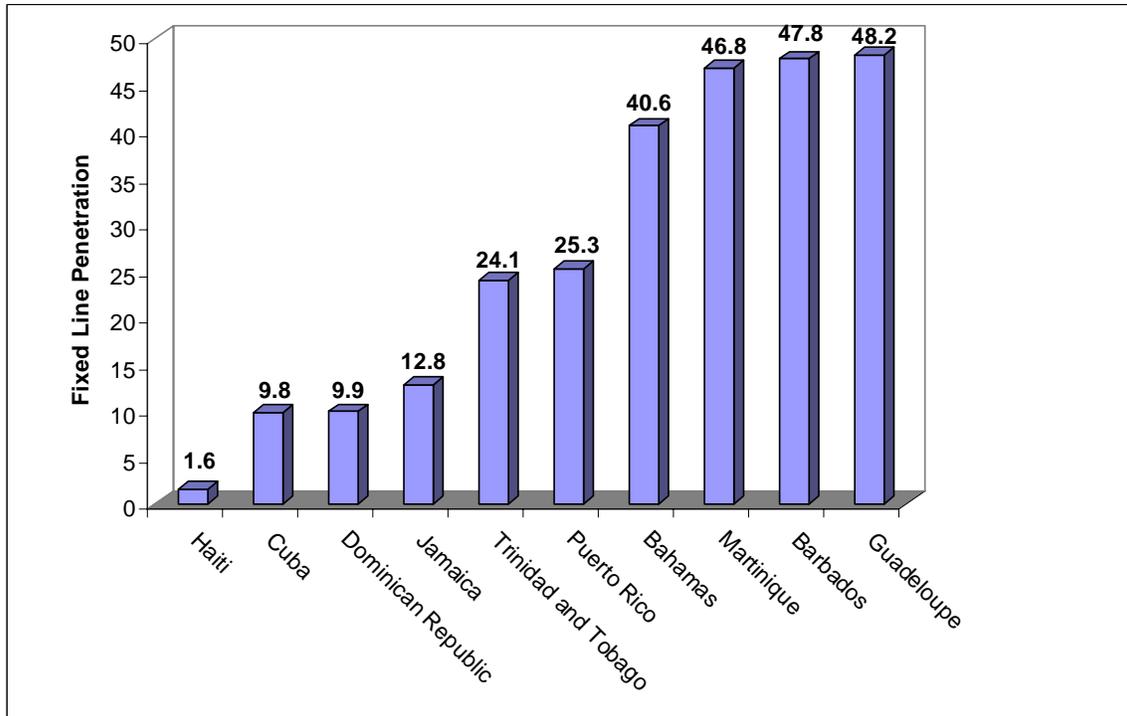
¹⁷ Fixed line penetration per 100 households = (number of residential fixed voice subscribers / total number of households) * 100

¹⁸ Number of households reported by CSO from the 2000 census – 343,100 households

2.4.1 Fixed Penetration Rates for the Caribbean

Among the Caribbean countries listed in Figure 24, 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 the marginal increase and even in some cases a decline, in fixed line penetration. The 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 far surpassed the demand for fixed line services. These factors may have played a part in the marginal growth experienced in the fixed voice market for 2008.

Figure 24: 2008 Fixed Line Penetration within selected Caribbean countries



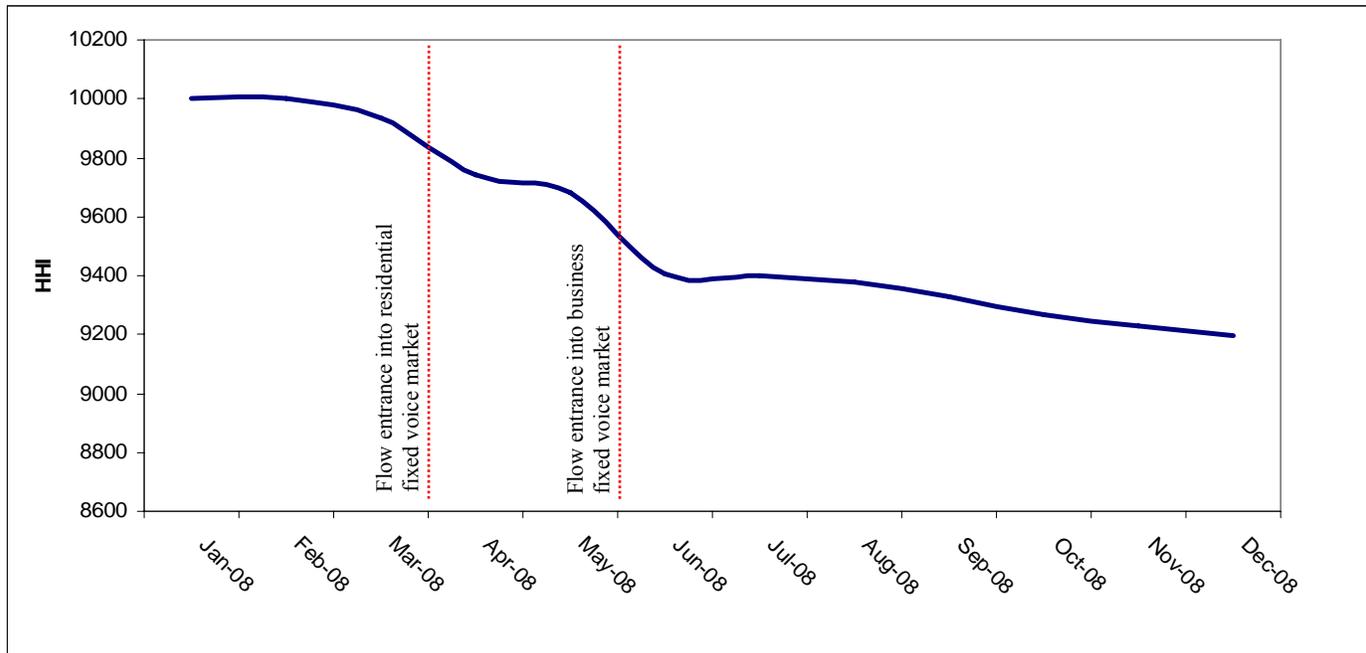
Source: Business Monitor International Limited and TATT

2.5 Fixed Market Concentration

Consistent with the Authority’s Price Regulation Framework, the Hirschman-Herfindahl Index (HHI)¹⁹ has been adopted to measure the level of market concentration and the state of competitiveness in the market.

In 2008, the HHI calculated for the fixed voice market was 9,193²⁰ compared to 10,000 in 2007. While these figures indicate that the market remains highly contested and concentrated, there has been a slight decline in the level of concentration as a result of FLOW entering the fixed voice market. As graphically illustrated in Figure 25, there is a dip in the HHI for March 2008 when FLOW entered the residential fixed voice market as well as a similar occurrence during FLOW’s entrance in the business fixed voice market in May 2008.

Figure 25: HHI for the Fixed Voice Market January - December 2008



Source: TATT

¹⁹ 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**.

²⁰ Based on subscriber market share

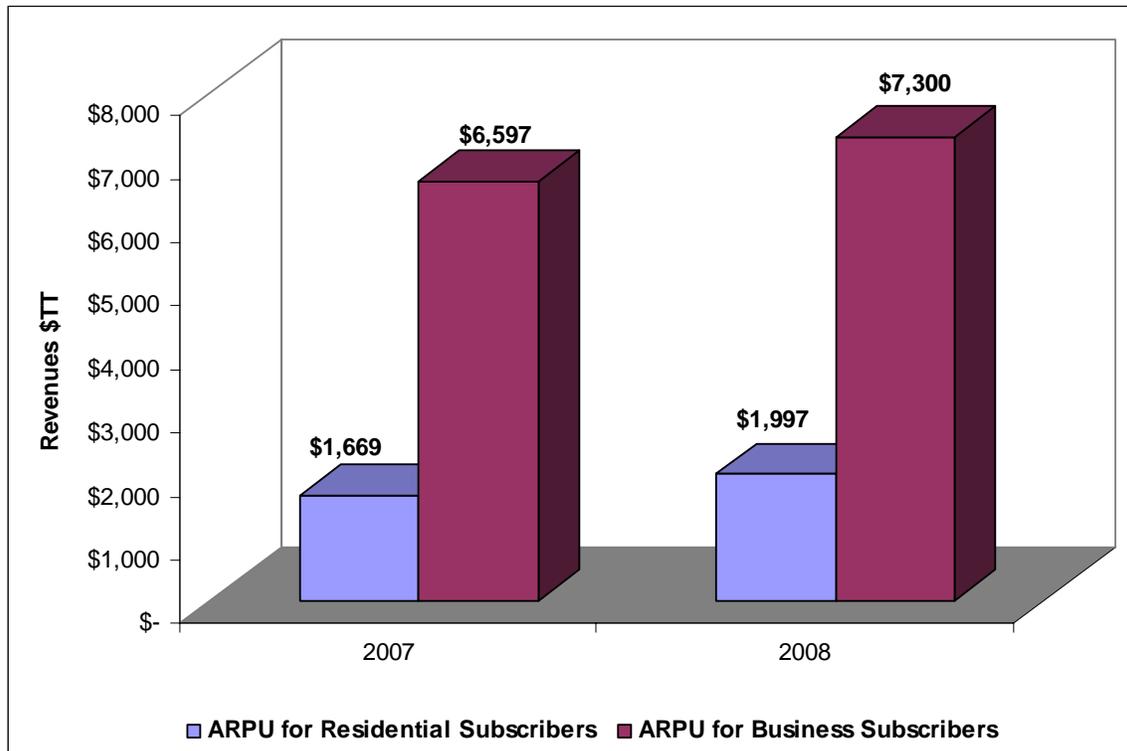
2.6 Average Revenue per User (ARPU)

During 2008, subscribers spent an average of TT \$3,065 for fixed voice services. This represents an increase of TT\$404 or 15 per cent in the average revenue per user (ARPU)²¹ over the amount recorded for 2007.

On a smaller scale, residential subscribers spent an average of TT\$1,997, an increase of 20 per cent over 2007. Similarly, business subscribers spent an average of TT\$7,300, a rise of 11 per cent over the last period. This is illustrated in Figure 26.

As mentioned in the above sections, total fixed voice revenues increased by 17.9 per cent while total number of subscribers marginally rose by 2 per cent. Therefore as the growth in revenues outweighed the increase in subscribers, there was a 15 per cent rise in the ARPU from 2007.

Figure 26: ARPU for Fixed Residential and Business Voice Services 2007-2008



Source: TATT

²¹ ARPU measures the average revenue generated by one subscriber. It is calculated = (Total revenues for fixed voice subscribers / Total number of fixed subscribers)

3. Mobile Market Data

During 2007, there were three mobile service providers authorized to provide public mobile domestic telecommunications services in Trinidad and Tobago. They were:

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

However in 2008, due to the inability of Laqtel Limited to launch its mobile services since the grant of its concession in 2006, the GoRTT revoked Laqtel's mobile concession and the associated licences. As a result, the mobile market data compiled below is representative of the two operational mobile providers, bmobile and Digicel for the period 2008.

3.1 Mobile Subscribers²²

3.1.1 Annual Mobile Subscribers

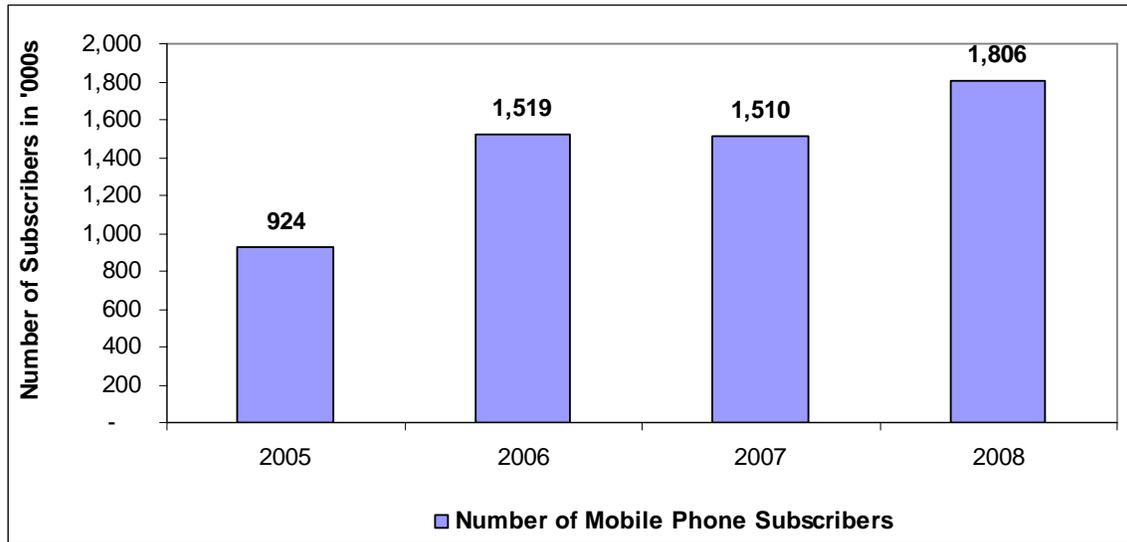
As at December 2008, the mobile market recorded a total of 1.8 million subscribers of which 1.7 million or 92 per cent were prepaid customers and 143 thousand or 8 per cent were post paid. This total represents a substantial increase of 296 thousand subscribers or 19.6 per cent over the 1.5 million subscribers recorded in 2007. However this increase in total mobile subscribership was contributed primarily by the 21.3 percent rise in the number of prepaid subscribers.

Similar to global trends²³, this may suggest the domestic mobile market is continuing on its growth path, even though for the period 2007 the total number of mobile subscribers recorded a decrease due to the unexpected high level of take-up of mobile subscribers in 2006 as Digicel entered the market.

Figure 27 below highlights the trend in mobile subscribership for the period 2005 to 2008.

²²A mobile subscriber is defined as a person with an activated (pre-paid or post-paid) SIM card and who can make and/or receive a call.

²³ For 2008, ITU has estimated a worldwide growth in mobile subscribers to approximately 4 billion. Referenced from "*Trends in Telecommunications Reform 2008*", International Telecommunications Union.

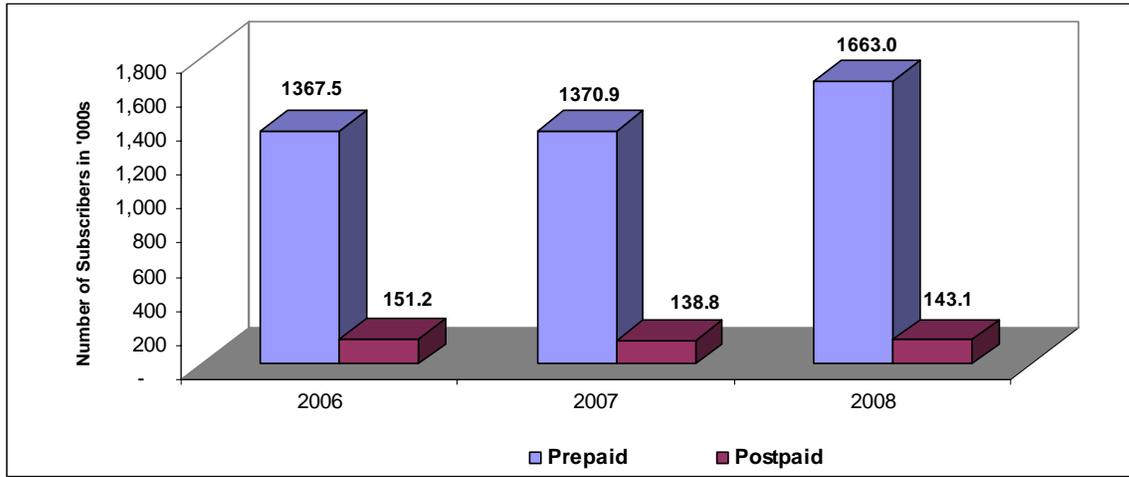
Figure 27: Mobile Subscribers 2005-2008

Source: TATT

As illustrated in Figure 28, the number of prepaid subscribers continued to grow with a significant increase of approximately 292.1 thousand subscribers between 2007 and 2008. It is therefore not surprising that prepaid subscribers accounted for approximately 90 per cent share of the mobile market. It should be noted that prepaid packages are usually more preferred by subscribers as there are no contractual commitments and there is a level of flexibility in managing one's mobile expenditure.

By contrast, postpaid subscribership has shown a limited growth of 3 per cent, or an estimated 4.3 thousand subscribers since the last period. Reasons for the marginal increase in postpaid subscribers, as mentioned above, may be attributed to the preference of mobile subscribers for prepaid services.

Figure 28: Mobile Prepaid and Postpaid subscribers 2006 - 2008



Source: TATT

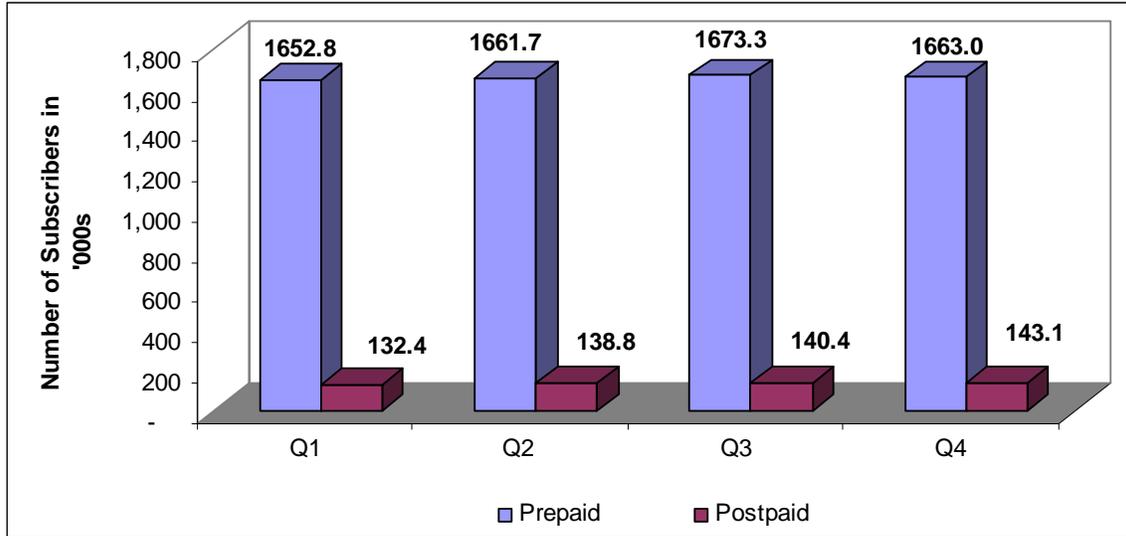
3.1.2 Quarterly Mobile Subscribers

For the quarterly periods of 2008, prepaid subscribers comprised the majority of the mobile market with an average of 90 per cent market share while postpaid subscribers accounted for the remaining 10 per cent.

Figure 29 shows a constant growth in the number of both prepaid and postpaid subscribers with the exception of the last quarter which highlights a 10,269 decrease in the number of prepaid subscribers. A likely explanation for this circumstance may be that individuals are no longer subscribing to the services of both mobile providers simultaneously. Instead persons may be committing to one operator to meet their prepaid mobile service needs.

Conversely throughout the quarters there has been a steady increase in the number of postpaid subscribers. This may be a direct effect of service providers attempting to boost revenues by encouraging customers to switch to postpaid packages.

Figure 29: 2008 Quarterly Prepaid and Postpaid subscribers



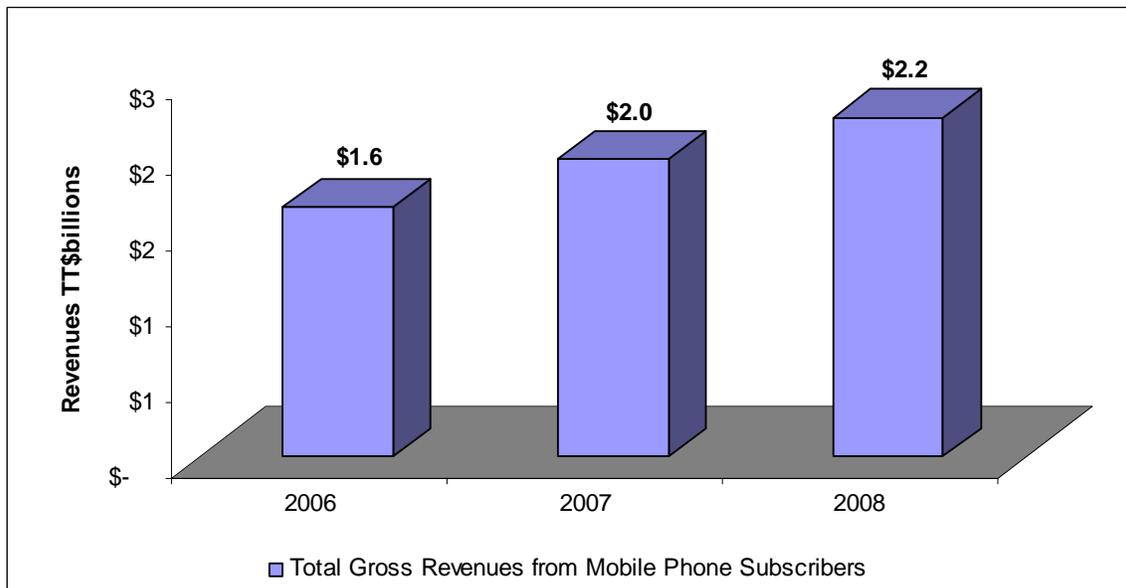
Source: TATT

3.2 Mobile Revenues

3.2.1 Annual Mobile Revenues

The rise in mobile revenues continued on its growth trend in 2008 with earnings by mobile service operators amounting to TT\$2.2 billion, an increase of TT\$272 million or 13.8 per cent over 2007. Annual revenue trends are illustrated in Figure 30.

Figure 30: Mobile Market Revenues 2006 – 2008

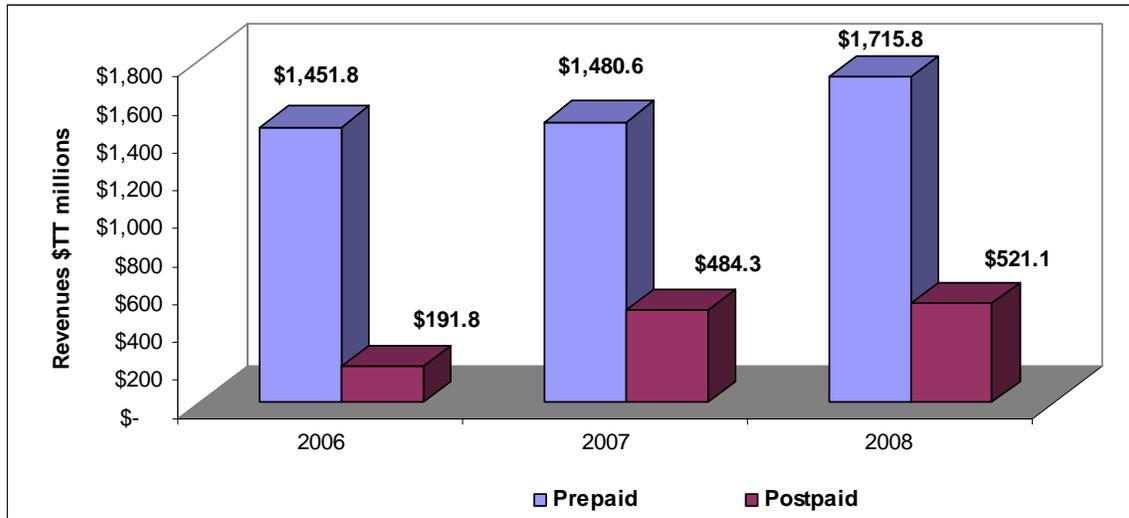


Source: TATT

When subdivided, prepaid revenues remain the main driver behind the exponential increase in revenues with a contribution of TT\$1,715.8 million or 75.4 per cent of total mobile revenue, a 15.8 per cent rise from 2007. On the other hand, postpaid subscribers contributed TT\$521.1 million or 24.6 per cent of the total mobile earnings, a smaller increase of 7.6 per cent from 2007. The increase in mobile revenues may be explained by the fierce marketing strategies employed by both mobile providers in an attempt to boost mobile usage.

Figure 31 shows the trend in prepaid and postpaid revenues for the period 2006-2008.

Figure 31: Mobile Market Revenues Prepaid and Postpaid 2006 – 2008

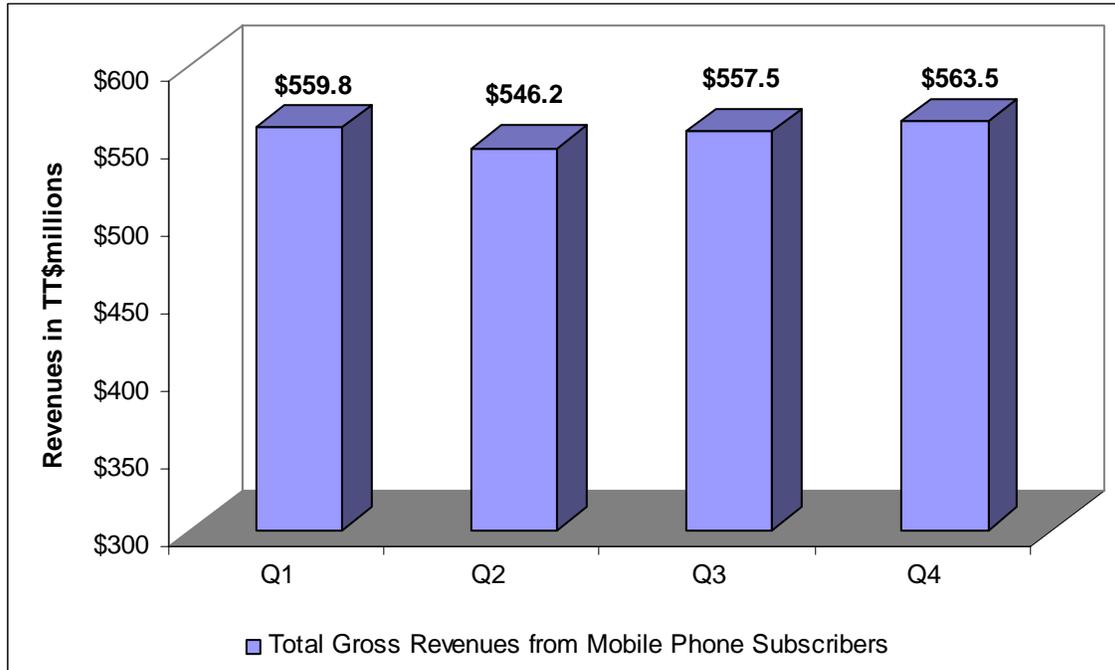


Source: TATT

3.2.2 Quarterly Mobile Revenues

Within the mobile market, revenues generated on a quarterly basis showed varied levels of changes. As seen in Figure 32, overall there was a 0.7 per cent increase in mobile revenues between Quarter 1 and Quarter 4.

Figure 32: 2008 Quarterly Mobile Revenues

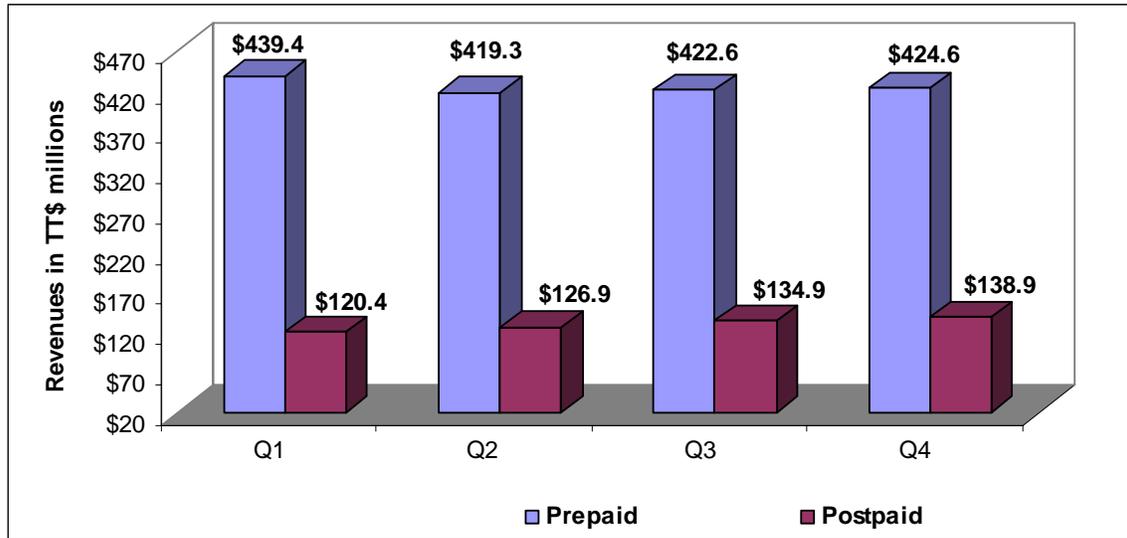


Source: TATT

On a smaller scale, prepaid revenues decreased by 3.4 per cent between Quarter 1 and Quarter 4 while postpaid revenues increased by 15.4 percent for the same period. The increase in postpaid revenues during the quarters is consistent with the rise in postpaid subscribers as service providers attempt to encourage prepaid subscribers to switch to postpaid packages.

Figure 33 shows the quarterly prepaid and postpaid revenue trends for 2008.

Figure 33: 2008 Quarterly Prepaid and Postpaid Revenues



Source: Policy, Pricing & Research Unit TATT

3.3 Mobile Penetration

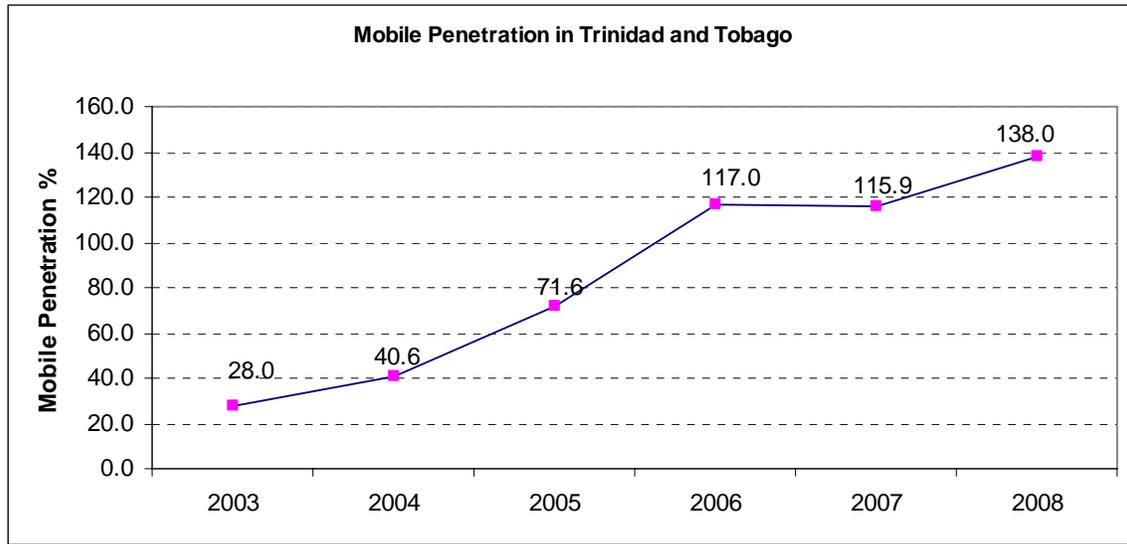
3.3.1 Mobile Penetration Rate in the Domestic Market

For the period 2003 to 2008, the mobile penetration rate per 100 inhabitants²⁴ in Trinidad and Tobago constantly increased with the exception of 2007. As competitive tactics between bmobile and Digicel continued to persist in 2008, the mobile penetration rate stood at 138, a 19.1 per cent growth from 2007. This occurred as a direct result of the 19.6 per cent growth in mobile subscribership for 2008.

Figure 34 shows the varying penetration rates from 2003 to 2008.

²⁴ Mobile Penetration Rate = (number of mobile subscribers / total population) * 100

Figure 34: Mobile Penetration Level per 100 Inhabitants for Trinidad and Tobago 2008



Source: TATT

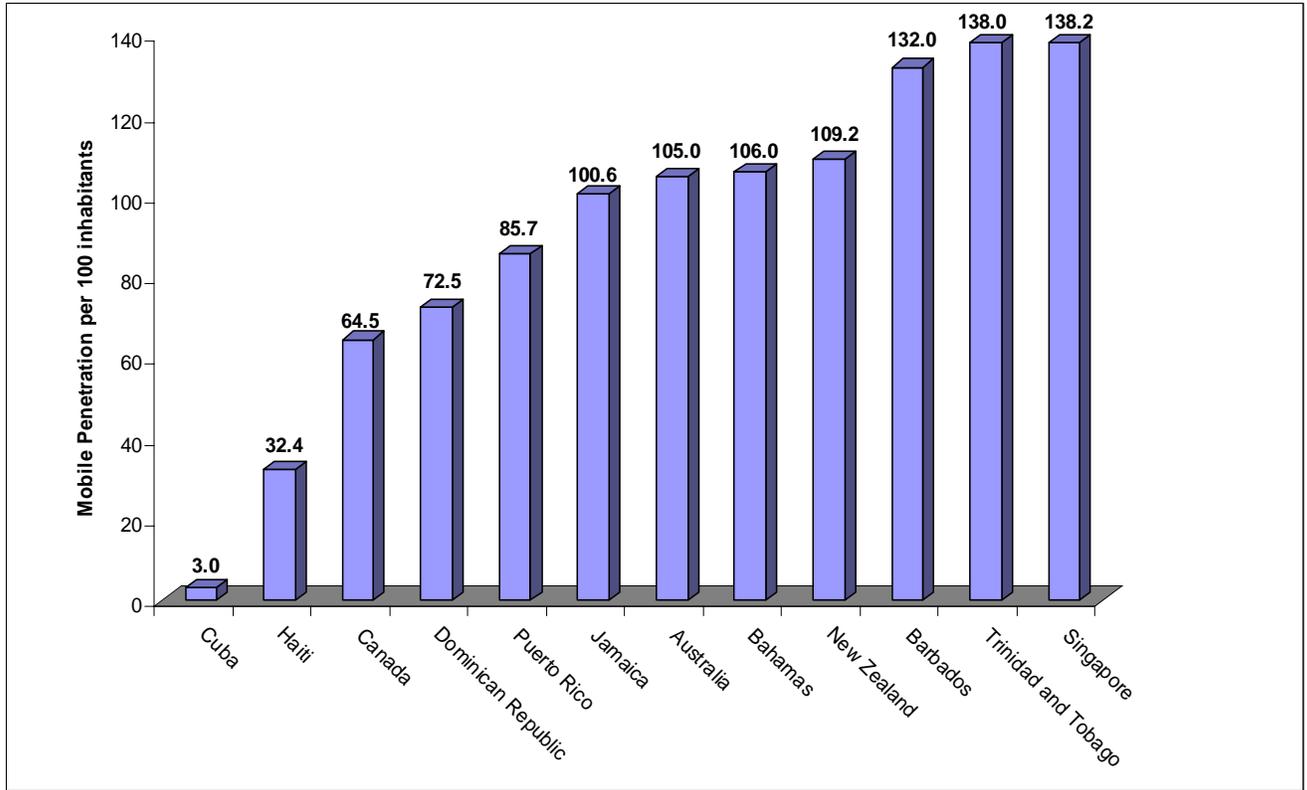
3.3.2 International Mobile Penetration Rates

Within the Caribbean region, Trinidad and Tobago enjoyed the highest mobile penetration rate of 138.0 while it is estimated, from information gathered by the International Telecommunications Union (ITU) and Business Monitor International (BMI), the majority of its Caribbean counterparts crossed the 100% penetration mark in 2008. A recent BMI report²⁵ noted that strong competition between the incumbent Cable and Wireless and Digicel has been instrumental in pushing up the mobile penetration rates for the Caribbean region. This is certainly the case with Trinidad and Tobago.

Figure 35 compares the mobile penetration rates for selected countries, inclusive of the Caribbean.

²⁵ Caribbean Telecommunications Report Q1 2009, Business Monitor International Limited

Figure 35: 2008 Mobile Penetration for Selected Countries

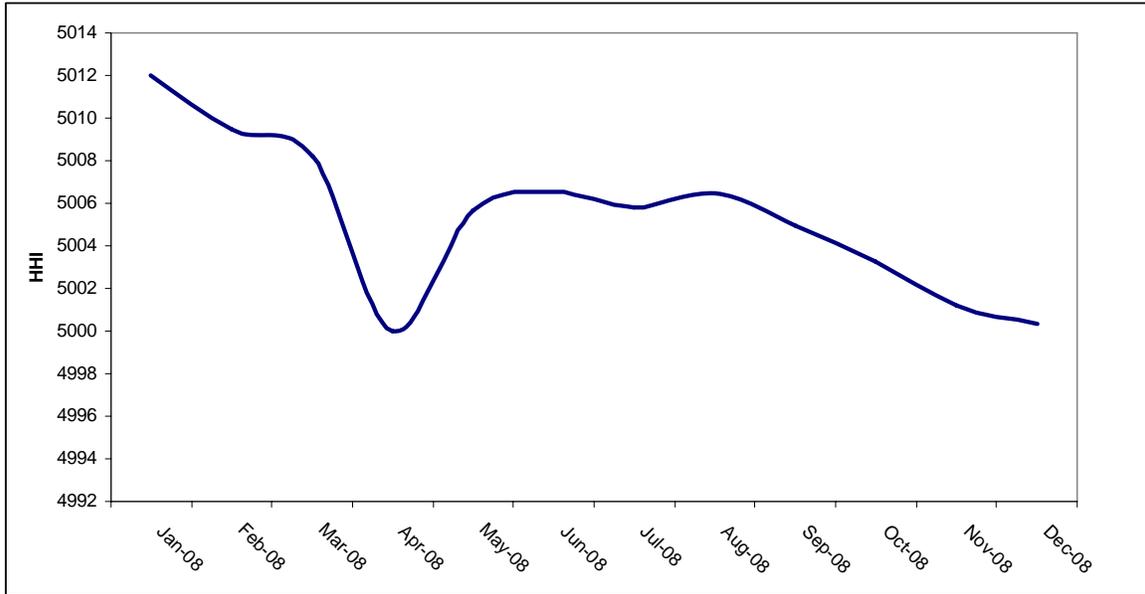


Source: BMI Americas Telecommunications Report Q2 2008, and TATT

3.4 Mobile Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration and competition for the mobile market of Trinidad and Tobago for the year ending December 2008. The market share for the service providers was defined in terms of subscribership. The result reveals that there was a HHI of 5,000 a decline of 687 or 12 per cent over the figure reported in December 2007. Figure 36 illustrates.

Figure 36: Hirschman-Herfindahl Index for the Mobile Market January –December 2008



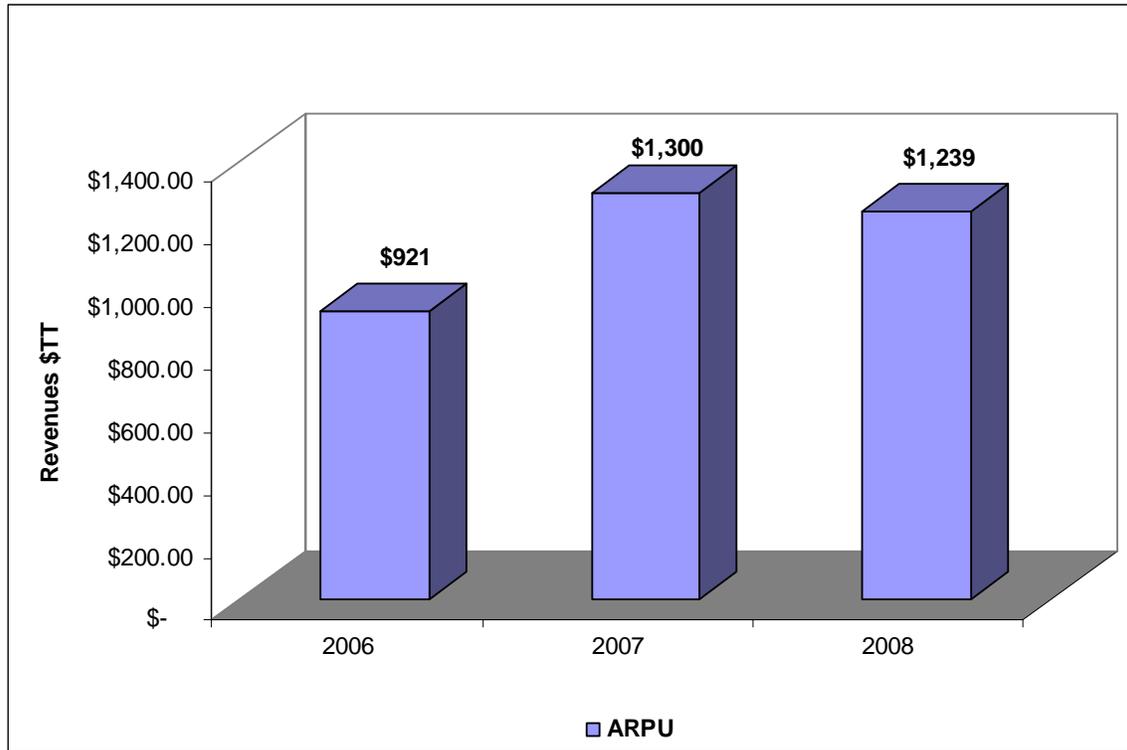
Source: TATT

Although there continues to be a decline in market concentration over 2007, the mobile market for Trinidad and Tobago was found to be still highly concentrated as well as contested. This result is expected for a market where there only exist two mobile providers and oligopolistic behaviour prevails.

3.5 Average Revenue per User

During 2008, subscribers spent an average of TT \$1,239 for mobile services. This represents a decrease of TT\$62 or 5 per cent in the average revenue per user (ARPU) over the amount recorded for 2007. This decrease is a result of 19.6 per cent increase in the number of subscribers outweighing the 13.8 per cent increase in revenues earned for the period. Figure 37 compares annual ARPU for the period 2006 to 2008.

Figure 37: ARPU for Mobile services 2006-2008



4. International Voice Traffic Data

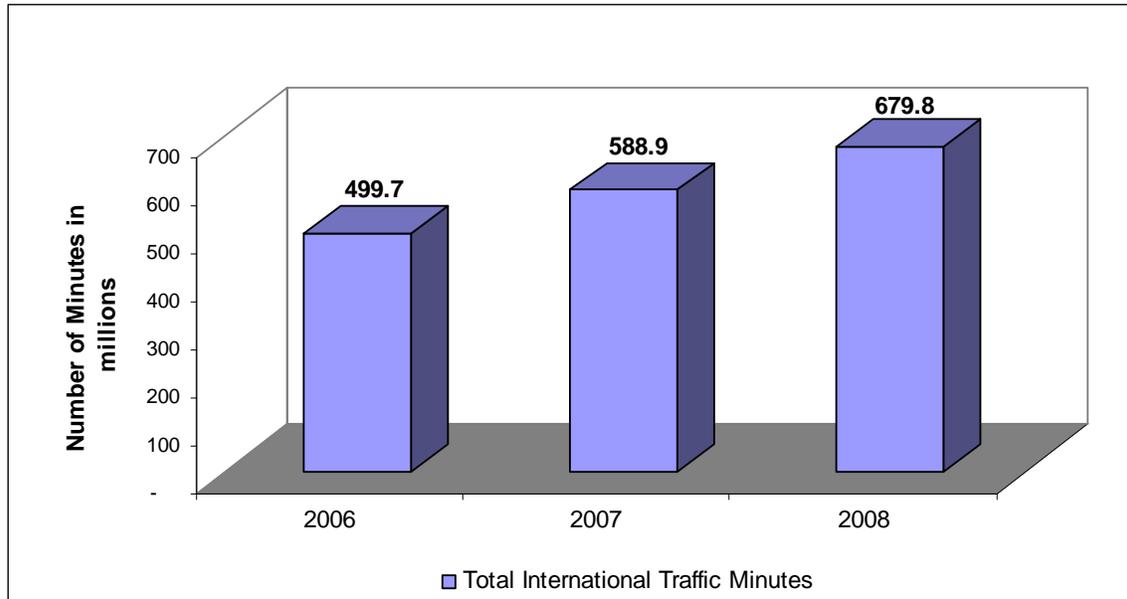
During 2008, eight (8) concessionaires were authorized to provide public international telecommunications services, which included the provision of international voice services. These operators included:

- Telecommunications Services of Trinidad and Tobago, TSTT (provision of traffic origination and termination services),
- Digicel Trinidad Limited (provision of traffic origination and termination services),
- Laqtel Limited (provision of traffic termination services),
- Open Telecom (provision of traffic origination services),
- 360 Degrees Communications (provision of traffic origination and termination services),
- Lisa Communications Limited (provision of traffic origination and termination services),
- Columbus Networks International Trinidad Limited (provision of traffic origination and termination services), and
- Windward Telecom Limited (provision of traffic termination services).

At the end of 2008, all the above concessionaires were operational.

4.1 International Voice Traffic Minutes

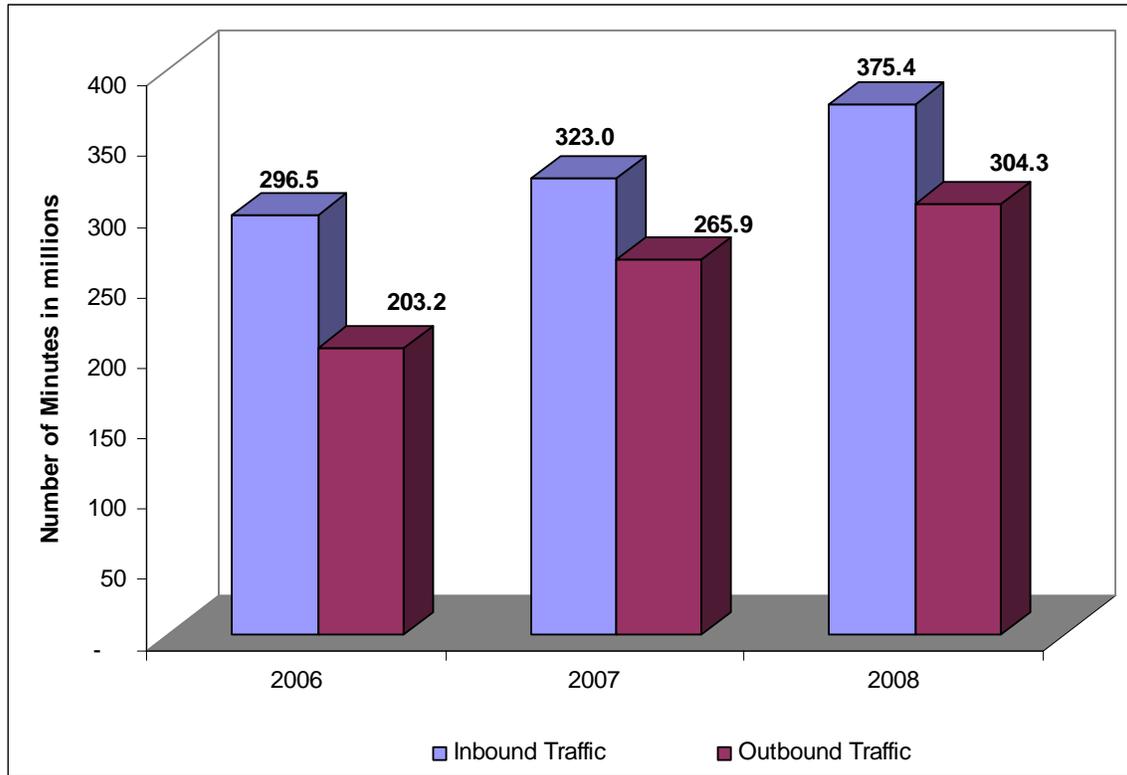
The traffic volumes for both incoming and outgoing international calls made via the fixed and mobile networks were recorded at approximately 680 million minutes, that is an increase of 15 per cent over 2007. The growth in minutes may be attributed to intense price competition among the sizeable number of operators in the international market. It may also be inferred that the price competition was contributed by a decrease in the international settlements rates paid by operators and an eventual increase in the demand of minutes by customers. As seen in the Figure 38, the visible growth in traffic volume has been the trend over the last three years.

Figure 38: International Traffic Minutes 2006 - 2008

Source: TATT

On a segmented scale, total outgoing traffic was estimated to be 304.3 million minutes, an increase of 38.4 million minutes or 14 per cent over the previous year. Similarly, total incoming traffic increased to 375.4 million minutes, a growth of 52.4 million minutes or a 16 per cent rise from 2007. 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. As mentioned in the previous section, the growth in traffic volume may be largely attributed to the fall in settlement rates during 2008.

In addition, when compared to 2007, the number of incoming minutes as a percentage of total international traffic minutes remained constant at 55 per cent. Figure 39 below shows the comparison of incoming and outgoing traffic over the period 2006 -2008.

Figure 39: International Incoming and Outgoing Traffic 2006-2008

Source: TATT

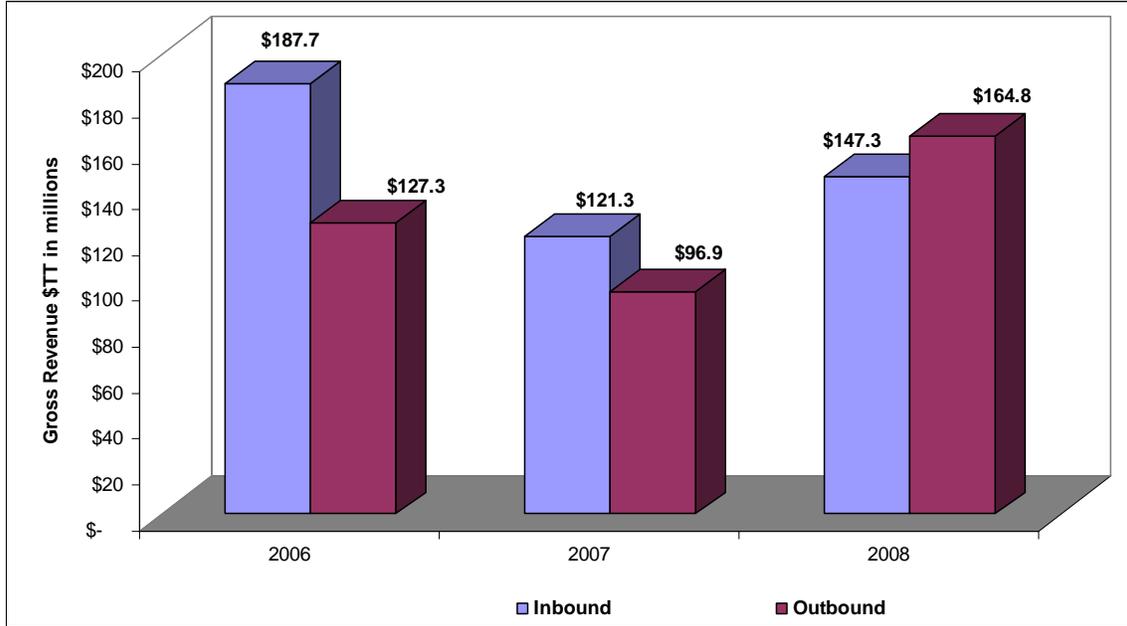
4.2 International Voice Traffic Revenues

Gross revenue²⁶ for outgoing international traffic for the year ending December 2008, was estimated at TT\$164.8 million, an increase of approximately TT\$68 million or 70 per cent over the previous year. It must be noted that even though outgoing gross revenues have increased by 70 per cent, this figure does not include out-payments to foreign telecommunication administrations for the termination of international calls. Similarly, the revenues obtained from incoming calls were TT\$147.3 million, an increase of TT\$26 million or 21 per cent over 2007. Given that incoming minutes have increased by 16 per cent, it may be inferred that the 21 per cent increase in incoming revenues was a direct result of the significant decrease in international settlement rates.

²⁶ Gross revenue refers 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 to terminate calls locally.

Figure 40 illustrates the revenue trends in international incoming and outgoing traffic for the period 2006 to 2008.

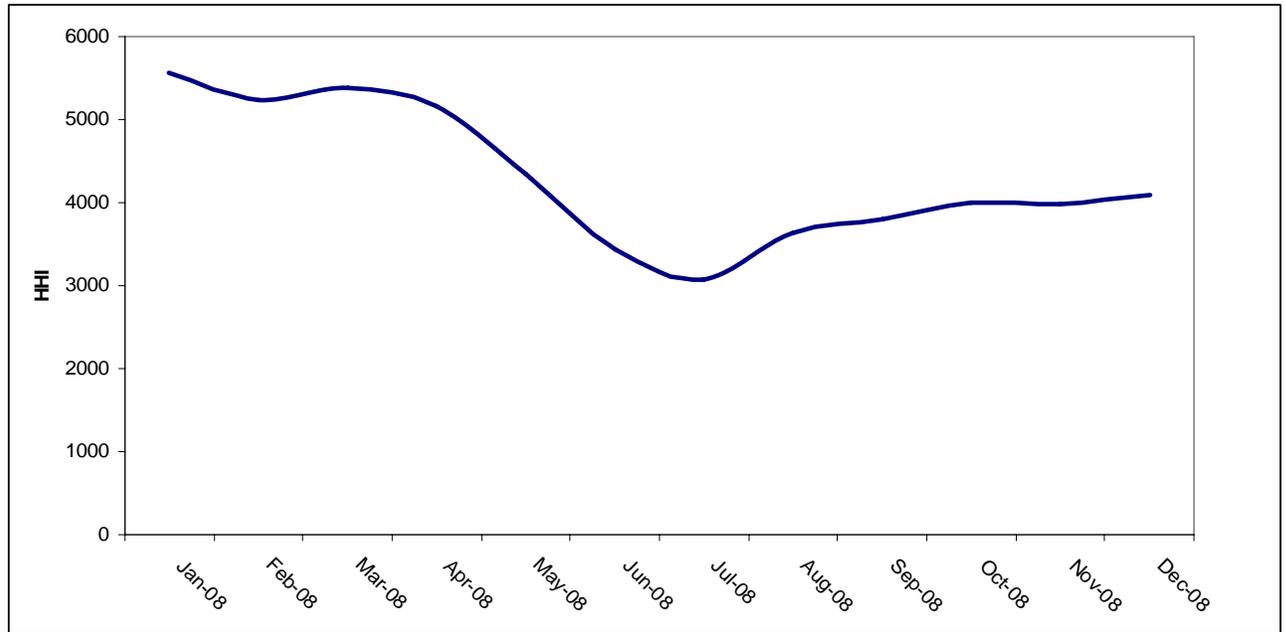
Figure 40: Gross Revenues from International Traffic Volume 2006- 2008



Source: TATT

4.3 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 2008. The market share used in the calculation of the HHI was defined in terms of number of international minutes generated by the service providers. The result reveals that there was a HHI of 4,093, that is the market is highly concentrated as well as contested.

Figure 41: Hirschman-Herfindahl Index of International Voice Market January–December 2008

Source: TATT

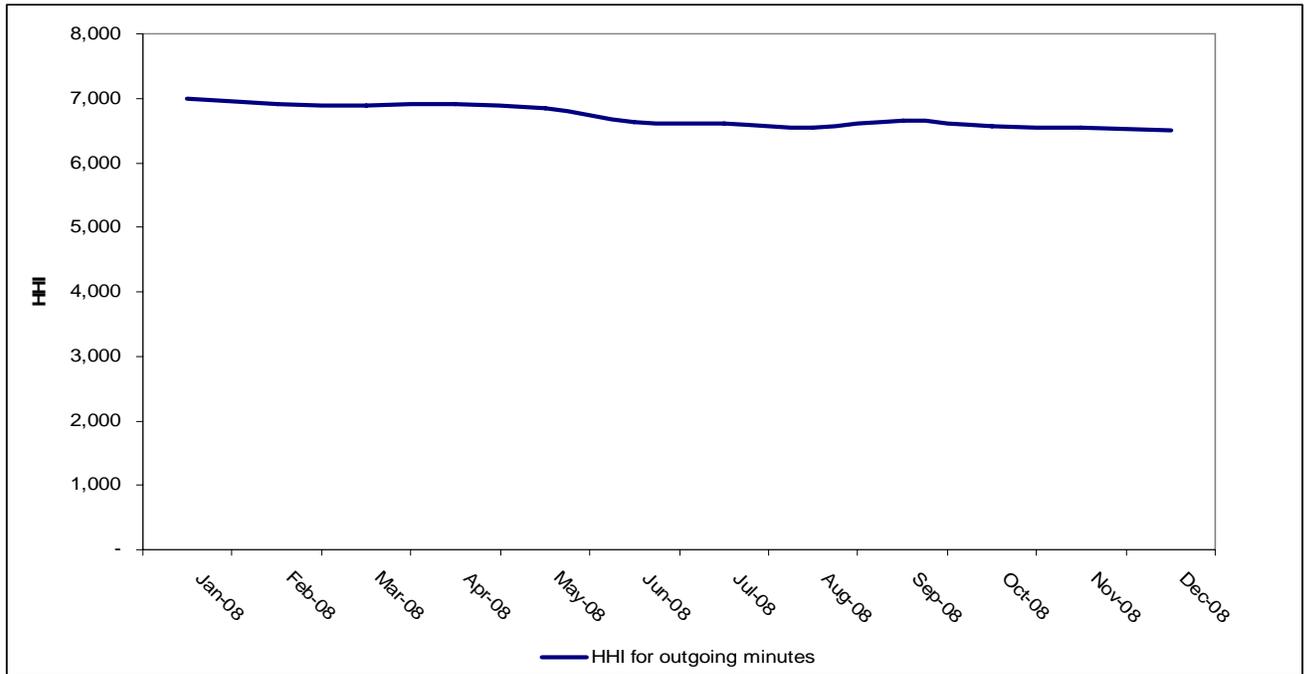
On looking at Figure 41, there was a steady decline in market concentration until July 2008, however for the remainder of the year the HHI increased as the international market became less competitive.

To further explain the level of competitiveness in the international market and recognizing that not all international service providers participated in both the outgoing and incoming markets, the HHI for outgoing traffic as well as for incoming traffic were examined on an individual scale in Figures 42 and 43.

It may be noted that while the HHI was fairly steady with a reading between 6500-7000 for outgoing traffic throughout 2008, the opposite occurred for incoming international traffic. The latter market showed an increase in competitiveness from 4633 to 2270. In particular during the months May to September, the HHI was the lowest primarily due to the significant reduction in international settlement rates for the termination of traffic in Trinidad and Tobago by a major international service provider.

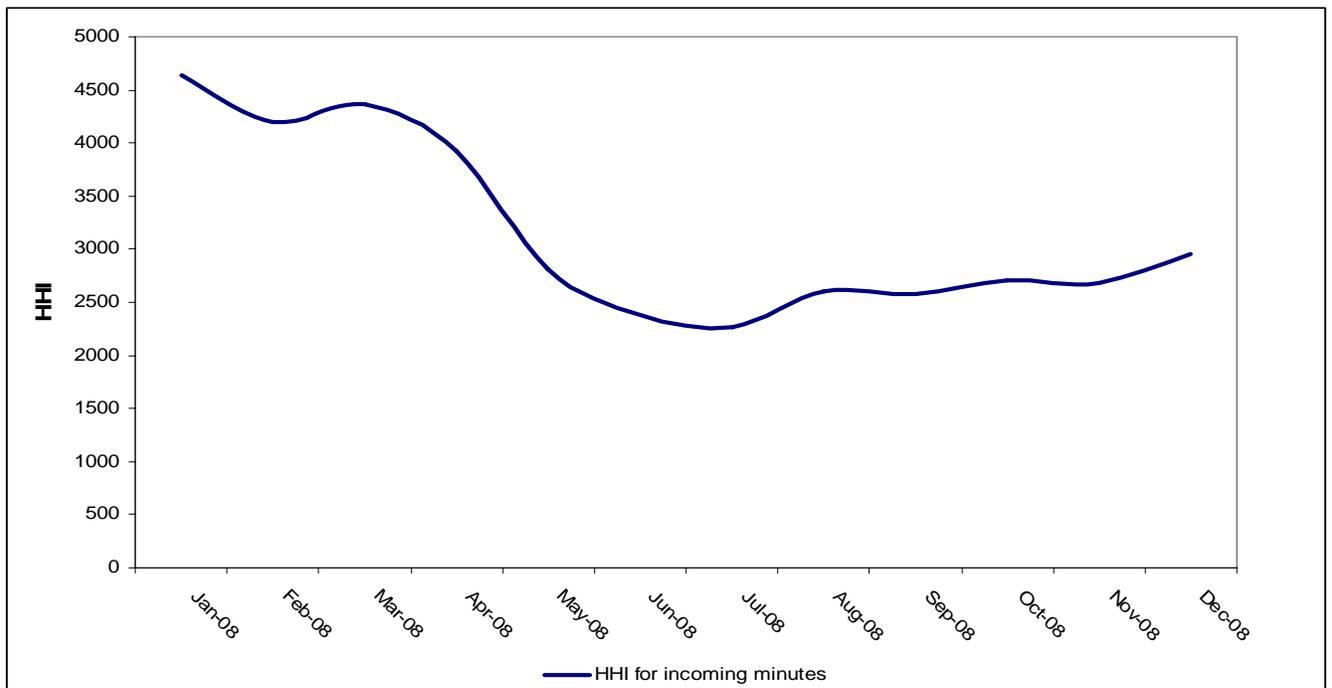
Therefore it may be concluded that while both markets are contested, there existed a higher level of competition in the incoming international traffic market.

Figure 42: Hirschman-Herfindahl Index of International Outgoing Minutes January–December 2008



Source: TATT

Figure 43: Hirschman-Herfindahl Index of International Incoming Minutes January–December 2008



Source: TATT

5. Internet Market Data

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

In 2008, there were seven operators authorized to provide fixed domestic telecommunications services which included the provision of Internet services to the public over wired facilities. 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

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)²⁷, and
- Digicel Trinidad Limited

From the eight concessionaires listed above, only four provided Internet services to the public in 2008. These were:

- Telecommunications Services of Trinidad and Tobago,
- Columbus Communications Trinidad Limited (CCTL),
- Green Dot Limited
- Digicel Trinidad Limited

²⁷ bmobile is the mobile services division of TSTT, therefore their Internet services are recorded as one concessionaire.

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

These are:

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

The Authority is in the process of reviewing the concession applications submitted by the above Internet operators consistent with the Authority's Authorisation Framework.

In addition, the Authority has started a process to authorize operators to provide Internet services over a fixed wireless domestic telecommunications network. In 2007, the Authority auctioned the lower 700 MHz, 12 GHz and 28 GHz bands to service providers for the delivery of public Broadband Wireless Access (BWA). Thus far, one concession has been awarded to Greendot while the concession for Telstar is currently under review. The liberalisation process continued in October 2008 with the commencement of the auction process for the Lower 700 MHz, 2.3GHz, and 2.5 GHz Bands also for the delivery of BWA services. It is expected the bidders who were successful in the auctions, TSTT, Digicel and Greendot will soon be authorised to provide fixed wireless Internet services to the public.

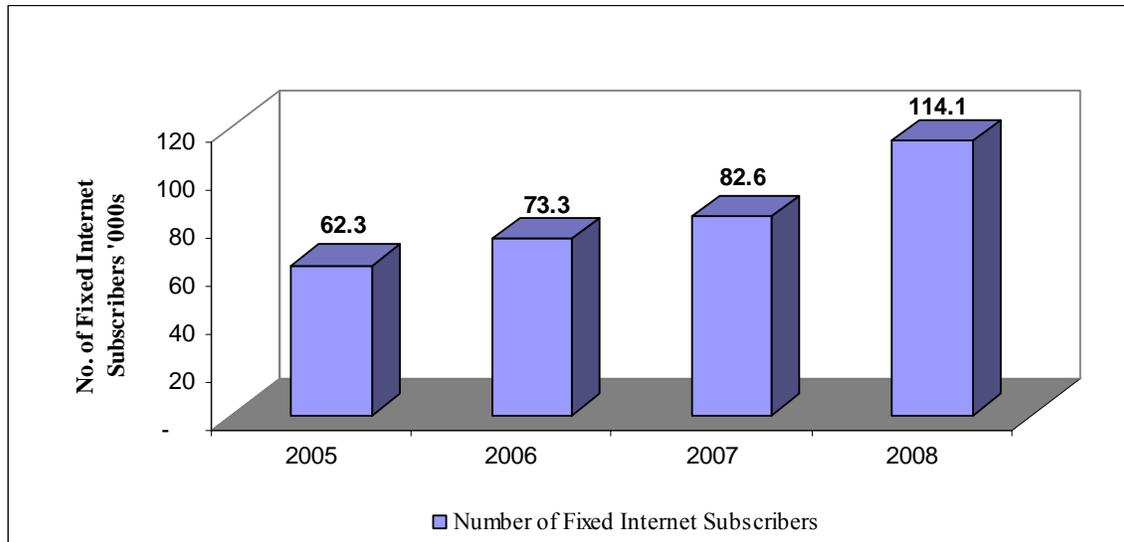
5.1 Internet Subscribers

Internet subscribers for 2008 comprised both fixed and mobile totalling an estimated 224 thousand subscribers. This represented a 48.4 thousand or 28 per cent increase in Internet subscribers over 2007. Each category of Internet subscribers is discussed below.

5.1.1 Fixed (Wired and Wireless) Internet Subscribers

As at December 2008, the total estimated number of fixed Internet subscribers was 114.1 thousand, an increase of approximately 31.4 thousand subscribers or 38 per cent over the previous year. The yearly trend of fixed Internet subscribers is shown in Figure 44.

Figure 44: Internet Subscribers 2005-2008



Source: TATT

Of the above total subscribers, broadband²⁸ Internet subscribers accounted for 85.4 thousand or 75 per cent of total fixed Internet subscribers while narrowband²⁹ Internet subscribers accounted for 28.6 thousand or 25 per cent. The Internet category subscribership is illustrated in Figure 45.

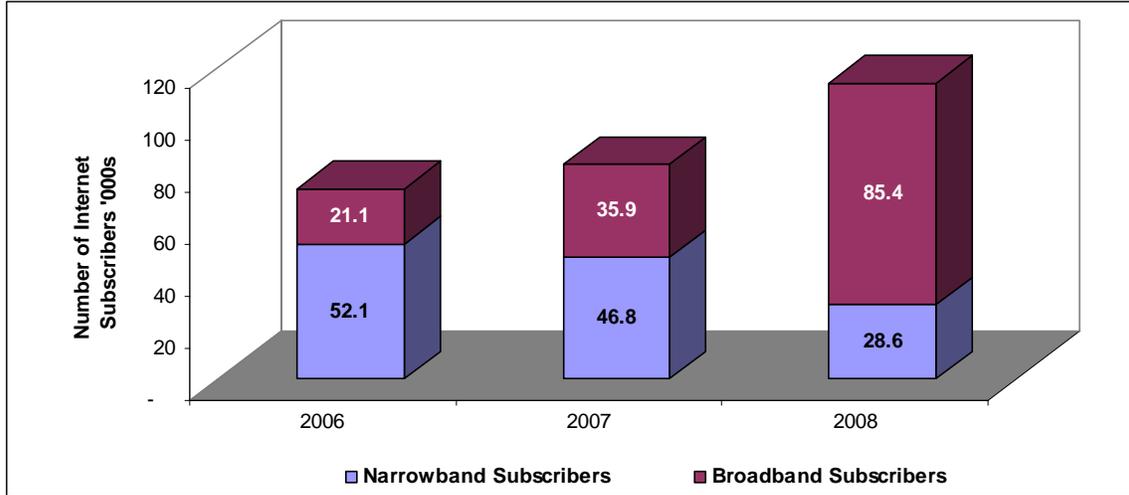
When compared to 2007, broadband subscribers increased by 138 per cent or an estimated 49.6 thousand subscribers. For the same time period, narrowband subscribers however decreased by 39 per cent or about 18.1 thousand subscribers. The increased uptake of broadband subscribers may be a direct result of increased competition in the market. With the introduction of FLOW's broadband services in 2007, existing operators have been compelled to upgrade their services such that customers can now enjoy faster broadband speeds at the same price that was previously offered for narrowband services. This heightened competition has contributed to the strong growth of subscribership in the

²⁸ Broadband can be defined as speeds > 256 kbits/s

²⁹ Narrowband can be defined as speeds ≤ 256 kbits/s

market. In addition, the falling level of subscribership in the narrowband market may be directly attributed to customers switching over from narrowband to broadband packages due to the comparability of prices.

Figure 45: Narrowband and Broadband Subscribers 2006- 2008

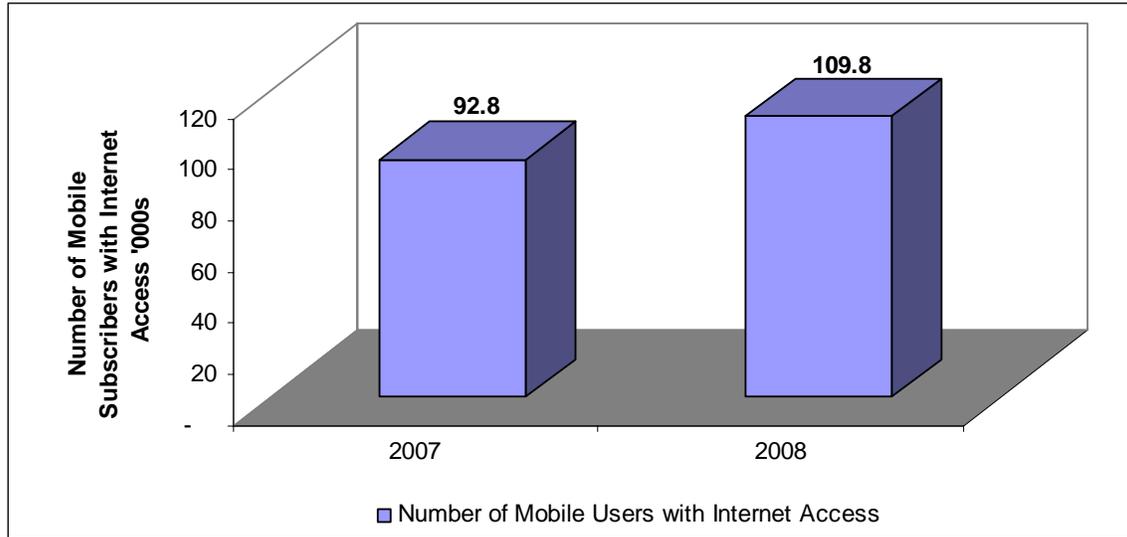


Source: TATT

On a disaggregated scale, number of subscribers can be further divided into residential and business categories. In 2008 the number of residential broadband subscribers amounted to approximately 73.5 thousand, while business broadband subscribers measured slightly above 6.2 thousand.

5.1.2 Mobile Internet Subscribers

For 2008, mobile subscribers with Internet Access totalled about 109.8 thousand, an 18 per cent increase from 2007. This means that 6 per cent of the mobile population can access Internet using their phones. Figure 46 compares mobile Internet subscribership between 2007 and 2008.

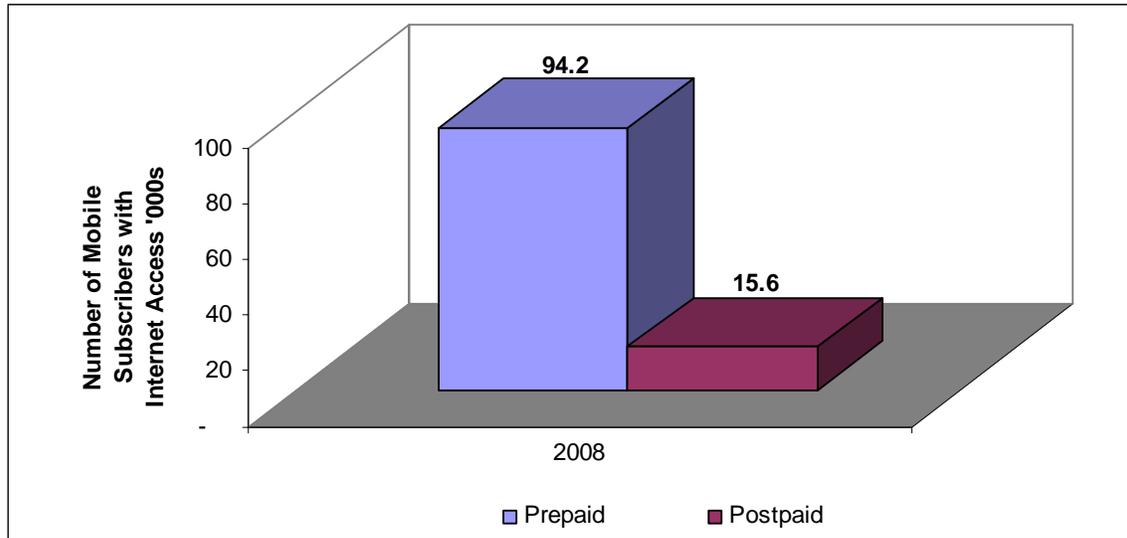
Figure 46: Number of Mobile Internet Subscribers 2007-2008

Source: TATT

This particular category of Internet users can be divided into postpaid mobile Internet subscribers and prepaid mobile Internet subscribers. Postpaid customers are provided with monthly Internet airtime and are billed accordingly. These persons 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 a mobile Internet subscriber 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.

As shown in Figure 47, 94.2 thousand were estimated as prepaid mobile Internet subscribers, that is a 15 per cent increase from 2007, while 15.6 thousand were counted as postpaid mobile Internet subscribers, a 46 per cent growth from last period. Contributing to the rise in mobile Internet subscribers may be the availability of more affordable mobile Internet packages to customers as well as of the fact that ‘smart’ phones are more easily available and affordable in the market.

Figure 47: Number of prepaid and postpaid mobile subscribers with Internet Access for 2008



5.2 Total Internet Revenues

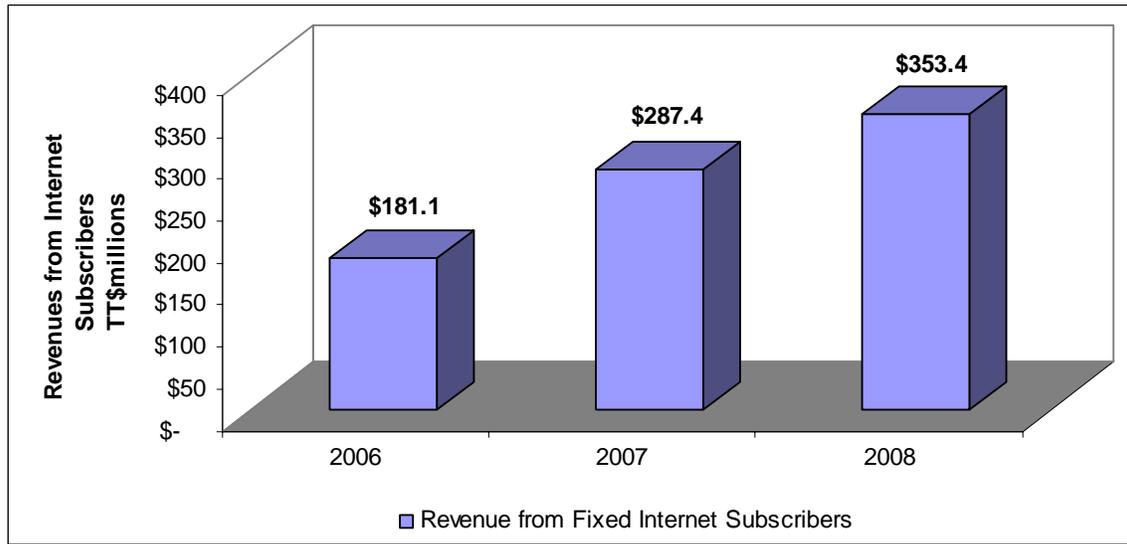
Total Internet revenues earned from fixed and mobile Internet services totalled TT\$394.9 million. This represents an increase of TT\$86.6 million or 28 percent when compared to 2007. Each category of Internet revenues is discussed below.

5.2.1 Fixed Internet Revenues

As at December 2008, the total estimated gross revenues for the fixed Internet market stood at TT\$353.3 million, an increase of TT\$66 million or 23 per cent over the figures reported in 2007. Of this amount, narrowband Internet accounted for TT \$83.7 million or 24 per cent of total fixed Internet revenues while broadband Internet accounted for \$269.7 million or 76 per cent of total fixed Internet revenues. Figures 48 and 49 highlight the annual trends.

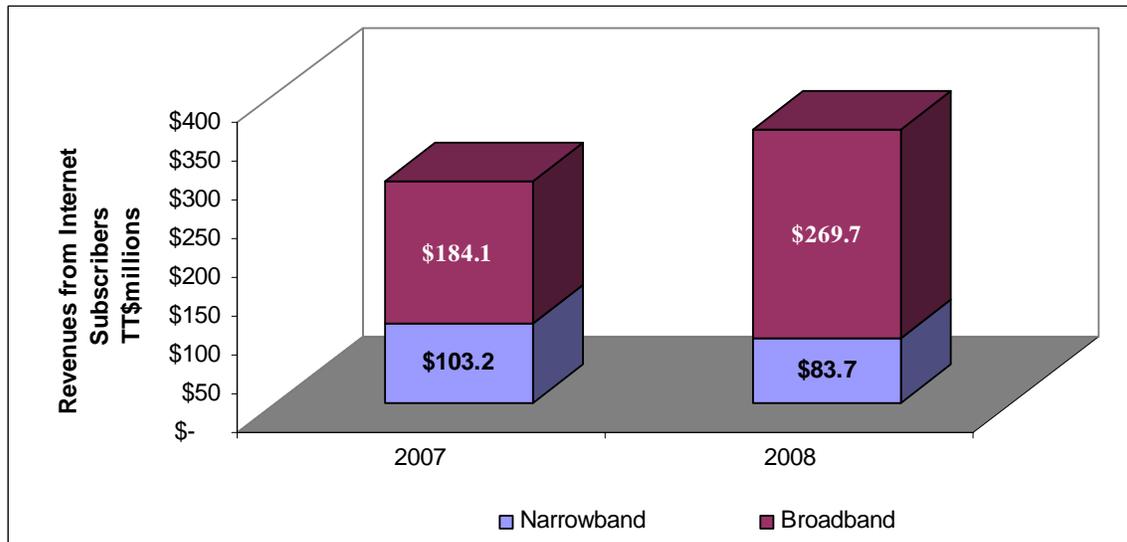
When compared to 2007, narrowband revenues declined by TT\$19.5 million or 19 per cent while broadband revenues increased by TT\$85.5 million or 46 per cent. This is consistent with the trends in narrowband and broadband subscribers for 2008 mentioned in Section 5.1.

Figure 48: Total Internet Revenues 2006-2008



Source: TATT

Figure 49: Revenues from Narrowband and Broadband subscribers 2007 - 2008



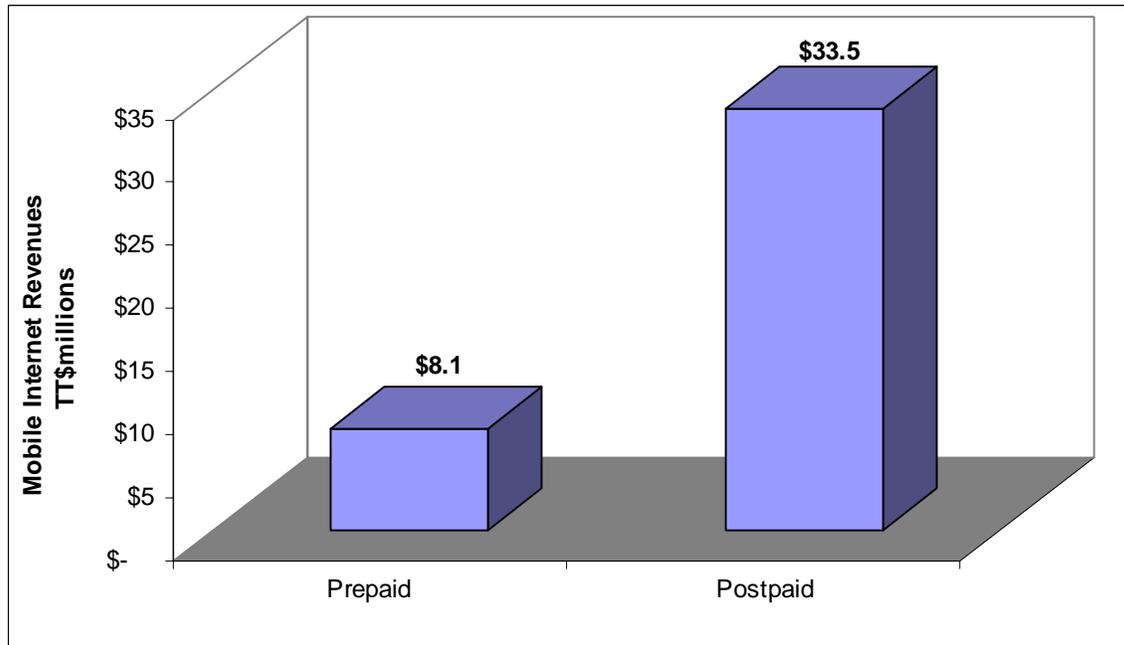
Source: TATT

On a granular scale, revenues received from residential broadband subscribers measured TT\$94.4 million, whilst revenues from business broadband subscribers totalled TT\$107.3 million.

5.2.2 Mobile Internet Revenues

Total gross revenues for the mobile Internet market were estimated at TT\$41.5 million with prepaid contributing TT\$8.1 million and postpaid accounting for TT\$33.5 million. Figure 50 illustrates the separation of the revenues into prepaid and postpaid for 2008.

Figure 50: Revenues from Prepaid and Postpaid Mobile Internet Subscribers 2008



Source: TATT

5.3 Internet Penetration

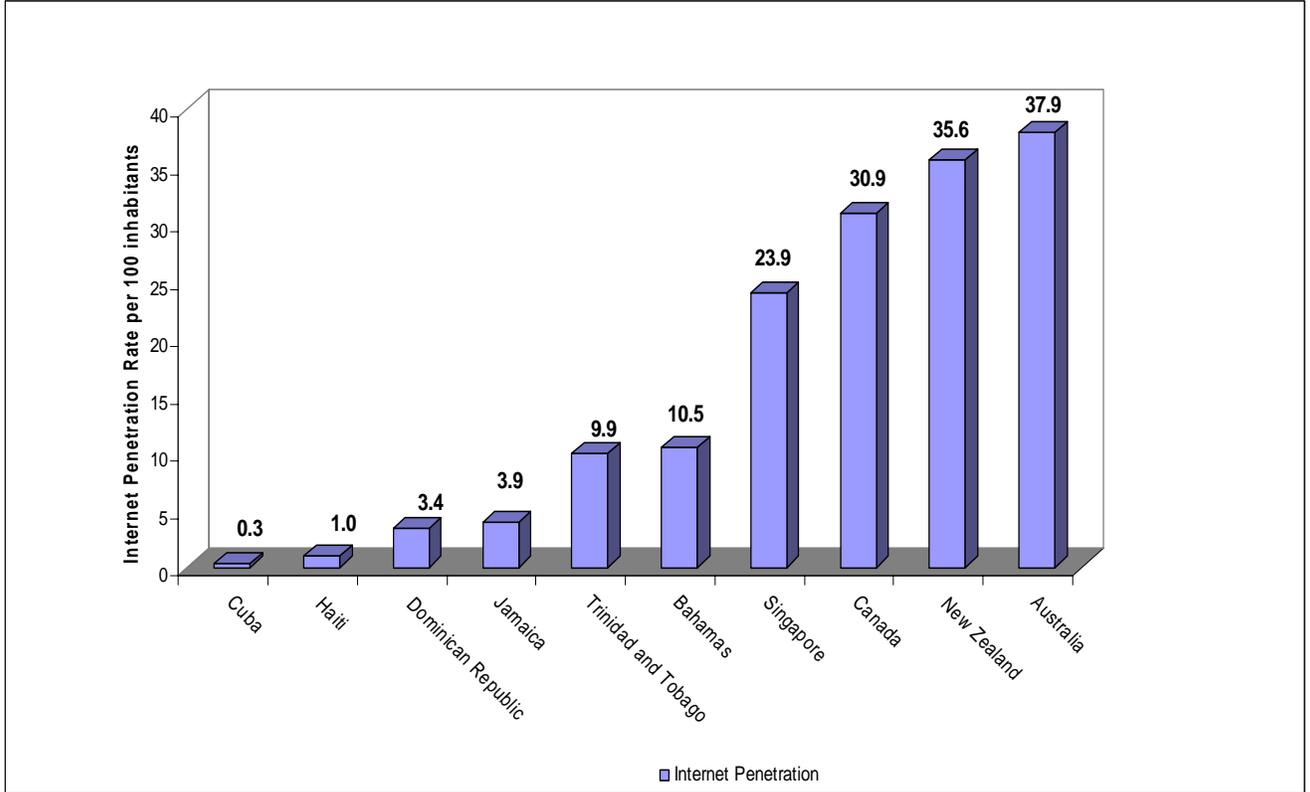
For 2008, Trinidad and Tobago recorded a fixed Internet penetration³⁰ of 8.72 while mobile Internet penetration³¹ measured 1.19. Combined, a total Internet subscriber

³⁰ Fixed Internet penetration is calculated: (total number of Fixed Internet Subscribers / Total Population number) * 100

³¹ Mobile Internet penetration is calculated: (total number of Postpaid Mobile Internet Subscribers / Total Population number) * 100. It must be noted that mobile Internet penetration is calculated using only postpaid mobile subscribers as these persons are considered ‘true’ mobile Internet subscribers. Reference can be made to section 5.1.2.

penetration rate³² of 9.9 was achieved, an increase of 3.7 from 2007. This means that approximately 10 out of every 100 persons in Trinidad and Tobago is an Internet subscriber. The increase in the penetration rate is consistent with the growth in the number of Internet subscribers for the period under review. Figure 51 ranks Trinidad and Tobago sixth among the countries listed.

Figure 51: Internet Subscriber Penetration per 100 Inhabitants for Selected Countries 2008



Source: International Telecommunications Union and TATT

5.3.1 Internet User Penetration

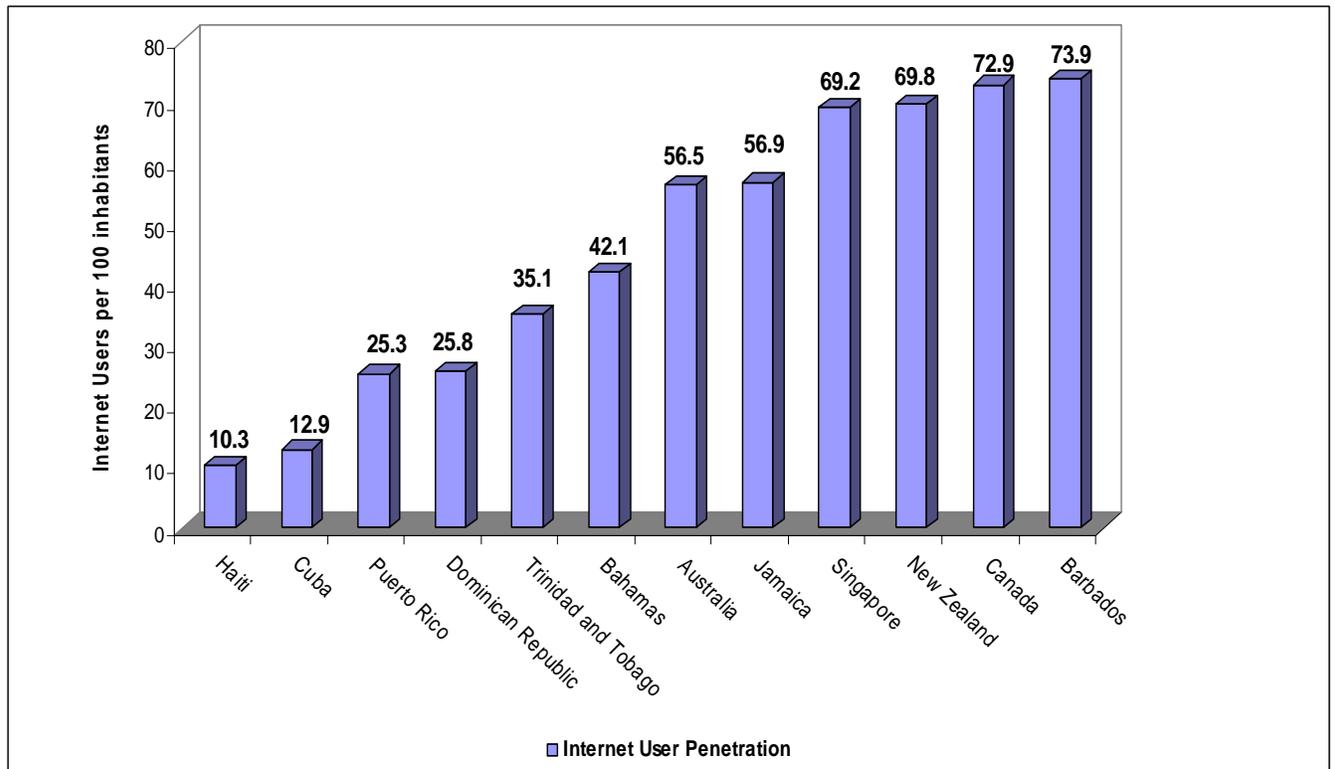
Another useful indicator to measure Internet penetration is the number of Internet users per 100 inhabitants. In 2007, the Authority conducted a Digital Divide survey³³ which showed that approximately 33 out of every 100 persons (approximately 429, 000 persons) in Trinidad and Tobago regularly used the Internet.. The Authority based its estimate for

³² Internet Subscriber penetration Rate is calculated: (total number of Internet Subscribers / Total Population number) * 100

³³ The complete Digital Divide Report 2007 can be found on the Authority’s website: www.tatt.org.tt

the number of Internet users in 2008 on the number of Internet subscribers for the year multiplied by the estimated number of persons residing within a household³⁴. This approximates to 456,000 Internet users or 35.1 out of every 100 persons. Out of the countries highlighted in Figure 52, Trinidad and Tobago placed eighth, while Barbados topped the list with a score of 73.9. However, the Authority is investigating the extent to which there is consistency in the methodology used to estimate ‘Internet User’ figures by other countries reporting to the ITU.

Figure 52: Number of Internet Users per 100 Inhabitants for Selected Countries 2008



Source: International Telecommunications Union, TATT

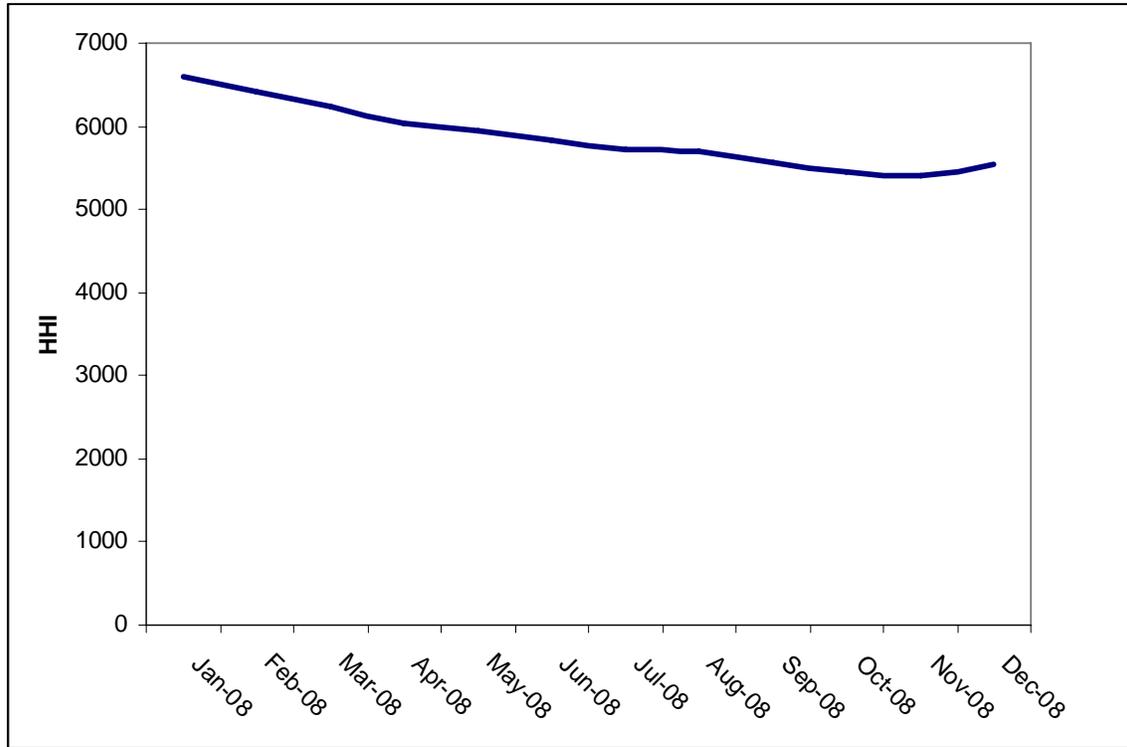
5.4 Internet Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the fixed Internet market³⁵ of Trinidad and Tobago for the year ending December 2008. The result reveals that there was a HHI of 5,534.

³⁴ The Central Statistical Office has estimated an average of four (4) persons residing within a household.

³⁵ Subscriber market share was used in the calculation of the HHI.

Figure 53: Hirschman-Herfindahl Index of Internet Market January–December 2008



Source: TATT

On looking at Figure 53, there was a steady decline in market concentration throughout the 2008 period. This may be a direct result of competitive marketing promotions pursued by the larger players as a result of new entrants in the Internet market since 2007. As mentioned previously, most of the strategies used by service providers included lowering the price of Internet services, especially broadband services and increasing the speeds available to customers.

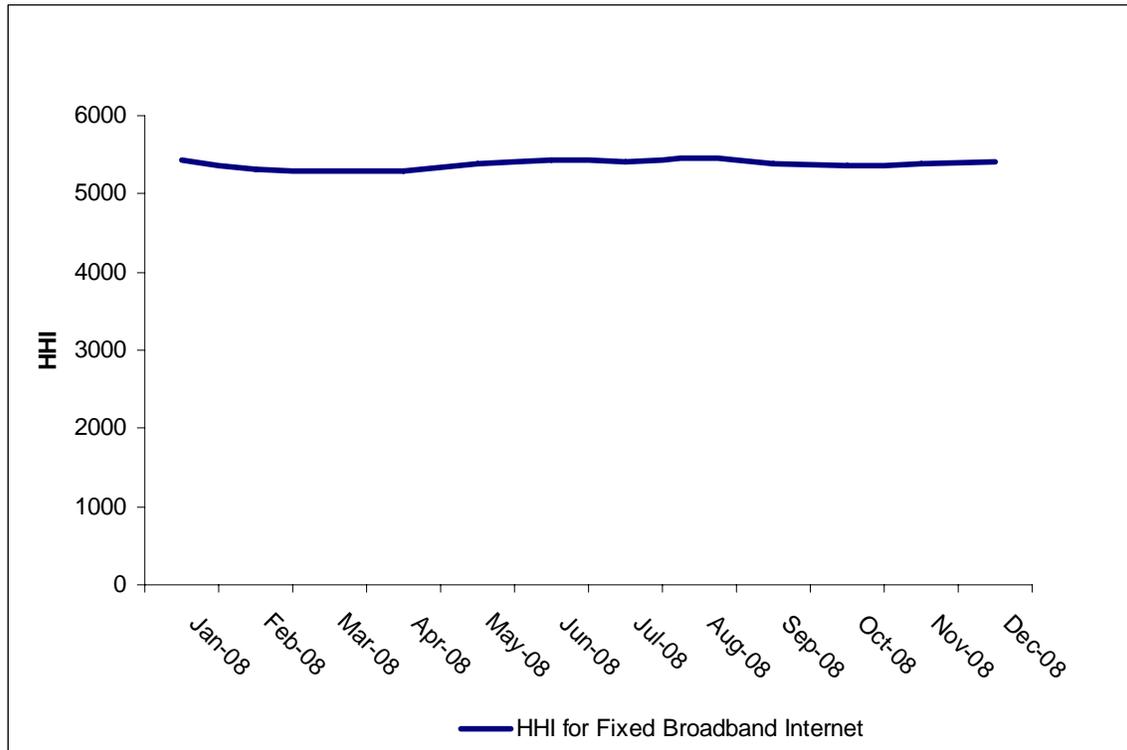
However it must be noted that even though there are a number of Internet providers in the market, the HHI of 5,534 indicated that the market is still contested and there may be the possibility of dominant players.

5.4.1 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 5,410 for the year ended 2008. Figure 54 below depicts the HHI results which seem to be relatively consistent throughout the year.

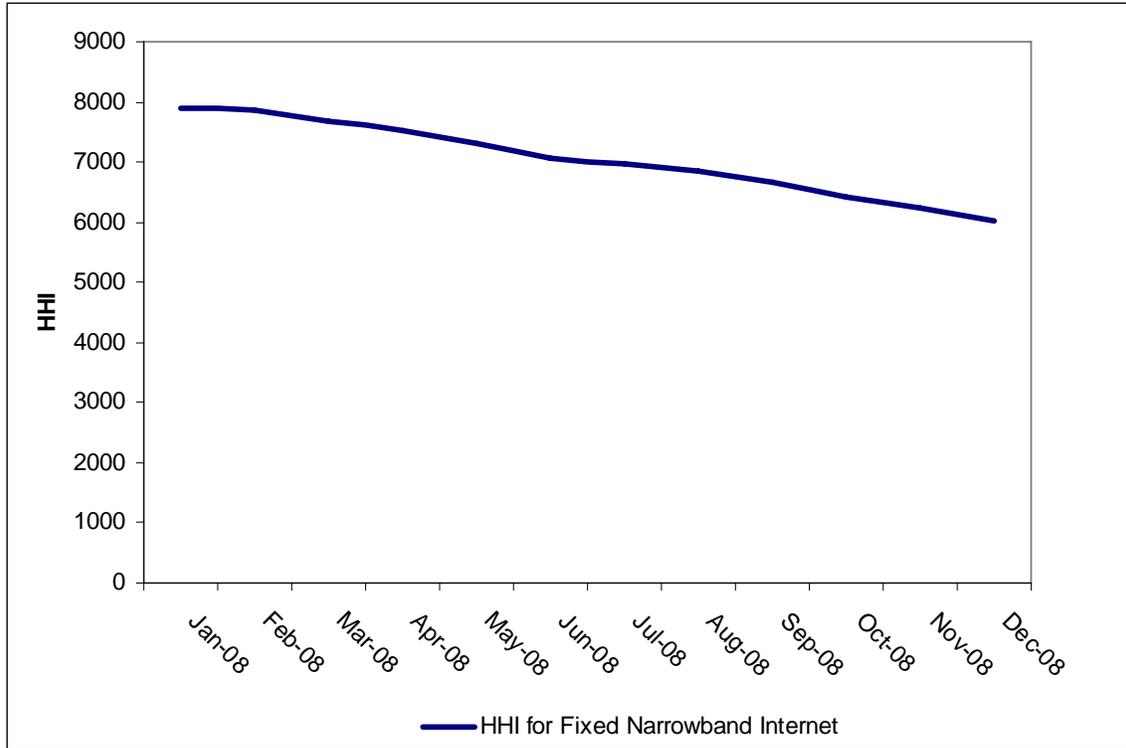
Figure 54: 2008 HHI for Fixed Broadband Services



Source: TATT

Conversely, narrowband services recorded an HHI of 6,030 for the same period. While the HHI has been decreasing throughout the year, the market continues to be contested with limited competition. Figure 55 illustrates the narrowband HHI trends throughout 2008.

Figure 55: 2008 HHI for Fixed Narrowband Services



Source: TATT

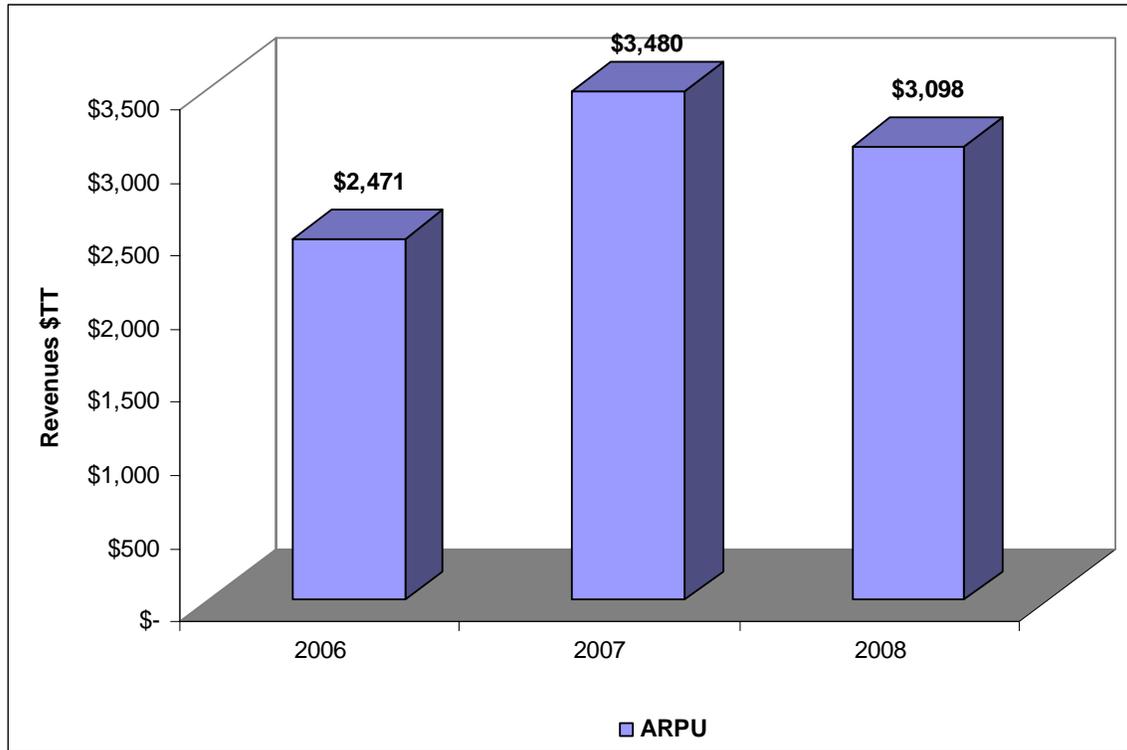
On comparing the two graphs, it is evident that the broadband market is slightly more competitive than the narrowband market. One reason for this may be that there is a higher demand for broadband services as the prices of broadband packages have been drastically falling and are almost comparable to the prices of narrowband packages.

5.5 Average Revenue per User³⁶

During 2008, subscribers spent an average of TT\$3,098 for Internet services. This represents a decrease of TT\$380 or 11 per cent in the average revenue per user (ARPU) over the amount recorded for 2007. This decrease may have been a result of the falling prices charged by the service providers for broadband services between 2007 and 2008. Figure 56 shows the ARPU trends over the last three periods.

³⁶ ARPU measures the revenue generated by one subscriber. It is calculated = (Total revenues for fixed Internet subscribers / Total number of fixed Internet subscribers)

Figure 56: ARPU for Internet Services 2006-2008



Source: TATT

6. Broadcasting Market Data

The broadcasting market in Trinidad and Tobago has continued to show considerable growth during the 2008 period.

As at December 2008, concessions had been granted to 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. Table 4 below gives a breakdown of the number of concessions granted within the broadcasting market between 2007 and 2008.

Table 4: Broadcasting Market Concessions 2007/2008

Types of Broadcasting Concessions	2007	2008	Number of New Broadcasting Concessions Granted
Free to Air Television	6	9	3
National	4	6	2
Major Territorial	2	3	1
Subscription Television	7	8	1
National	3	4	1
Major Territorial	1	1	0
Niche	2	2	0
Minor Territorial	1	1	0
TV Broadcasting via Cable³⁷	1	1	0
National	1	1	0
Free to Air Radio	38	38	0
National	31	31	0
Major Territorial	6	6	0
Minor Territorial	1	1	0
Total	52	56	8

Source: TATT

6.1 Free-to-Air Television Broadcasting Market

In 2008, the market for free-to-air TV broadcasting service comprised eight (8) operational concessionaires. They were:

³⁷ Data has not been acquired for this concessionaire.

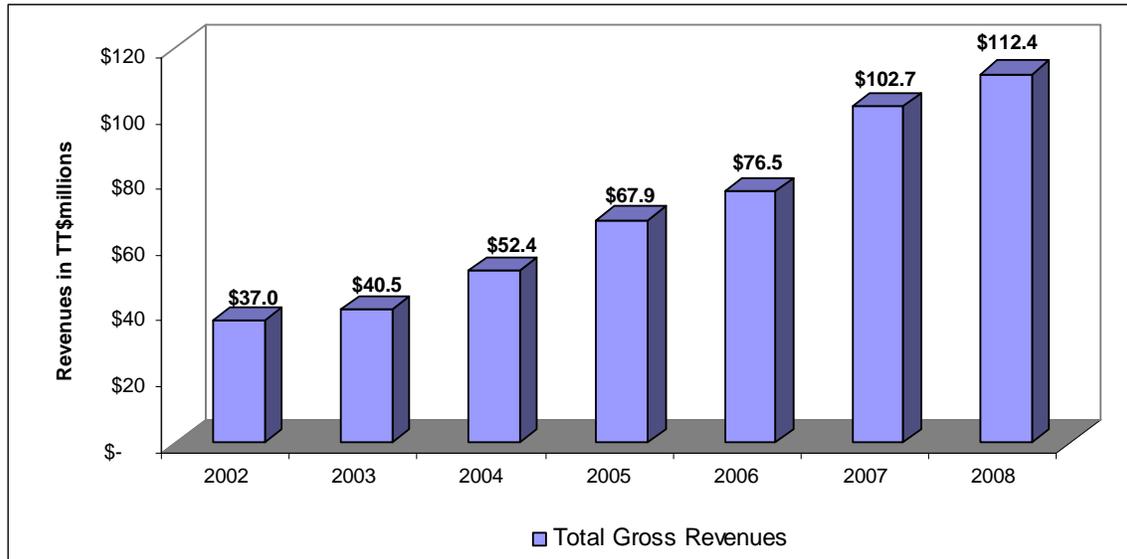
- Advance Community Television Network Limited (ACTN),
- Caribbean Communications Network Limited (TV6),
- Gayelle Limited,
- Caribbean New Media Group (CNMG),
- Trinidad Publishing Company Limited
- Parliament of the Republic of Trinidad and Tobago
- World Indian Network Television Limited (WINTV),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

For the period under review, Synergy Entertainment Network Limited had not yet launched their free to air television services.

6.1.1 Free to Air Television Revenues

Over the last seven years gross revenues for the free-to-air television broadcasting market have been steadily increasing, however between 2007 and 2008, gross revenues have increased at a decreasing rate. In 2007, total estimated gross revenues for this market stood at TT\$102.7 million, an increase of 34.3 per cent over the previous year, however in 2008 gross revenues stood at TT\$112.4 million, a 9 per cent increase over the previous year. This decrease in growth may have resulted from the reduction in advertising revenues generated by the television broadcasters due to the impacts of the economic downturn for the period. Figure 57 shows the trends in revenues for the free-to-air television broadcasting market since 2002.

Figure 57: Gross Revenues for Free-to-Air Television Broadcasting Service Providers 2002-2008

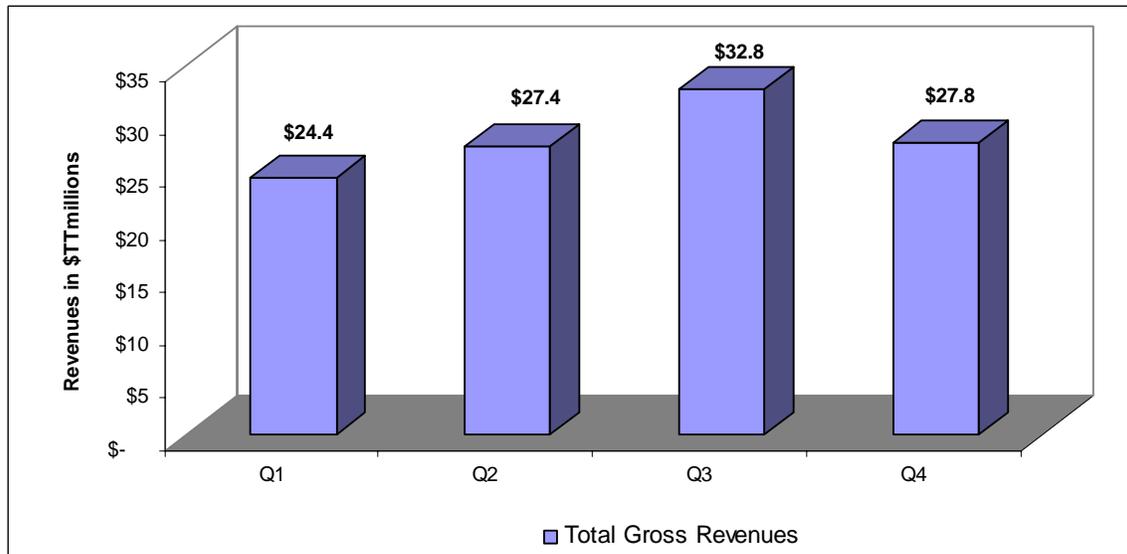


Source: TATT

On a quarterly basis, revenues continued to steadily increase for the first three quarters, however in the last quarter revenues declined by approximately TT\$5 million, evidence of the impact of the economic downturn as the demand for advertising minutes by customers declined.

Quarterly revenue trends for 2008 are shown in Figure 58.

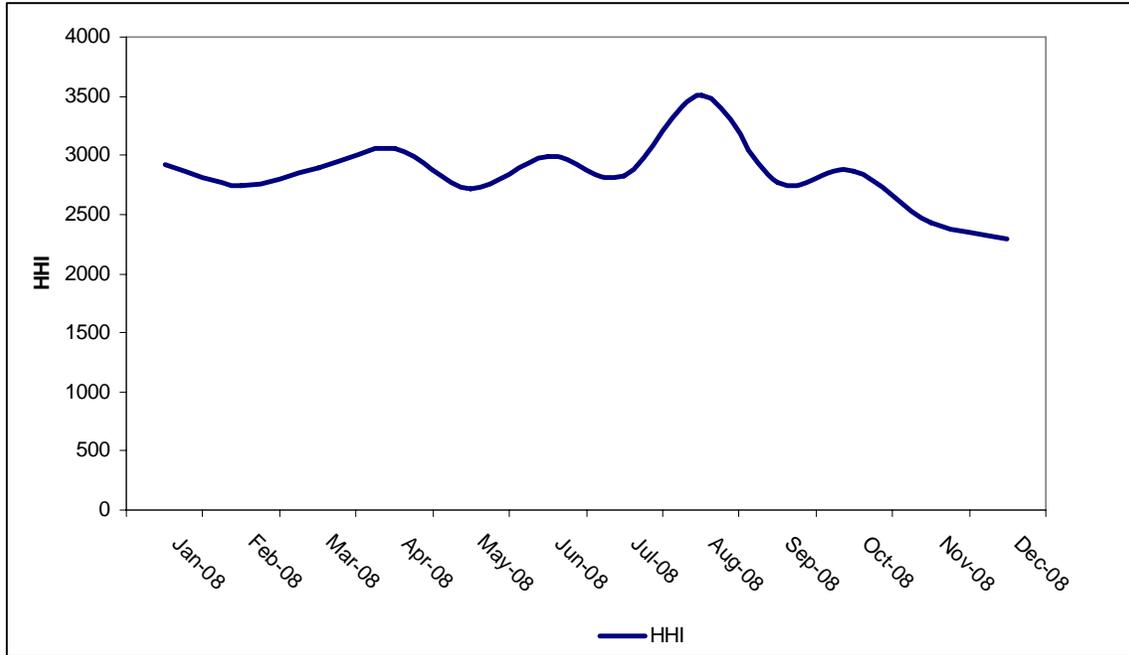
Figure 58: Quarterly Gross Revenues for Free-to-Air Television Broadcasting Service Providers 2008



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 market³⁸ for the year ending December 2008. The result reveals that there was a HHI of 2292.

Figure 59: HHI for Free to Air Television Broadcasting Market 2008



As shown in Figure 59, the market can be labelled as highly concentrated as well as contested. However there has been a decrease in the HHI during the latter period of the year as revenues generated in the market started to decline.

6.2 Free-to-Air Radio Broadcasting Market

In 2008, the free-to-air radio broadcasting market consisted of one (1) AM and thirty seven (37) FM concessions of which there were 36 radio stations operational. Although this number is relatively large, it must be noted that some concessionaires within this market operate more than one radio station.

³⁸ The revenue market share was used in the calculation of the HHI

During 2008, free-to-air radio broadcasting market earned an estimated TT\$ 152 million in gross revenues. This represents a 4 per cent, or TT\$6.3 million increase over the previous year. Figure 60 shows a comparison of gross revenues between 2007 and 2008.

Figure 60: Gross Revenues for Free-to-Air Radio Broadcasting Service Providers 2007-2008

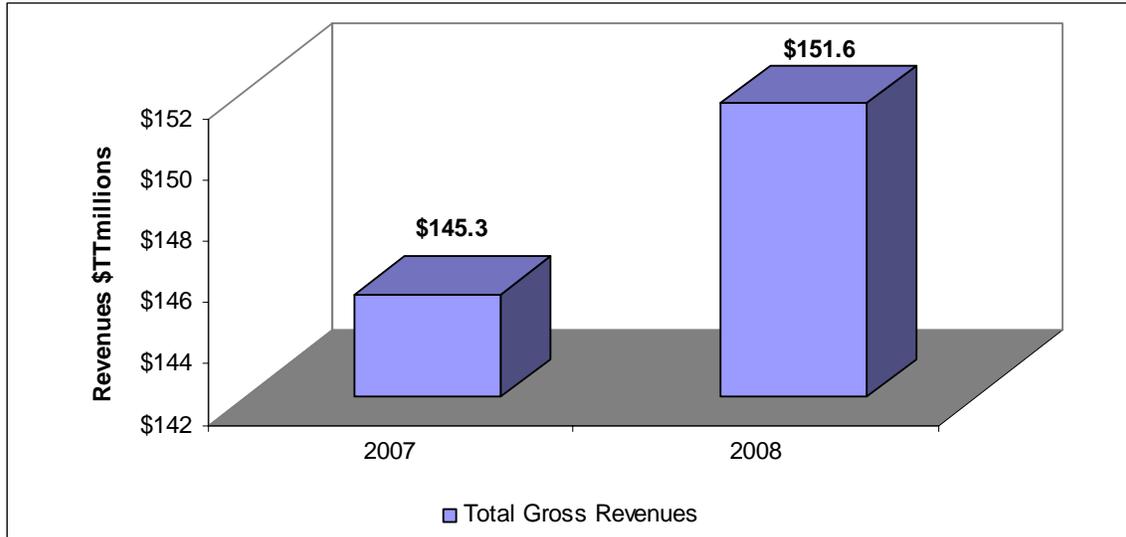
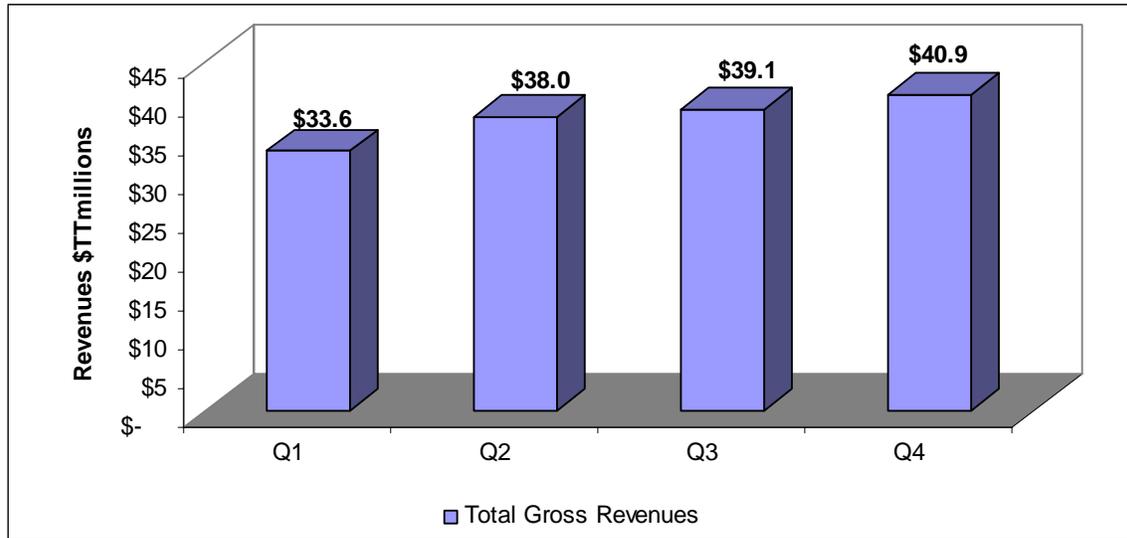


Figure 61 highlights fluctuating increases in gross revenues per quarter during 2008. During the first quarter gross revenues increased by 13.2 percent, while in the last two quarters revenues increased by 2.8 and 4.7 per cent respectively. Contrary to the declining quarterly gross revenues trends reported under Figure 58 of the free-to-air television section, gross revenues for radio broadcasters are increasing but at a slow rate. This may be as a result of the effects of the economic downturn as advertising clients are reducing their budgets by switching their advertising medium from television to radio.

Figure 61: Quarterly Gross Revenues for Free-to-Air Radio Broadcasting Service Providers 2008



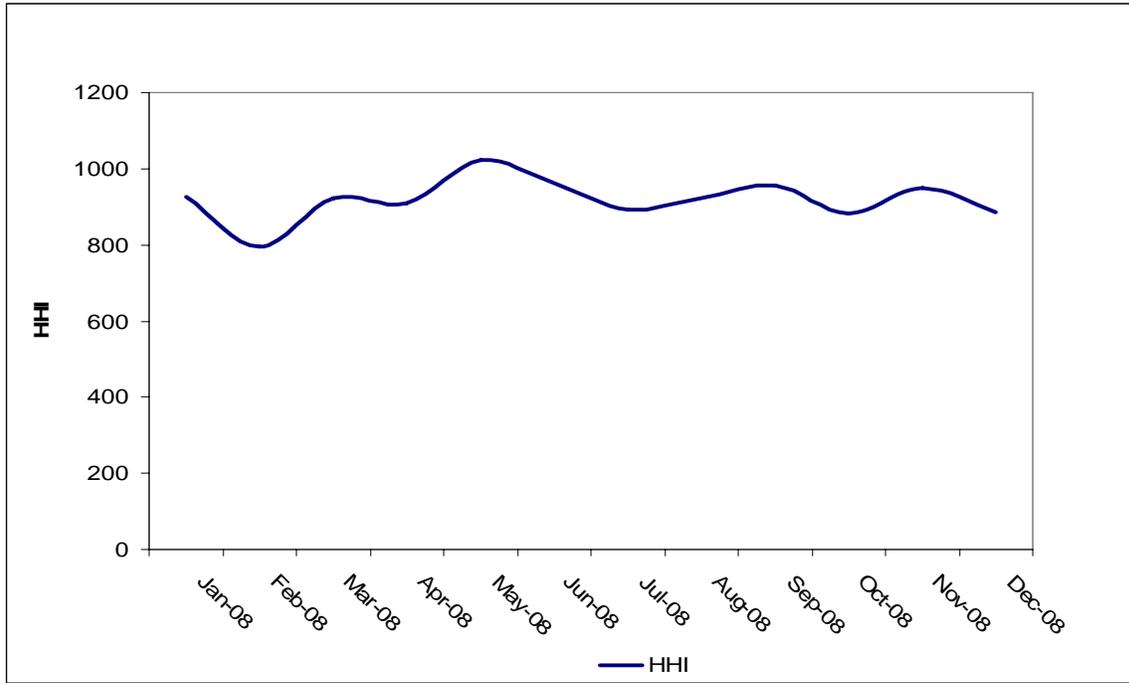
Source: TATT

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 market³⁹ for the year ending December 2008. The result reveals that there was a HHI of 886.

³⁹ The revenue market share was used in the calculation of the HHI

Figure 62: HHI Free to Air Radio Broadcasting Market 2008



Source: TATT

As seen in Figure 62, the market can be labelled as unconcentrated such that there is a high level of competition due to the number of broadcasters in the market.

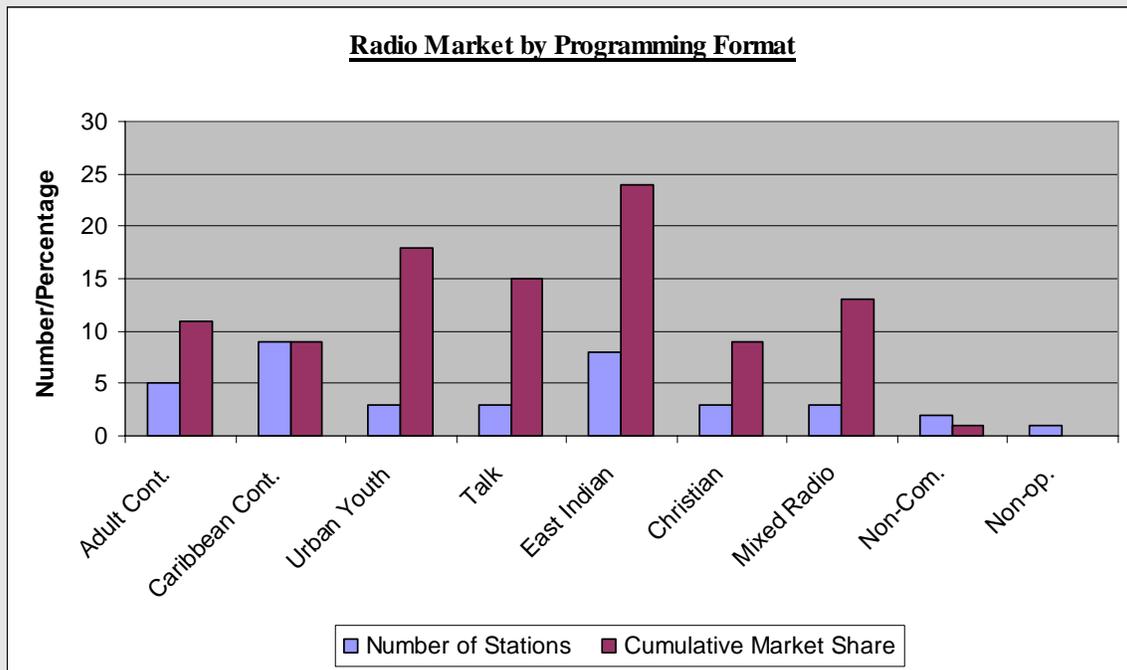
Box 1: Analysis of Programming Formats in the Radio Market

As previously discussed in this Market Report, the domestic Free-to-Air FM Radio Broadcasting Market is currently characterised by a high degree of saturation and competition, with a total of thirty-seven (37) concessions to provide broadcasting services being held by thirty-one (31) different concessionaires. These radio broadcasters may be categorized according to their respective programming formats as follows:

Adult Contemporary	Programming caters to the tastes of the adult demographic. The format often ‘Easy Listening’ is subsumed here. Content may include Jazz, Soft Rock, Pop and vintage music.
Caribbean Contemporary	Programming is mainly comprised of indigenous Caribbean music (calypso, soca, steelpan). This group includes stations which primarily play local (Trinidadian origin) music.
Urban Youth	Programming is aimed at the youth demographic, where format is mainly urban contemporary music (Hip-hop, Dancehall, R&B, Reggae)
Talk	Programming is mainly comprised of talk. Content may include political commentaries, current event discussions, news and sports. Format may or may not include some amount of music.
East Indian	Programming content may include inspirational Hindu content, and both Classical and Contemporary Indian music, and is primarily aimed at the East Indian demographic.
Christian	Programming is mainly aimed at the Christian demographic. Content may include inspirational Christian content, and primarily, but not strictly Gospel music.
Mixed Radio	Programming is a mixture of various formats and genres of music. There is no explicit target demographic.

Non-Commercial	Station operates on a non-commercial basis, and is not funded by advertising revenues. Content may primarily serve an educational, social or democratic role.
Non-operational	Stations which have concessions to provide broadcasting services, but were non-operational during January-December 2008.

The following chart shows the number of radio broadcasters, as well as the cumulative market share (listenership) in each defined programming format.



Source: TATT

‘Caribbean Contemporary’ and ‘East Indian’ are the most saturated programming formats, with a total of nine (9) and eight (8) stations respectively. The ‘Urban Youth’ group of stations commands the second greatest cumulative market share amongst the groups, being second to the ‘East Indian’. However, it should be noted that the content within these groups is not mutually exclusive, as stations within the ‘Urban Youth’ group are likely to broadcast content that fits into the ‘Caribbean Contemporary’ format, and vice-versa. Out of the set of operational broadcasters, the non-commercial stations are the smallest group, both in terms of number of stations and cumulative market share.

6.3 Subscription Television Broadcasting Market

In 2008, the broadcasting sector consisted of eight concessionaires authorised to provide subscription television broadcasting services. Of these eight concessionaires, six were operational and included:

1. National (100% coverage of Trinidad and Tobago):
 - Columbus Communications Trinidad Limited (CCTL),
 - DirecTV Trinidad Limited

2. Major Territorial (100% coverage of Trinidad):
 - Independent Cable Network of Trinidad and Tobago (ICNTT)

3. Minor Territorial (100% coverage of Tobago):
 - TRICO Industries Limited

4. Niche (coverage limited to a specific geographic area):
 - RVR International Limited,
 - Computer Technologies and Services Limited

These concessionaires provided subscription television services via cable or satellite media.

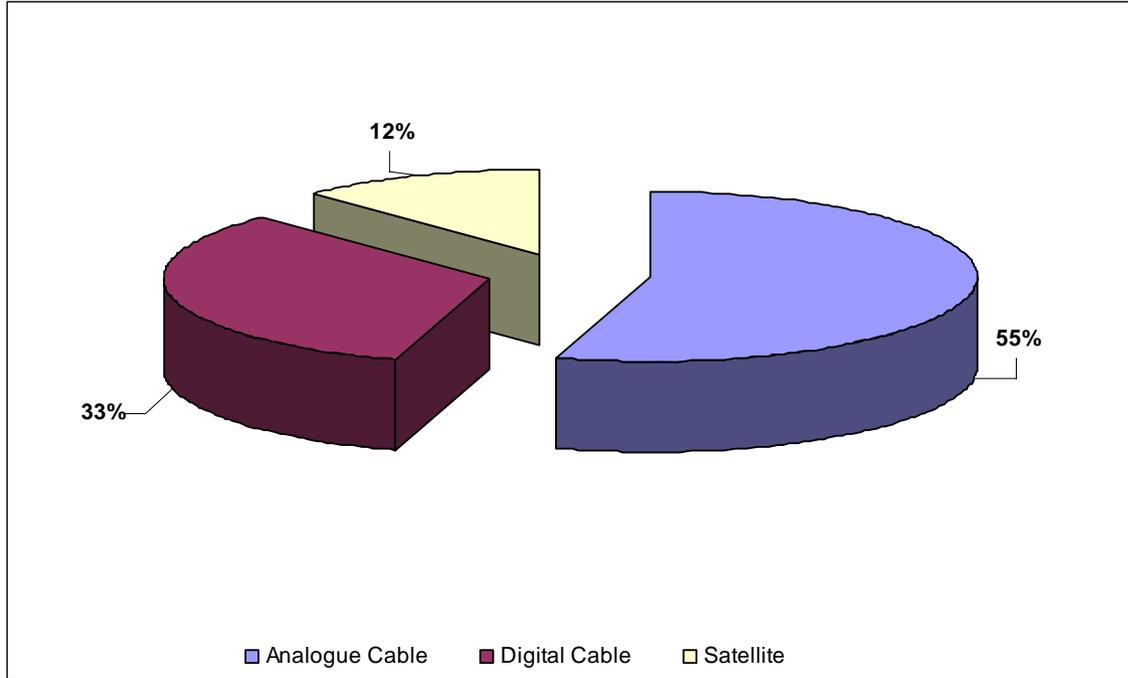
In addition to the above, there were two additional national concessionaires who were yet to launch their subscription television broadcasting services - TSTT and Greendot.

6.3.1 Annual Subscription Television Broadcasting Subscribers

As at December 2008, the total number of subscription television subscribers stood at approximately 163 thousand, a 7.8 per cent increase since December 2007. Of this total, analogue cable subscribers represented 89 thousand or 55 per cent, digital cable subscribers were 54 thousand or 33 per cent, while 12 per cent or 20 thousand had

satellite subscription services. Figure 63 below presents a percentage breakdown of the number of subscribers per platform for 2008.

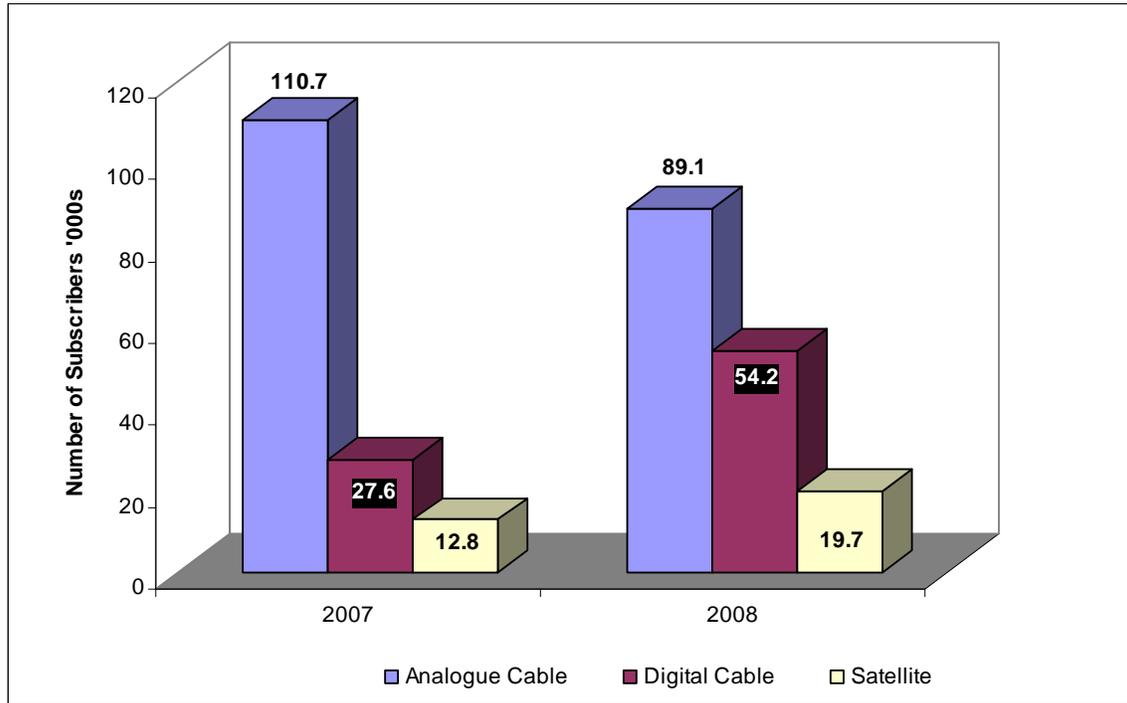
Figure 63: Subscription Television Subscribers as at December 2008



Source: TATT

The number of analogue cable subscribers was the largest category for all four quarters, albeit with a decreasing share. There was also a noticeable doubling in digital cable subscribers as the main cable provider, FLOW, continued on its drive to upgrade its analogue network to a digital platform. In addition, the numbers of satellite broadcasting subscribers have shown strong growth due to the falling costs of installation and monthly rates of satellite services prices which are currently comparable with digital and analogue cable services. This annual change in subscribership via platform is shown in Figure 64.

Figure 64: Subscription Television Subscribers by Platform 2007-2008

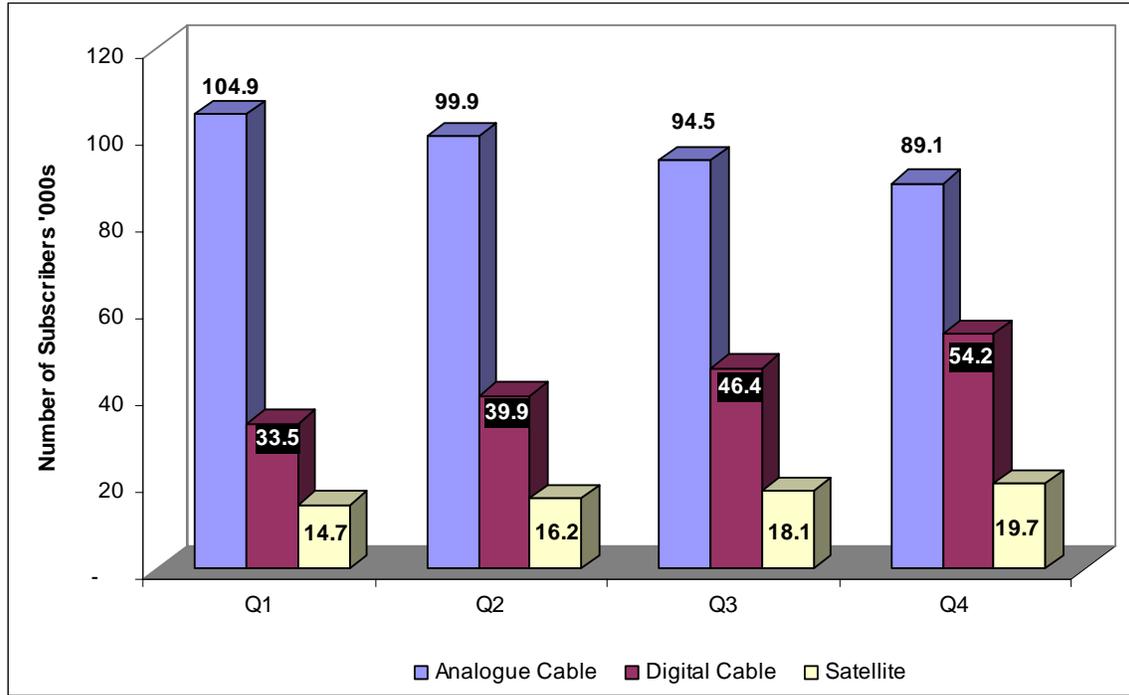


Source: TATT

6.3.2 Quarterly Subscription Television Broadcasting Subscribers

The quarterly trend highlighted in Figure 65 shows the correlation between the reducing number of analogue cable subscribers and the increasing number of digital cable subscribers. In addition, as a result of viable competition in the digital market between the cable and satellite providers, prices for satellite services have declined leading to a rise in satellite subscribers by 34 per cent between Quarter 1 and Quarter 4.

Figure 65: 2008 Quarterly Subscription Television Subscribers by Platform



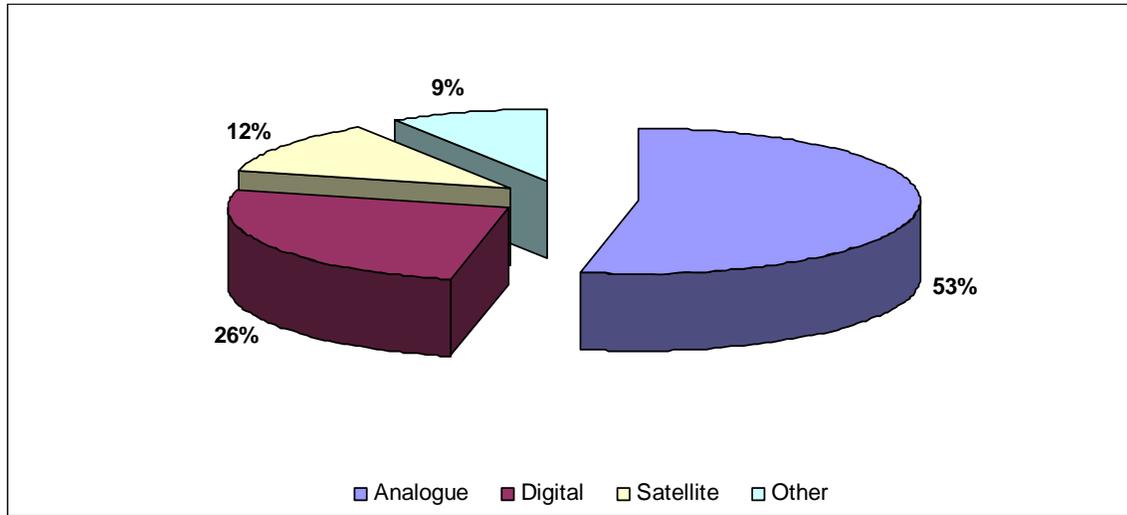
Source: TATT

6.3.3 Subscription Television Broadcasting Revenues

A similar analysis reveals that the total estimated gross revenues for subscription television broadcasting market was TT\$393.7 million, an increase by 20 per cent from 2007. Of this amount, analogue cable subscribership accounted for TT\$209.8 million or 53 per cent, digital cable subscribership recorded TT\$101.2 million or 26 per cent while satellite subscription television subscribership had TT \$46.6 million or 12 per cent and other revenues⁴⁰ accounted for TT\$36.3 million or 9 per cent. The percentage breakdown of subscription television revenues by platform are shown in Figure 66.

⁴⁰ Other revenues included installation revenues, additional connection revenues, reconnection revenues, advertising revenues etc.

Figure 66: Subscription TV Revenues by Platform for 2008

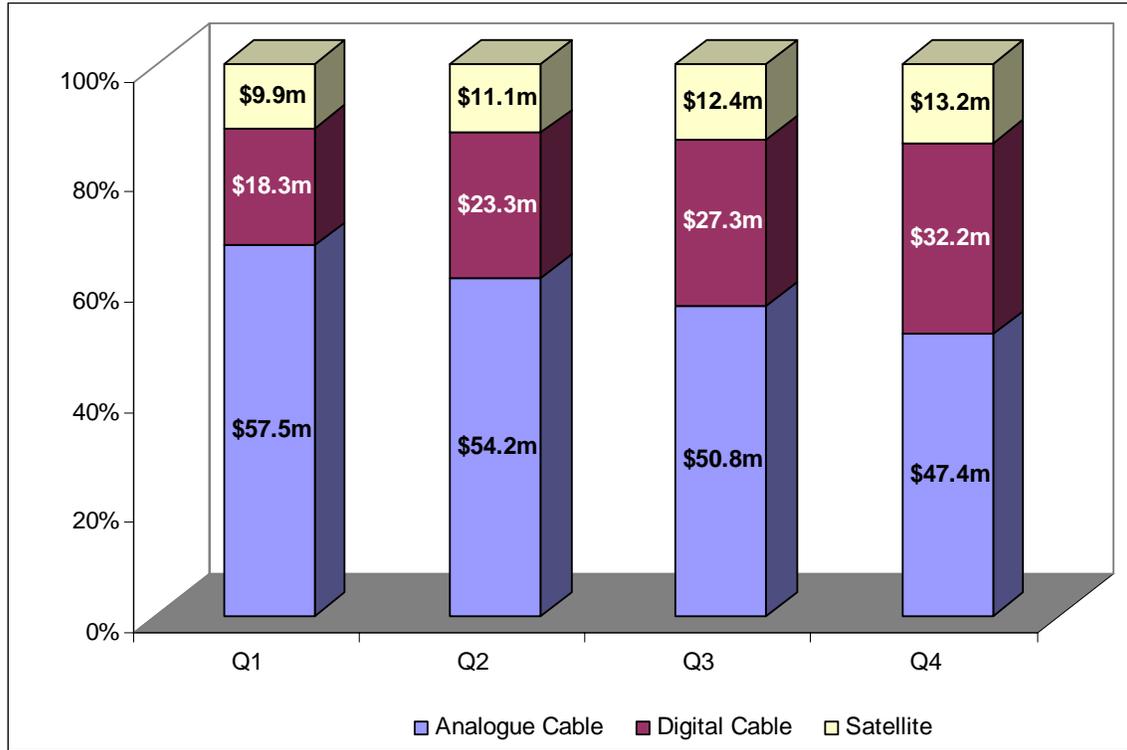


Source: TATT

During 2008, the subscription broadcasting services market obtained the largest proportion of estimated gross revenues from its analogue cable subscribers. This trend was consistent across all four quarters for the year. However, there was a significant decline in the gross revenues of analogue cable services as FLOW continued on its drive to switch current analogue subscribers over to their digital system. While there were increases in revenues earned by smaller analogue cable service providers in the market, the increase was not significant enough to outweigh the loss in revenues resulting from FLOW’s analogue to digital switch over.

The total share of revenues obtained from analogue cable subscribers fell from 67 per cent in Q1 to 51 per cent in Q4. Consequently, the total share of revenues obtained from digital cable subscribers rose from 21 per cent in Q1 to 35 per cent in Q4. Figure 67 illustrates the quarterly changes in revenues.

Figure 67: Subscription Television Revenues by Platform 2008

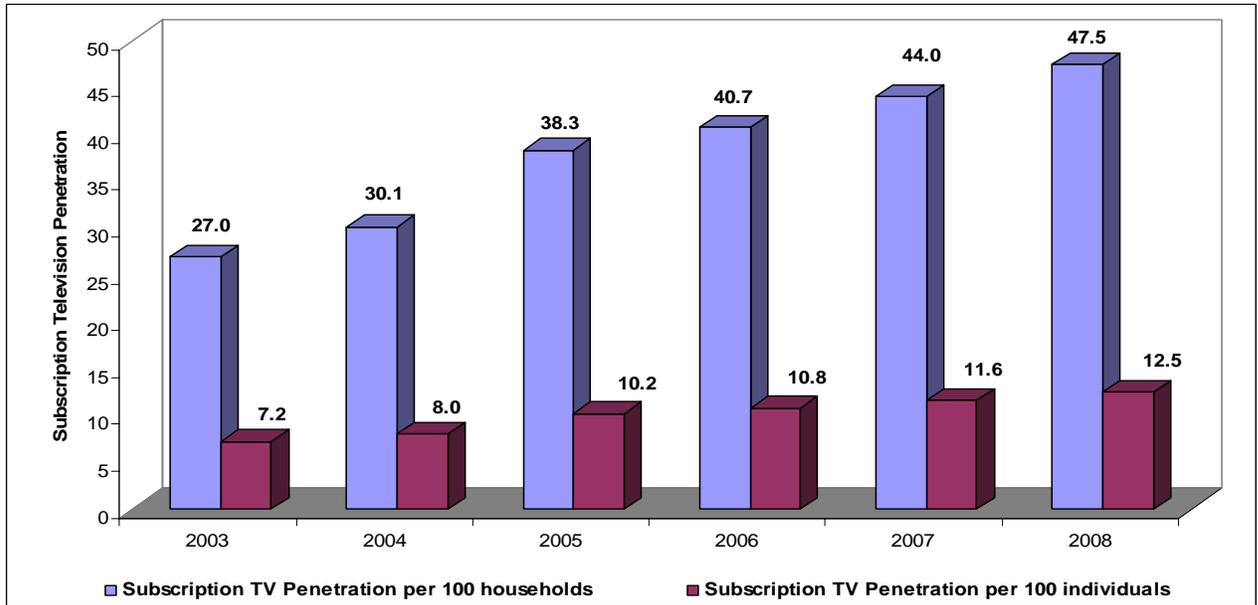


Source: TATT

6.3.4 Subscription Television Penetration

The subscription broadcasting television market has been growing consistently over the past six years. Synonymous with this growth is the increased penetration of subscription broadcasting services in Trinidad and Tobago. Figure 68 highlights the trend in the penetration of subscription broadcasting services since 2003.

Figure 68: Subscription Television Penetration 2003 - 2008



Source: TATT

As at December 2008, the penetration of subscription television services (the number of subscription television subscribers per 100 inhabitants⁴¹) was 12.5 while subscription television household penetration (the number of subscribers per 100 households⁴²) measured 47.5. This means approximately 13 out of every 100 persons are subscribers and 48 out of every 100 households subscribe to these services.

This increase in penetration rates can be attributed to a number of reasons. Firstly the fall in the prices of satellite services led to the increase in satellite subscribers, increasing overall subscribership. In addition, as FLOW continued its rollout of digital services, the introduction of triple play packages attracted new subscribers to the market. Furthermore niche analogue service providers continued to expand services in their coverage areas which may have led to rural areas gaining improved access to services and therefore increasing subscribership.

⁴¹ Number of subscription TV subscribers per 100 inhabitants = (number of subscription TV subscribers / population) * 100

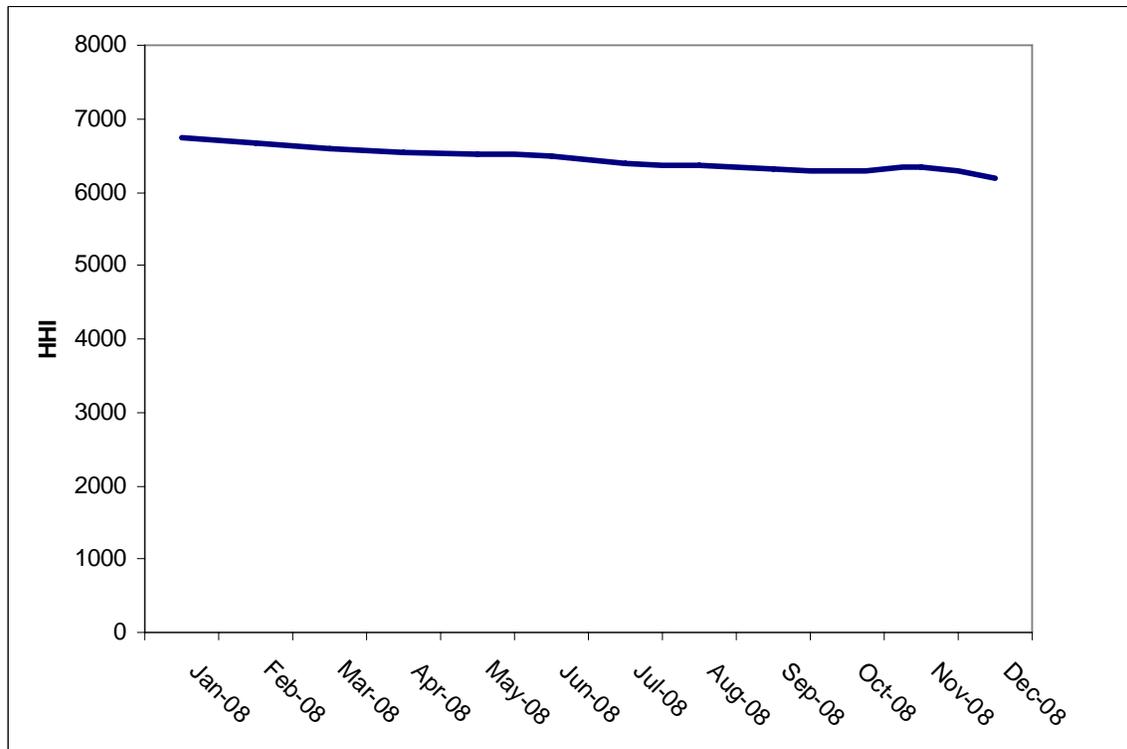
⁴² Subscription TV penetration per 100 households = (number of subscription TV subscribers / number of households) * 100

6.3.5 Subscription Television Market Concentration

Using the Hirschman-Herfindahl Index (HHI), the Authority calculated the level of concentration for the subscription television market⁴³ for the year ending December 2008. The result recorded a HHI of 6,190. While this number reveals that the market is highly concentrated, there have been slight declines in the HHI throughout the year. This is shown in Figure 69.

The decline in the HHI is evidence that the subscription television market has become more competitive as new competitors launched services in the market and existing ones offered promotional packages. However due to the level of market concentration, it may be speculated that competition in the subscription television market exists on a national level, while within the niche areas there may be some degree of monopolization as only a single operator may provide services to these communities.

Figure 69: Hirschman-Herfindahl Index of Subscription TV Market January – December 2008



Source: TATT

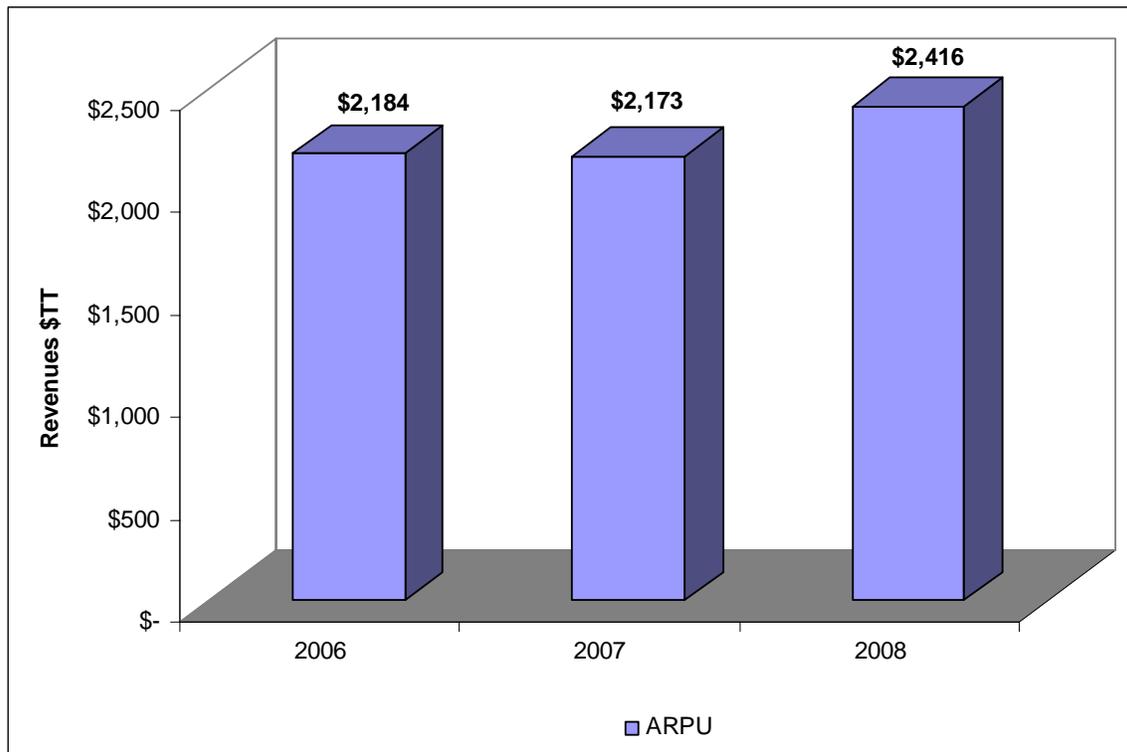
⁴³ Subscriber market share was used in the calculation of the HHI.

6.3.6 Average Revenue per User (ARPU)

During 2008, subscribers spent an average of TT\$2,416 for subscription television services. This represents an increase of TT\$243 or 11.2 per cent in the average revenue per user (ARPU) over the amount recorded for 2007. This increase was supported by the 20 per cent growth in revenues outweighing the 7.8 per cent growth of subscribers.

Figure 70 highlights the fluctuations in ARPU over the last three years.

Figure 70: Subscription TV Average Revenue per User (ARPU) 2006 – 2008



Source: TATT

7. Summary and Outlook

The telecommunications and broadcasting sectors continued to grow during 2008 recording a significant increase of 23 per cent in gross revenues and 18 per cent increase in subscribers.

During 2008, the fixed voice subscriber base experienced growth by 2 per cent, a recovery from the 2007 decline in subscribers. This growth may continue as operators attempt to gain a stronger foothold in the market by offering competitive triple play packages. In addition, arising out of the auctions conducted by the Authority in 2008, consideration should also be given to the launch of Broadband Wireless Access (BWA) in the near future and the positive impact it may have in the wireless fixed voice market. This technology will cover areas that the typical public switched telecommunications network (PSTN) could not penetrate due to the geographical topology of Trinidad and Tobago.

In 2008 Trinidad and Tobago maintained a high penetration rate in the mobile market. As a result there remains tremendous potential for growth in the mobile Internet market which may help to drive future revenues of these service providers. Even though mobile Internet penetration was significantly low during the period, mobile operators have adopted a strategy to not only target postpaid mobile Internet subscribers, but prepaid as well. Therefore as service providers begin to tap into the mobile Internet market, there remains much room for growth both from a subscriber perspective as well as a revenue perspective.

Within the body of this report, we have seen evidence of the strong growth in the fixed Internet market, especially with respect to broadband services, as competition continues to intensify. While the broadband penetration rate was relatively low for the 2008 period, the Authority expects the broadband market to carry on its expansion as service providers continue to offer faster speeds at lower prices to the public. In addition, as mentioned earlier, the winners of the BWA auction may soon be offering services, inclusive of

Internet, to the public. This, coupled with the already contested market, may lead to a significant uptake of Internet services by the public in the future.

The international voice traffic market maintains its strong level of growth in 2008. If international settlement rates continue on its declining trend, the market may see additional increases in traffic minutes. In addition, the Authority has recently drafted the Indirect Access Policy which discusses the mechanism by which an end user can utilise the facilities of an international telecommunications concessionaire, to which the user is not directly connected, to carry international calls. The Authority believes this may lead to an even more competitive market.

Within the broadcasting sector, free to air radio and television stations will continue to compete for clients and audience market share given the large number of stations in operation. The number of subscription television subscribers may maintain its growth rate, as there is viable competition in the digital market between cable and satellite providers. In addition, FLOW will continue rollout of its digital network and encourage the uptake of triple play packages by subscribers while the niche operators may further expand services to their coverage areas.

8. Appendix I: Domestic Telecommunications Statistics

Table 5: Domestic Telecommunications Statistics

		2000	2001	2002	2003	2004	2005	2006	2007	2008
General	Population (millions)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	GDP per capita (US\$) ⁴⁴	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
	Telecom revenue (US\$ million)	243.5	298.9	326.0	346.3	357.0	379.3	497.9	521.3	775.3
	Total telephone subscribers ('000s)	413.2	453.3	592.2	683.3	849.3	1,246.4	1,844.3	1,817.1	2,120.9
	Total telephone subs. per 100 inhabitants	31.9	34.9	45.5	52.4	65.0	95.2	140.8	138.7	163.1
	Average revenue per user (ARPU) US\$		659.4	550.4	506.8	420.3	304.3	239.5	286.9	365.6
Fixed	Main telephone lines ('000s)	271.6	293.2	308.3	317.3	318.9	322.3	325.5	307.3	314.8
	Main lines penetration (%)	21.0	22.6	23.7	24.4	24.4	24.6	24.9	23.5	24.1
	Average revenue per user (ARPU) US\$		349.1	362.1	267.9	254.8	272.1	277.9	422.4	486.5
	Main lines growth	-2.6	8.0	5.2	2.9	0.5	1.1	1.0	-5.6	2.4

⁴⁴ GDP per capita is recorded at current market prices

Annual Market Report: Telecommunications and Broadcasting Sectors – 2008

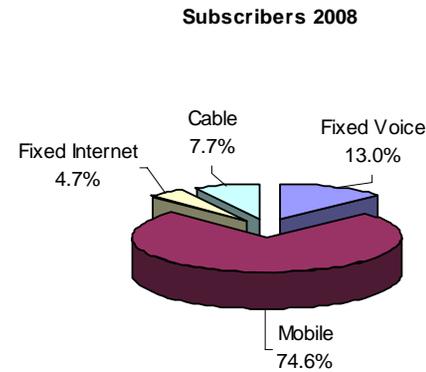
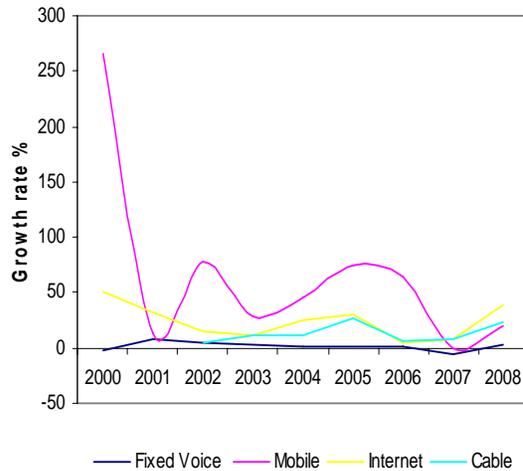
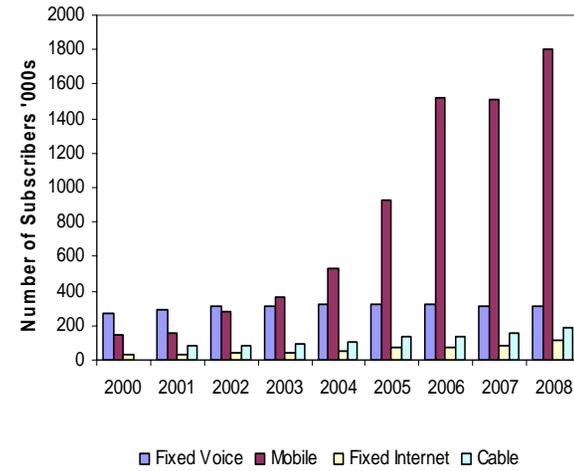
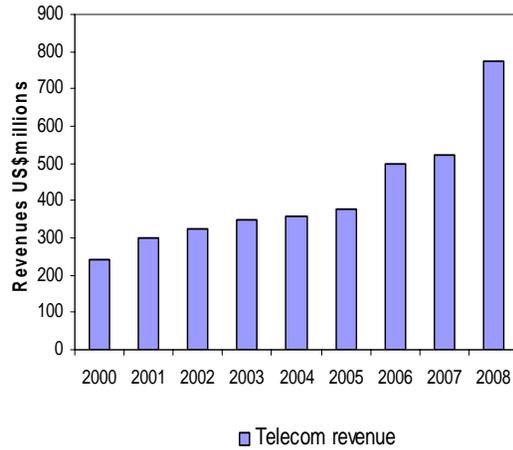
		2000	2001	2002	2003	2004	2005	2006	2007	2008
	(%)									
Mobile	Mobile subscribers ('000s)	141.6	160.1	283.9	366.0	530.4	924.1	1,518.8	1,509.8	1,806.1
	Mobile penetration (%)	10.9	12.3	21.8	28.1	40.6	70.5	115.9	115.3	138.2
	Average revenue per user (ARPU) US\$		225.8	212.4	213.5	203.8	153.1	159.1	206.6	196.6
	Mobile growth (%)	266.4	13.0	77.3	28.9	44.9	74.2	64.4	-0.6	19.6
Fixed Internet	Internet subscribers ('000s)	26.5	34.8	39.9	44.2	55.2	72.4	75.2	81.7	114.1
	Broadband subscribers ('000s)						14.0	21.1	35.5	85.4
	Internet users ('000s)	100.0	120.0	138.0	153.0	160.0	184.5	198.4	429.0	456.4
	Internet penetration (%)	2.0	2.7	3.1	3.4	4.2	5.5	5.7	6.2	8.7
	Average revenue per user (ARPU) US\$							392.3	552.3	491.8
	Internet growth (%)	51.0	31.4	14.8	10.8	24.8	31.0	3.8	8.7	38.0
Traffic	International - Outgoing (min. million)	78.5	81.7	84.1	91.9	117.2	160.2	203.2	265.9	304.3
	International - Incoming (min. million)	175.6	198.6	279.0	328.4	379.2	337.8	296.5	323.0	375.4
	Inbound/Outbound int'l traffic ratio	2.2	2.4	3.3	3.6	3.2	2.1	1.5	1.2	1.2
Cable	Cable Subscribers ('000s)		78.9	82.4	92.5	103.4	131.6	139.8	151.2	163.0

Annual Market Report: Telecommunications and Broadcasting Sectors – 2008

		2000	2001	2002	2003	2004	2005	2006	2007	2008
	Cable Penetration (%)		6.0	6.3	7.1	7.9	10.1	10.7	11.6	14.2
	Average revenue per user (ARPU) US\$		376.7	395.3	380.9	376.5	337.3	318.9	344.9	337.0
	Cable growth (%)			4.5	12.3	11.7	27.3	6.2	8.1	12.5

Source: TATT, ITU

Figure 71: Domestic Telecom Statistics



9. Appendix II: List of Concessions

Table 6: List of Concessions as at December 31, 2008

LIST OF CONCESSIONS GRANTED							
Concessionaire	Network and/or Service	Territory	Type	Term	Date of Grant	Expiry Date	Frequency/ Spectrum
International Telecommunications							
360 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
360 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
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	Public International Telecommunications Network	N/A	Type 2	10 Years	5 January 2006	4 January 2016	N/A
Open Telecom	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

Annual Market Report: Telecommunications and Broadcasting Sectors – 2008

Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Windward Telecom Limited	Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Windward Telecom Limited	Public International Telecommunications Services	N/A	Type 2	10 Years	16 February 2007	15 February 2017	N/A
Free to Air Radio Broadcasting							
21st Century Arts and Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	99.5 FM
British Broadcasting Corporation	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	15 June 2007	14 June 2017	98.7FM
Caribbean 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		23 February 2006	30 September 2017	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 Jaikaran	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	101.1 FM
Neil "Iwer" George	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	91.9 FM
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	1 March 2007	28 February 2017	105.5 FM
PBCT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.7 FM
Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	93.5 FM
Radio News Network	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	104.1 FM
Radio Vision Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	102.1 FM
Sidewalk Radio Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	92.3 FM

Annual Market Report: Telecommunications and Broadcasting Sectors – 2008

Superior Infinite Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2006	22 February 2016	94.1 FM
Telemidia 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
Winfred Aleong Broadcasting Company Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	103.1 FM
Wonderland Entertainment Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2006	22 February 2016	100.5 FM
Mobile Telecommunications							
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services	National	Type 2	10 Years	30 December 2005	29 December 2015	N/A
Free to Air TV Broadcasting							

Annual Market Report: Telecommunications and Broadcasting Sectors – 2008

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
Government of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years			VHF 4, UHF 16
Mohan Jaikaran	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 TV Broadcasting							
Columbus Communications Trinidad Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 2	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 2	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 2	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 2	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 2	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 2	10 Years	1 September 2006	31 August 2016	N/A

TV Broadcasting Service via Cable							
IETV Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5				N/A
Fixed Telecommunications							
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
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
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
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
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

Source: TATT

† The classification of concession type is explained in the Authorization Framework document on TATT website <http://www.tatt.org.tt/ddocs/AuthorisationFramework.pdf>

10. Appendix III: Tariffs

Table 7: Digicel Mobile Tariffs (January to December 2008)

Prepaid Charges

Digicel - Prepaid Plan Vat Inclusive			
	Day	Evening	Weekend
Mobile to Mobile	\$ 1.15	\$ 0.85	\$ 0.55
Mobile to Fixed	\$ 1.25	\$ 0.95	\$ 0.65
Mobile to bmobile	\$ 1.60	\$ 1.50	\$ 1.40

Postpaid Charges

Digicel Vat Inclusive					
	Monthly Fee	Bundled Minutes	Effective Rate	Charges for Additional Minutes	
Digicel Postpaid 120	\$ 95.00	120	\$ 0.79	Mobile to Mobile	\$ 0.65
Digicel Postpaid 240	\$ 185.00	240	\$ 0.77	Fixed to Mobile	\$ 0.85
Digicel Postpaid 360	\$ 255.00	360	\$ 0.71	Mobile to bmobile	\$ 1.00

International Rates

Digicel Vat Inclusive			
	Day	Evening	Weekend
US, Canada, UK	\$ 1.50	\$ 1.10	\$ 0.55
Caribbean, Venezuela and India	\$ 1.50	\$ 1.10	\$ 0.85
Rest of the World	\$ 3.00	\$ 2.10	\$ 2.00
Other Countries*	\$ 6.85	\$ 6.85	\$ 6.85
Other countries* includes Antartica, Ascension, Cook Islands, Cuba, Falkland Islands, Guinea Bissau, Honduras, Saint Helena Sao Tome & Principe, Solomon Islands, Vanuatu, Thuraya, Iridium, Inmarsat			

Table 8: bmobile Tariffs (January to December 2008)

Prepaid Charges

bmobile - Prepaid Plan Vat Inclusive			
	Day	Evening	Weekend
Mobile to Mobile	\$ 1.50	\$ 0.75	\$ 0.58
Mobile to Fixed	\$ 1.50	\$ 0.75	\$ 0.58
Mobile to Digicel	\$ 1.50	\$ 0.75	\$ 0.58

bmobile - Optional Anytime Prepaid Plan Vat Inclusive			
	Day	Evening	Weekend
Mobile to Mobile	\$ 1.15	\$ 1.15	\$ 1.15
Mobile to Fixed	\$ 1.15	\$ 1.15	\$ 1.15
Mobile to Digicel	\$ 1.15	\$ 1.15	\$ 1.15

Postpaid Charges

bmobile Vat Inclusive				
	Monthly Fee	Bundled Minutes	Effective Rate	Charges for Additional Minutes
Basic	\$ 86.25	100	\$ 0.86	\$ 0.86
Bonus	\$ 161.00	200	\$ 0.81	\$ 0.81
Beyond	\$ 299.00	400	\$ 0.75	\$ 0.75

Fixed to Mobile

	Day	Evening	Weekend
Fixed to Mobile	\$ 0.92	\$ 0.92	\$ 0.92

International Rates

bmobile Vat Inclusive			
	Day	Evening	Weekend
US, Canada, UK and Ireland	\$ 1.25	\$ 1.00	\$ 0.50
Caribbean, Venezuela and India	\$ 1.50	\$ 1.00	\$ 0.75
Rest of the World	\$ 2.50	\$ 2.00	\$ 1.50

11. Appendix IV: Glossary of Terms

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

Terms	Definition
Average Revenue per User	measures the average revenue generated by one subscriber.
Broadband	Internet speeds > 256 kbits/s.
Concession	a legal instrument granted by the Minister to authorise the operation of a public telecommunications network and/or the provision of any public telecommunications service or broadcasting service.
Gross Domestic Product	a measure of the total value of all goods and services produced in a given country in a given time period, usually a year, excluding net property income from abroad.
Hirschman-Herfindahl Index	a tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market shares of all firms in the market.
Interconnection	the linking of public telecommunications networks and public telecommunications services, to allow the users of one provider of a public telecommunications service to communicate with the users of another provider of a public telecommunications service, and to access the services provided by such other provider.
International settlement rate	the share of the accounting rate paid by the public telecommunications operator in another country to cover the costs of carrying the originating public telecommunications operator's traffic on its network.
Licence	a legal instrument granted by the Authority to authorise the operation or use of any radiocommunication service or any radiotransmitting equipment, including that on board any ship, aircraft or other vessel in the territorial waters or airspace of Trinidad and Tobago.
Mobile subscriber	a person with an activated (pre-paid or post-paid) SIM

Terms	Definition
	card and who can make and/or receive a call.
Narrowband	Internet speeds ≤ 256 kbits/s.
Off-net traffic	refers to traffic originating on a service provider's network and terminating on another network.
On-net traffic	refers to traffic originating on a service provider's network and terminating on the same network.
Penetration rate	is defined as the number of persons per 100 inhabitants that subscribe to telecommunications and/or broadcasting services.
Subscribership	refers to the total number of persons/entities that subscribe to a particular service offering within the relevant market.