



REGISTRATION FORM FOR WRITTEN SUBMISSION

Form DSI1

About this form

This is a registration form issued pursuant to the Data Services Market Inquiry Guidelines for Participation.

The form is to be completed by parties making written submissions.

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Required Details

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Yes No

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If yes, please indicate language: _____



competition commission
south africa

Main focus of submission:

Summary of the issues (*a reference to an attachment is adequate*):

Signature _____ Date _____

Global Benchmark Report

Study of Consumer Mobile Tariffs

Q2 2017





Global Benchmark Report

The Global Benchmark Report illustrates the relative pricing of mobile services around the world. Each report presents the cost of mobile services for various consumer classes from major MNOs in 25 countries. At its core, the Global Benchmark Report evaluates the competitiveness of national telecommunications markets across the full spectrum of mobile services and offers. Each quarterly report enables subscribers to visualize and understand price differences between mobile operators both within a single country and across markets around the world. Each report includes an executive summary that analyzes the competitive factors and market forces driving price movements and plan structures globally.

About Tarifica

Tarifica is uniquely qualified to produce the Global Benchmark Report because of its singular focus on researching and analyzing mobile plans around the world. In maintaining the Tarifica Mobile Database, Tarifica's research team tracks and catalogs every mobile plan, rate and offer from more than 275 MNOs and MVNOs in 73 countries in every region of the globe. This effort enables Tarifica's analysts to gain a broad understanding of the latest innovations in plan development occurring worldwide.

For more information, please visit the Tarifica website at www.tarifica.com

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Executive Summary

Introduction

The Tarifica Global Benchmark Report is a comprehensive study of the mobile pricing and tariffs across 25 countries and 82 major operators. Its aim is to provide readers with a distinct view of how mobile prices and offers compare across countries, regions and operators. This study was undertaken using 18 profiles, each of which was designed to imitate the monthly mobile needs of a distinct group of consumers (see *Methodology section* for more details). The information collected can be used to identify some of the drivers in costs for mobile service within a country and highlight regional trends and national discrepancies.

Findings

Heavy Data Users Benefit at Feature Phone Users Expense

As the mobile market moves toward heavier data usage operators are increasingly making this service the center of their plan development strategies and offering volume discounts for this growing class of consumers. In this report, this trend was demonstrated in the operators' pricing. The four consumer types that require highest data volumes, the bundled and data-only profiles for both prepaid and postpaid users, continued to drop in price between the first and second quarters of 2017.

The loser of this shift appears to be the market for voice and SMS only plans, which are increasingly rare. Interestingly the outcome of this has been to increase the cost of these plans types and drive up the cost of voice and SMS plans. This likely is because there are fewer of these plans and those that exist have few options to scale. Thus, it is difficult to match a consumer's calling and messaging needs without either selecting a plan that includes far more services than they require (likely with data) or buying their minutes and SMS on a per unit basis. Quarter-over-quarter, the market price increased in five of the six voice and SMS only profiles and these price increases were above 2 percent in half of the profiles.

The trend towards greater data volumes at lower prices appears likely to continue for the foreseeable future. With this in mind, more price reductions are expected in data rates in the coming quarters, particularly at the higher volumes. While the voice market continues to stabilize as an unlimited service feature, SMS is in some markets being ultimately retired as a feature due to the plethora of OTT messaging apps.

One Operator Drives Changes in Market Price

Typically, when changes in the market price of a country occurred, there was single operator to be driving the change, especially in markets with less than four MNOs. Given the general stability of the rankings, this is not too surprising. In stable markets, most operators do not generally revise their prices more than a couple times

per year. However, when these prices are changed, these changes will be seen across almost all of the operator's plans.

While pricing has held stable across most operators in Q2, data allocations, in many developing markets, are being dramatically increased, and are becoming an equally important tool for attracting new customers; a role once exclusively played by plan price. Operators in South Africa and Pakistan, for example, more than doubled the data offerings on postpaid and prepaid plans with only a marginal increase in price. As such, the per gigabyte cost fell significantly. With the diminishing importance of SMS and talk time, the price per GB is rapidly becoming an important new metric through which operator's plans are compared. This finding suggests that wireless markets around the world are maturing and becoming less prone to volatile price fluctuations.

Ranking Stability

While overall stability still exists, Q2 saw more movement in prices than Q1. In particular, Kenya's postpaid rankings moved as much as 15 levels. Of the 450 profile rankings 30 of them changed greater than three spots. The overwhelming majority of profile rankings did not move at all and those that did shift were only up or down in one or two positions. This still suggests growing stability in the global wireless market and with the absence of any seismic changes to the wireless industry, pricing will likely continue to shift very slowly.

Roam Like at Home in Europe

An important regulatory change took effect in European Economic Area (EEA) in Q2, whereby operators are no longer allowed to charge their customers for roaming in other EEA countries. Prior to the implementation of the Roam Like at Home regulation, roaming charges from European customers were a significant revenue source for local operators. Now that the revenue is effectively gone, operators in the EEA are beginning to raise prices on data heavy plans as well as limiting the number of plans that are roaming capable in an attempt to recoup a percentage of the lost proceeds. This exogenous factor may continue to exert upwards pricing pressure on plans in the EEA region, and will be an important issue to monitor moving forward into Q3.

Methodology

Overview

This study examines consumer pricing from 82 operators in 25 major countries from around the world. Its aim is to determine the relative cost of consumer mobile service both across the countries studied and within the major operators in each of these countries. Analysis is achieved using the methodology outlined in this section.

Countries and Operators

The selected countries are a representation of leading global markets and illustrate an assortment of diverse mobile economies. Australia, Bahrain, Brazil, France, Germany, India, Kenya, Kuwait, Malaysia, Mexico, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Thailand, Turkey, the United Arab Emirates, the United Kingdom and the United States are the countries that have been selected. For the specific operators examined in each country, refer to page 121.

Basket Based Approach and the Rational Consumer Model

Consistent with OECD methodology, Tarifica used a basket based approach and the “Rational Consumer” model in selecting the plans for each basket. In this model, Tarifica’s team built baskets to represent the mobile needs of selected classes of consumers, each with different requirements for the mobile services that they will use in a month. Since there are significant variations in the needs of individual consumers within a market and particularly across countries, which may vary dramatically in terms of economic conditions, 18 distinct profiles were designed for this report. These profiles (shown at the end of this section) were created to cover the full spectrum of mobile usage, from a feature phone user on a tight budget in an emerging economy to a data heavy user in an advanced country who frequently uses their mobile device for data intensive activities such as streaming movies and music.

These profiles define the minimum required service thresholds for each consumer class. Tarifica’s researchers then used the “Rational Consumer Model” to select the least expensive option that met at least these requirements. In this process, reaching the profile minimums in the least expensive way was achieved through any combination of included plan allotments, excess usage rates, combining offers and/or adding in bundles or add-ons. The price of this offering is then recorded as the operator’s entry for the selected profile. There were some cases where the best option included far more than the minimum service requirements, however, the options accepted never have less than the required usage allotments. If an operator cannot meet the usage requirements NA (not applicable) is shown.

It is important to acknowledge that not every profile will fit every market. For instance, while some of the light user profiles are illustrative of the mobile needs of millions of consumers in developing economies, the requirements of these profiles were often significantly less than the service volumes that were included in even the lowest cost plans in many advanced mobile markets. Further, there are occasionally times when a profile may well reflect a prevalent class of consumers in a country, but an operator may have plans with breakpoints in their usage allotments that are just below the profiles' requirements. Therefore, either the utilization of excess usage rates or the selection of a much higher volume plan had to be used to achieve the minimum requirements; either of which would drive up an operator's costs. As such, it is important not to draw sweeping conclusions about an operator's or country's prices based on a single profile. Rather its performance across all of the profiles should be considered in this type of evaluation.

One Time Fees

One time charges like activation fees, SIM card fees and other similar costs that do not relate to the mobile services acquired are not included in the prices selected.

Promotions

Due to their rapidly changing and potential to be significantly below market rates, short-term promotional offers are excluded from this study. The only exception to this are plans that appear to be permanently in "promotional" state.

Validity Period

Given that this study is based around monthly mobile usage and cost, prepaid plans and offers that are not valid for at least 28 days are excluded from this study.

Taxation

All value-added taxes (VATs) and other national taxes are included in the prices used in the report. Regional and local taxes are excluded from the prices.

Currency Conversion

To enable international comparisons, the final price of each offer selected is converted to US dollars. This conversion is based on the average currency conversion rate between the United States and the selected country throughout the second quarter of 2017.

Purchasing Power Parity

In addition to converting all of the results into a uniform currency, the results are then scaled using Purchasing Power Parity (PPP). This factor is used to account for differences in the cost of living across the 25 selected countries. In short, the aim of PPP is to illustrate in terms of other goods, services and products a consumer could purchase if they repurposed their mobile spend. The latest PPP values are published by the World Bank for this factor.

Market Price

In addition to presenting the relative costs for each of the 82 operators examined individually, this study also calculates the market price for each consumer profile. The market price is designed to show the approximate price most consumers in a country are paying for the selected basket of services. It is calculated by scaling each operator's price for a profile by its market share and then adding these market share adjusted prices together, ultimately producing a single price for the profile across the country. For example, if a country had two operators—A and B—and operator A had a 75 percent market share and its price for the profile was 16.00 and operator B had a 25 percent market share and its price of the profile was 12.00, then the country's market price would be 15.00 ($16 \times 0.75 + 12 \times 0.25$).

General Notes on Benchmarking

Offer Structure Is Critical to Consumer Cost

When considering the relative cost of operators and countries within a benchmark report, one element is critical to consider: the fact that the structure of offers is almost as impactful on the results as their pricing.

Outside of macroeconomic forces like the competitive environment, regulatory framework, national infrastructure, consumer expectations and more, the greatest factor in consumer mobile cost was the structure of an operator's offers, particularly as it relates to scaling usage allotments.

Mobile operators that provide numerous plan options or easy scaling enable consumers to fit their mobile spend to their exact mobile needs, which allows them to avoid paying for more allotments than required or purchasing substantial portions of their desired service allotments through excess usage rates, which are generally much more expensive on a per-unit basis. Operators provide this flexibility through three core offer structures.

PLAN VARIETY

Offering numerous plans with varied usage allotments allows users greater options in terms of selecting the plan that best fits their needs. In this structure, a mobile operator has a substantial and diverse slate of offerings which enables a consumer to select the precise plan that aligns with his/her needs.

NUMEROUS BUNDLES/ADD-ONS

Having many bundles/top-ups enables consumers to build their own plan that directly fits their needs. Under this structure, a customer generally selects from a small group of basic plans and then adds on additional service allotments—which are usually in various sized bundles with escalating volume discounts—to achieve their expected usage volumes.

AUTOMATIC SCALING

Including automatic scaling features within the base plan enables the same basic plan to expand to meet the needs of many different types of consumers. Under this framework, per-unit excess usage fees are set aside in favor of allowing users to add-on blocks of usage (at a much lower per-unit cost). An interesting example of this practice was previously seen in the way that Spain Movistar structured the SMS excess usage with many

of its prepaid plans. After a consumer's messaging allotment was expended, he or she needed to purchase their next 10 SMS at the operator's standard excess usage rate, however once these 10 messages were purchased, the consumer received unlimited SMS for the remainder of the month at no additional charge. In this way, Movistar avoided the complexity of numerous SMS bundles/plans but still provided its consumers a way to consume large volumes of SMS at a discount. This foreshadowed an industry-wide shift that is indicating that SMS will become less prevalent in offerings due to OTT messaging (see Executive Summary for more details).

Operators that do not embrace at least one of these three strategies were generally recorded as having higher prices than their in-country peers. Although their plans may have fit some consumer classes well, there were inevitably other classes whose needs were not covered by these base plans and then had to acquire these additional service volumes through other more expensive means.

Consumer Profiles

Postpaid Voice/SMS/Data

Light User										
Calling								Messaging		Data
Network Destination		Timing						Network Destination		
Off-Net	60% (90 minutes)	Peak	20% (18 minutes)	Off-Peak	40% (36 minutes)	Weekend	40% (36 minutes)	Off-Net	60% (90 SMS)	250 MB
On-Net	40% (60 minutes)	Peak	20% (12 minutes)	Off-Peak	40% (24 minutes)	Weekend	40% (24 minutes)	On-Net	40% (60 SMS)	3G or Better
Total		150 minutes						150 SMS		250 MB

Moderate User										
Calling								Messaging		Data
Network Destination		Timing						Network Destination		
Off-Net	60% (150 minutes)	Peak	20% (30 minutes)	Off-Peak	40% (60 minutes)	Weekend	40% (60 minutes)	Off-Net	60% (150 SMS)	1 GB
On-Net	40% (100 minutes)	Peak	20% (20 minutes)	Off-Peak	40% (40 minutes)	Weekend	40% (40 minutes)	On-Net	40% (100 SMS)	3G or Better
Total		250 minutes						250 SMS		1 GB

Heavy User										
Calling								Messaging		Data
Network Destination		Timing						Network Destination		
Off-Net	60% (240 minutes)	Peak	20% (48 minutes)	Off-Peak	40% (96 minutes)	Weekend	40% (96 minutes)	Off-Net	60% (240 SMS)	5 GB
On-Net	40% (160 minutes)	Peak	20% (32 minutes)	Off-Peak	40% (64 minutes)	Weekend	40% (64 minutes)	On-Net	40% (160 SMS)	4G
Total		400 minutes						400 SMS		5 GB

Prepaid Voice/SMS/Data

Light User										
Calling								Messaging		Data
Network Destination		Timing						Network Destination		
Off-Net	60% (60 minutes)	Peak	20% (12 minutes)	Off-Peak	40% (24 minutes)	Weekend	40% (24 minutes)	Off-Net	60% (60 SMS)	150 MB
On-Net	40% (40 minutes)	Peak	20% (8 minutes)	Off-Peak	40% (16 minutes)	Weekend	40% (16 minutes)	On-Net	40% (40 SMS)	3G or better
Total		100 minutes						100 SMS		150 MB

Moderate User										
Calling								Messaging		Data
Network Destination		Timing						Network Destination		
Off-Net	60% (150 minutes)	Peak	20% (30 minutes)	Off-Peak	40% (60 minutes)	Weekend	40% (60 minutes)	Off-Net	60% (150 SMS)	500 MB
On-Net	40% (100 minutes)	Peak	20% (20 minutes)	Off-Peak	40% (40 minutes)	Weekend	40% (40 minutes)	On-Net	40% (100 SMS)	3G or better
Total		250 minutes						250 SMS		500 MB

Heavy User										
Calling								Messaging		Data
Network Destination		Timing						Network Destination		
Off-Net	60% (240 minutes)	Peak	20% (48 minutes)	Off-Peak	40% (96 minutes)	Weekend	40% (96 minutes)	Off-Net	60% (240 SMS)	2 GB
On-Net	40% (160 minutes)	Peak	20% (32 minutes)	Off-Peak	40% (64 minutes)	Weekend	40% (64 minutes)	On-Net	40% (160 SMS)	4G
Total		400 minutes						400 SMS		2 GB

Postpaid Voice/SMS

Light User									
Calling								Messaging	
Network Destination		Timing						Network Destination	
Off-Net	60% (60 minutes)	Peak	20% (12 minutes)	Off-Peak	40% (24 minutes)	Weekend	40% (24 minutes)	Off-Net	60% (60 SMS)
On-Net	40% (40 minutes)	Peak	20% (8 minutes)	Off-Peak	40% (16 minutes)	Weekend	40% (16 minutes)	On-Net	40% (40 SMS)
Total		100 minutes						100 SMS	

Moderate User									
Calling								Messaging	
Network Destination		Timing						Network Destination	
Off-Net	60% (150 minutes)	Peak	20% (30 minutes)	Off-Peak	40% (60 minutes)	Weekend	40% (60 minutes)	Off-Net	60% (150 SMS)
On-Net	40% (100 minutes)	Peak	20% (20 minutes)	Off-Peak	40% (40 minutes)	Weekend	40% (40 minutes)	On-Net	40% (100 SMS)
Total		250 minutes						250 SMS	

Heavy User									
Calling								Messaging	
Network Destination		Timing						Network Destination	
Off-Net	60% (240 minutes)	Peak	20% (48 minutes)	Off-Peak	40% (96 minutes)	Weekend	40% (96 minutes)	Off-Net	60% (240 SMS)
On-Net	40% (160 minutes)	Peak	20% (32 minutes)	Off-Peak	40% (64 minutes)	Weekend	40% (64 minutes)	On-Net	40% (160 SMS)
Total		400 minutes						400 SMS	

Prepaid Voice/SMS

Light User									
Calling								Messaging	
Network Destination		Timing						Network Destination	
Off-Net	60% (60 minutes)	Peak	20% (12 minutes)	Off-Peak	40% (24 minutes)	Weekend	40% (24 minutes)	Off-Net	60% (60 SMS)
On-Net	40% (40 minutes)	Peak	20% (8 minutes)	Off-Peak	40% (16 minutes)	Weekend	40% (16 minutes)	On-Net	40% (40 SMS)
Total		100 minutes						100 SMS	

Moderate User									
Calling								Messaging	
Network Destination		Timing						Network Destination	
Off-Net	60% (150 minutes)	Peak	20% (30 minutes)	Off-Peak	40% (60 minutes)	Weekend	40% (60 minutes)	Off-Net	60% (150 SMS)
On-Net	40% (100 minutes)	Peak	20% (20 minutes)	Off-Peak	40% (40 minutes)	Weekend	40% (40 minutes)	On-Net	40% (100 SMS)
Total		250 minutes						250 SMS	

Heavy User									
Calling								Messaging	
Network Destination		Timing						Network Destination	
Off-Net	60% (240 minutes)	Peak	20% (48 minutes)	Off-Peak	40% (96 minutes)	Weekend	40% (96 minutes)	Off-Net	60% (240 SMS)
On-Net	40% (160 minutes)	Peak	20% (32 minutes)	Off-Peak	40% (64 minutes)	Weekend	40% (64 minutes)	On-Net	40% (160 SMS)
Total		400 minutes						400 SMS	

Postpaid Data Only

Light User
500 MB, 3G or better speeds
Moderate User
2 GB, 3G or better speeds
Heavy User
8 GB, 4G

Prepaid Data Only

Light User
250 MB, 3G or better speeds
Moderate User
1 GB, 3G or better speeds
Heavy User
4 GB, 4G

Analysis

Overall Rankings of Mobile Market Postpaid Plans

Ranking	Country	VOICE/SMS/DATA			VOICE/SMS			DATA ONLY			Average Performance
		Light User	Moderate User	Heavy User	Light User	Moderate User	Heavy User	Light User	Moderate User	Heavy User	
1st	United Kingdom	2	2	2	3	3	1	6	1	4	2.67
2nd	Pakistan	1	3	7	2	1	4	4	3	6	3.44
3rd	Turkey	3	1	5	5	4	3	11	6	2	4.44
4th	France	8	8	3	4	6	7	9	2	3	5.56
5th	Sweden	5	5	4	7	5	5	15	4	1	5.67
6th	India	4	7	6	1	2	2	5	11	17	6.11
7th	Australia	6	4	1	8	7	6	12	8	5	6.33
8th	Nigeria	10	12	15	6	9	13	1	5	10	9.00
9th	Germany	12	9	8	13	10	9	13	10	8	10.22
10th	Singapore	9	11	9	9	14	12	7	13	9	10.33
11th	Mexico	7	6	11	15	8	8	14	15	22	11.78
12th	Thailand	13	13	16	11	13	17	8	9	7	11.89
13th	Spain	11	14	10	14	11	10	10	14	15	12.11
14th	Kenya	17	17	18	17	16	15	3	12	11	14.00
15th	Brazil	14	10	14	16	12	11	16	17	18	14.22
16th	South Africa	16	19	22	12	18	18	2	7	14	14.22
17th	South Korea	15	15	12	10	15	16	18	18	23	15.78
18th	United States	18	16	13	18	17	14	19	16	19	16.67
19th	Qatar	19	18	21	19	19	19	21	20	16	19.11
20th	Bahrain	22	21	19	22	22	22	20	19	12	19.89
21st	Malaysia	20	20	17	20	21	20	22	21	20	20.11
22nd	Oman	21	22	24	21	20	21	17	24	24	21.56
23rd	Kuwait	23	24	20	24	25	23	24	22	13	22.00
24th	Saudi Arabia	24	25	25	23	23	24	23	23	21	23.44
25th	United Arab Emirates	25	23	23	25	24	25	25	25	25	24.44

Overall Rankings of Mobile Market Prepaid Plans

Ranking	Country	VOICE/SMS/DATA			VOICE/SMS			DATA ONLY			Average Performance
		Light User	Moderate User	Heavy User	Light User	Moderate User	Heavy User	Light User	Moderate User	Heavy User	
1st	India	3	3	5	1	1	2	1	4	10	3.33
2nd	Sweden	2	4	2	5	6	4	2	5	1	3.44
3rd	Turkey	6	1	1	6	2	1	7	7	3	3.78
4th	Kenya	1	9	10	2	3	8	3	2	8	5.11
5th	United Kingdom	4	6	4	7	5	6	11	8	6	6.33
6th	Pakistan	7	7	9	10	8	12	4	1	4	6.89
7th	Nigeria	9	11	12	4	11	9	5	3	7	7.89
8th	Australia	11	5	3	12	7	5	15	10	5	8.11
9th	Mexico	8	2	8	9	4	3	18	13	20	9.44
10th	France	13	8	6	14	10	7	12	11	11	10.22
11th	Germany	5	10	11	3	9	10	14	15	16	10.33
12th	Singapore	10	14	13	8	14	16	10	6	12	11.44
13th	Brazil	12	13	14	13	16	13	6	17	21	13.89
14th	United States	17	12	7	15	12	11	19	18	17	14.22
15th	Malaysia	18	19	19	19	18	20	9	9	2	14.78
16th	South Africa	14	16	16	11	15	15	13	20	22	15.78
17th	Spain	16	17	15	16	17	17	20	16	15	16.56
18th	Qatar	15	15	20	20	13	14	25	23	18	18.11
19th	South Korea	21	23	23	18	21	22	8	14	19	18.78
20th	Bahrain	23	18	17	24	19	18	24	21	9	19.22
21st	Thailand	19	22	21	21	24	23	17	12	14	19.22
22nd	Kuwait	24	21	18	25	23	19	23	19	13	20.56
23rd	Oman	22	24	24	17	20	21	16	22	24	21.11
24th	United Arab Emirates	20	20	22	22	22	24	21	25	25	22.33
25th	Saudi Arabia	25	25	25	23	25	25	22	24	23	24.11

Australia

Australia's gradual decline in profile performance continues this quarter, dropping from 7th to 8th in the prepaid market and from 4th to 7th in the postpaid market. As is the case with many mature markets, Australia's lowest marks tend to occur in the light usage categories while the country performs better in the medium and high usage categories.

While moderate price changes occurred, the biggest driver of ranking differences this quarter appears to be changes to volume of services offered. The data only category for light and moderate user profiles for both postpaid and prepaid dealt the largest blows to Australia's rankings, where data only—light users for the postpaid profile fell by eight spots and the prepaid version fell by six spots. Other ranking changes were less severe, with voice/SMS/data and voice/SMS profiles only falling or rising by one or two spots—one instance of the voice/SMS—heavy user for prepaid—moving up three spots is the only exception.

Competition between providers in pricing remains strong in the voice/SMS/data and voice/SMS categories, with multiple instances of all three providers having the same exact prices across a profile. Where prices differ in these categories, Optus tends to come in at a slightly higher price than its competitors. It is also worth noting that light user and moderate user profiles are often close or identical, indicating that there are not lower volume plans offered in the market. The data only category shows the most variation, as light and moderate user profiles in prepaid and postpaid markets cover a wide range. However, as would be expected in a mature market, prices are closest in both heavy user categories.

Bahrain

Bahrain continues to be one of the most expensive countries across both postpaid and prepaid consumer profiles, with the former remaining at its Q1 position of 20th and the later dropping one position to 21st. After last quarter's price increases at Batelco and Viva, both operators made few changes to their plan pricing in the 2nd quarter.

Voice and SMS remain expensive in Bahrain, and the light/moderate voice and text profiles reflect this. For example, the prepaid voice/SMS light-user profile ranks 24th and the prepaid voice/SMS/data ranks 23rd. The only profiles that rank well are the postpaid and prepaid data-only heavy-user profiles, with the postpaid profile ranking 12th and the prepaid a stronger 9th place.

Bahrain ranks in the middle of the its Gulf peers—a region that, given its strong purchasing power and high GDP per cap, has extremely expensive cellular plans. The relative affordability of the larger data plans suggests that this is where much of the demand lies. Messaging and VoIP applications that use data, such as WhatsApp and Skype, are very popular in the region and are making SMS/minutes less relevant; and therefore, focusing pricing competition on data.

Brazil

Brazil's postpaid ranking jumped from 18th place in Q1 to 15th place in Q2, and the prepaid ranking remained flat in 13th place quarter-over-quarter.

Every Brazilian operator made changes to their postpaid plans, and, for the most part, those changes included a slight decrease in price as well as an augmentation of the allocated data per plan. The postpaid heavy usage profiles continue to rank poorly as there is a significant price increase for plans with higher data allotments. Vivo, for example, launched a new postpaid plan for BRL 49.99/month that provides unlimited SMS and minutes in addition to 3 GB of data and accounts for the moderate user profile. However, adding a marginal amount of data beyond that 3 GB is expensive, with an additional 2 GB costing customers BRL 69.99/month.

The trend of expensive data in the Brazilian market also holds true for the heavy usage prepaid profiles. The data-only heavy usage profile ranked 21st and continues to fare poorly against other markets. A major drag on this average is Claro with its extremely expensive prepaid data packages; costing customers BRL 199.60 for 8 GBs of data as they are forced to buy four separate 2 GB plans in the postpaid heavy-usage profile. The continuing lack of volume discounts for data makes it a challenge for customers with high usage to find affordable options.

In contrast to relatively expensive data, the cost of talk time and texting continues to fall. Several operators announced new unlimited minutes plans in Q2 and inexpensive unlimited SMS options are readily available across all operators. The prepaid plans experienced little change quarter-over-quarter, but new postpaid plans, such as the Vivo plan described, above helped improve the voice/SMS/data light and moderate profiles rankings by one place respectively. Oi's "Oi Mais Controle: Intermediario" plan competes directly with the Vivo plan at 49.90/month and gives users 500 minutes, unlimited SMS and 3GB.

A high degree of price variance continues to be a staple of the Brazilian cellular plan market, with operators Oi and TIM undercutting their pricier rivals, Vivo and Claro, by upwards of 50 percent across several consumer profiles. The difference is starkly acute in the heavy usage profiles, where scaling plans to meet higher usage demands makes the two premium carriers extremely expensive. It should be noted that while a lack of volume discounts likely drove the poor performance in heavier profiles in comparison to lighter ones, structural economic forces were likely the cause of its overall high prices as Brazil has fractured geographic markets with different laws and tax considerations in each region.

France

After stagnating for three quarters at 9th in the postpaid market, France jumped to 4th place. In the prepaid market, France moved down one spot to the 10th spot.

In prepaid, these changes only moved the individual rankings one space up or down, if at all. The data only—moderate user profile was the only outlier, improving by three places. The postpaid market changes were most distinct in the data only category, with the light user profile improving by six places and the moderate user profile rising by eleven spots. Volume and price changes throughout all the providers contributed to the ranking changes, as some providers added higher data volume plans while others shrunk their lower volume plans. For example, Orange decreased the size of many of their lower volume data plans. SFR, on the other hand, added a high-volume plan with 100 GB.

Prices in France are highly competitive in the postpaid market for voice/SMS/data, with Bouygues and Free competing for the cheapest price and Orange and SFR tied for the third spot. Prepaid voice/SMS/data has a closer market for the light user and moderate user profiles, but sees more variance as volume is scaled up.

This is not the case in prepaid voice/SMS, where all three usage profiles are neck in neck. In data-only, while Bouygues has the most expensive prepaid plans, postpaid is a different story: Free is most expensive in the light and moderate user profiles, but Orange fills that role in the heavy usage profile.

Germany

This quarter saw the first signs of change in Germany's place in the postpaid sector, where Germany rose from 12th to 9th place. Despite a 10th place rating being maintained since 2016 in the prepaid sector, Germany dropped one place to 11th. Though stability would be expected in a mature market such as Germany's, modest ranking movements are not unusual as bundle sizes are scaled up and down across the market.

Across most prepaid profiles, Germany finished between 5th and 16th, but a more consistent performance existed in the postpaid market where the country finished between 8th and 13th. The best performing profile in Germany was the prepaid voice/SMS—light user profile, which finished 3rd. In addition, the prepaid voice/SMS/data—light user profile was ranked 5th. Meanwhile, Germany performed poorly in the prepaid data only categories, ranking 14th, 15th and 16th. The postpaid sector shows a more defined pattern: light user profiles rank 12th or 13th, moderate user profiles rank 9th or 10th, and heavy user profiles rank 8th or 9th. This trend is consistent with a mature market where volume discounts mean heavier usage profiles are more economically priced.

As a mature market, Germany's three operators are generally competitively priced in most profiles, though there are some areas with clear winners or losers. In postpaid voice/SMS, for example, O2's price is consistently US \$10.00 lower than its competitors in all three usage profiles. A similar trend occurs with Telekom being the most expensive option in prepaid voice/SMS/data, though Telekom is by far the worst in the heavy usage profile, coming in at US \$84.33 where O2 is only US \$33.17 and Vodafone US \$28.73. Other categories show a tighter market picture—like the light and moderate usage profiles for both prepaid and postpaid data only plans, where all three providers' prices are mere cents away from each other.

India

In Q2 2017 India moved up one spot to 6th place in postpaid and improved two spots to reach 1st place in the prepaid market.

While India continues to have low voice and SMS costs relative to data, a lot of the ranking changes were driven by more competitive data prices. In the prepaid market where India is now in 1st place of the 25 countries, voice/SMS/data for moderate and heavy users each jumped up one spot in the rankings. The biggest change to the prepaid market was in the data only category where both the light user and moderate user profiles moved up four spots. The heavy data user profile in both prepaid and postpaid are still significantly behind India's average profile rating; the prepaid iteration comes in 11th place while postpaid is 17th. However, while the prepaid data only average rating is 5.33, postpaid has a mean rating of 11. A similar trend exists in the voice/SMS/data category where the prepaid average ranking is 3.66 and postpaid is 5.66.

India's more highly ranked profiles tend to have closer pricing structures amongst providers, with at least three of the four providers prices falling within dollars or cents of each other. Usually there are one or two outliers

in these cases, though this does not occur consistently with one provider. The heavy and sometimes moderate user profiles have more varied costs per provider. It is noteworthy that in the data profiles Reliance is consistently the most expensive in all but the data only—light user profile. However, this is not the case in the voice/SMS/data profiles, where Airtel is most expensive in postpaid, and the most expensive provider varies in prepaid.

Kenya

In Q2 2017, Kenya's prepaid and postpaid markets had dissimilar findings in their overall performance rankings. While the prepaid market showed a slight improvement quarter-over-quarter moving from 5th to 4th place in the overall rankings, the postpaid sector dropped from the 8th least expensive market to the 14th.

In terms of quarter-over-quarter changes within the individual profiles, Kenya's largest jump in the prepaid market was seen in the data only moderate user profile in which the country improved by three rankings. All other prepaid profiles went up or down by one or two rankings. In the postpaid sector, the country saw rankings dramatically dropping as much as 11 to 15 ranks in some of the individual profiles. Additionally, the country's three operators had offerings that were priced closer to each other in the prepaid market and a wider range in cost in the postpaid.

As 4G service continues to emerge in Kenya, Safaricom is now joined by Kenya Telecom as the country's providers with 4G networks. Airtel remains the only operator not to have qualifying offers for the bundled heavy user profiles in both the prepaid and postpaid markets as it is still in the process of rolling out the faster service.

Although Kenya performs well in light and moderate user profiles, as a percentage of monthly income it is among the highest cost, taking up an average of 12.23 percent of per capita monthly income—the highest average of all the countries examined in this report.

Kuwait

Kuwait fell in the rankings in the second quarter, with postpaid dropping from 22nd to 23rd and prepaid losing two places to move from 20th to 22nd. These results stemmed from other markets reducing prices while Kuwaiti operators made few price changes across their plans.

While Kuwait is expensive relative to other markets, within its own geographic sphere it remains competitive. The other wealthy Gulf states maintain expensive SMS/minutes pricing, while offering globally competitive larger data plans. Kuwait is no exception. Both the country's prepaid and postpaid data-only heavy-user profile ranked 13th, whereas almost all other profiles ranked in the 20s. Kuwait ranked last, 25th, in the voice/SMS—prepaid light user profile as well as in the postpaid voice/SMS moderate user profile.

As noted in Q1, Kuwaiti operators deploy simple pricing structures with relatively high volumes of services bundled together for fixed costs. As such, many times the same plan was used by an operator for the light, moderate and heavy user profiles. As one would expect with this model, Kuwait's performance relative to its international peers tends to be better in the heavier usage categories—given that most countries' costs

increased but Kuwait's had remained constant. With some exceptions, Kuwait's operators tended to have only a mild spread in their prices. As seen in previous quarters, Ooredoo is, on average, the least expensive carrier as compared to Viva and Zain.

Malaysia

Malaysia's overall rankings did not change quarter-over-quarter in both the prepaid and postpaid markets. It remained the 15th least expensive country in the prepaid market, and was still ranked as 21st for postpaid consumers.

Quarter-over-quarter, the country performed better in only two profiles in both the prepaid and postpaid sectors with the biggest improvements seen in the prepaid data-only light user and prepaid data only heavy user profiles. These profiles improved respectively by three and five ranking levels. All but two of the postpaid consumer profiles—light users of minutes, SMS and data and light data only users—fell by one to three levels. These two profiles remained unchanged. This is in contrast to Malaysia's performance in Q1 2017, in which most postpaid profiles decreased in cost; however, these changes were not sufficient to move the country's ranking in the overall postpaid market.

The one area where Malaysia featured fewer offering plan options than other countries was in terms of SMS. This service appears to be bundled in with fewer and fewer Malaysian plans—with operators instead offering data allowances for social media apps. The result of this was that the SMS requirement for many of the profiles had to be achieved by purchasing these messages on a per-SMS basis through the plans' excess usage rates. Except for the postpaid offerings from Maxis, which do include unlimited SMS for both feature phone and smartphone users, this resulted in SMS accounting for a much higher percentage of the cost for the Malaysian operators than for those from most other countries in this study. Digi does include small all net SMS allowances in plans that meet several of the profiles' requirements and Celcom only includes this feature in plans available for light feature phone and smartphone postpaid users.

In an in-country comparison, offerings from the three operators remained priced relatively close to each other, however DiGi was most frequently the least expensive and continued to have the largest market share of subscribers. Celcom's New Xpat Plan line for prepaid users, which resulted in 10 percent to almost 67 percent decreases in cost, remained available to consumers. For example, light prepaid bundle users could now opt for Celcom's New Xpat Plan RM 10 instead of the Xpat Plan RM 30.

Mexico

Mexico's ranking remained the same quarter-over-quarter at 9th in the prepaid market. In fact, this was the country's ranking at year end 2016 as well. In the postpaid sector, the country continued to experience a slight drop in its ranking, going from 10th to 11th place.

In the prepaid sector, Mexico continued to perform very well in the profiles that required voice and SMS. In these six user groups the country ranked between second and ninth. This stood in stark contrast to its performance in prepaid data-only profiles, where its rankings were 18th, 13th and 20th for light, moderate and heavy data-only prepaid users. Quarter-over-quarter, heavy prepaid data users had the largest fall in

rankings with a five level drop. While most markets now price mobile plans predominately based on the included data volumes, the extreme divide found in Mexico between very affordable calling and messaging and high cost data was not seen in any of the other prepaid markets studied.

One element that was not included in this report and makes up a rather large element of Mexican plans is social media/messaging app data allowances. All the operators include these types of dedicated data allowances with some of their major lines of plans. This fact likely contributed to the high cost of data in the Mexican market. Since many of consumers' data needs would have already been covered by these social media allowances, the Mexican plans effectively have larger allowances than reflected in the profiles. These types of allowances are available in many markets but they are particularly prevalent in Mexico.

Internally, the operators were generally relatively close in terms of cost. That said, Movistar continued to be the least expensive—albeit it was generally by a small margin. While Telcel's prices for light and moderate postpaid smartphone and feature phone users increased by 50 percent in Q1 2017 because the operator was no longer offering its 1 GB Telcel Max Sin Limite plan at a cost of MXN 199.00 and consumers need to choose the 2 GB plan at a cost of MXN 299.00, the costs reverted back in June 2017 when Telcel introduced its Telcel Max 1000 plan which offers 800 minutes, 400 SMS, 1000 MB of data for general usage and 1000 MB for use of WhatsApp, Facebook, and Twitter for MXN 199.00.

Nigeria

In Q2 2017, Nigeria fell two spots to 8th place in the postpaid market and two spots to 7th place in the prepaid market.

Having finished first in three profiles last quarter—prepaid data-only for heavy users, postpaid data-only for light users and prepaid data-only for moderate users—this quarter marks an overall decline with the only first place finish going to the postpaid data only light user profile. In fact, of all the postpaid profiles, data only—light user and voice/SMS—light user were the only two not to drop places. In the prepaid market, there is a similar trend, with only voice/SMS—heavy users and voice/SMS/data—moderate users remaining unchanged and the rest of the profiles dropping from one to six places in the rankings.

In terms of individual operator performance, several of the operators do not offer postpaid plans and bundled offers are not common. As such, there are not the kinds of dramatic volume discounts that favor heavier usage consumers. This is evident in the closer prices of the light and moderate data only plans for both prepaid and postpaid compared to the more expensive, varied prices of the heavy usage profiles. In addition, there have been changes to the providers comprising the market: Etisalat no longer operates in Nigeria plus a new operator 9mobile has entered the market.

Oman

Quarter-over-quarter, Oman's results were consistent with it ranking among the most expensive mobile markets in the world, once again finishing 23rd for prepaid plans and showing a slight improvement from 23rd to 22nd for postpaid plans. Nor is it surprising that the country's consumers have such a high mobile spend, as this is true of many countries in the Middle East. The spread of its performance among user profiles

remained relatively tight among most of the profiles with the country's performance ranging from 20th to 24th, which was a slight decrease in costs from Q1 2017. The three profiles out of this range in which the country showed a better performance was in the prepaid and postpaid data-only light user profiles and in the prepaid light calling and messaging profile, where it was ranked 16th, 17th and 17th, respectively.

As in previous reports, Oman's high costs are driven by the fact that there are few options that include large volumes of minutes or SMS. This was particularly true in the prepaid sector. This characteristically means that the only way to achieve the calling or messaging requirements is to purchase these services through add-on bundles or excess usage rates, driving up the cost particularly for the heavy user profiles.

Overall, there was very little change to plans and pricing this quarter in Oman by the country's two MNOs, Omantel and Ooredoo. The offerings from both providers are quite similar for most profiles, with the operators trading positions based on the specific requirements of the model consumer. This type of pricing structure is commonly seen in countries with only two MNOs and the country remains one of the highest cost for wireless service even when percentage of monthly income is taken into account.

Pakistan

Pakistan saw little movement in its rankings in the 2nd quarter, with postpaid remaining in 2nd place and prepaid moving up one place from 7th to 6th. The Pakistani mobile plan pricing remains some of the most competitive of the 25 countries tracked in this report, and significantly more so than its neighbors in the Gulf region. The 2nd quarter showed significantly more pricing activity than the previous one, with 11 of the 18 user profiles showing a delta.

Operators in Pakistan, led by Warid, consistently dropped prices across their postpaid offerings. Warid lowered prices by up to PKR 200.00 on several of its data heavy postpaid plans. However, it did increase its 15 GB/month prepaid plan from PKR 1000.00 to 1500.00. Mobilink increased the data allowance on its "Monthly Streamer" plan from 1 GB to 2 GB, and gave customers an additional 500 MB on its prepaid "Monthly Browser" plan 1500 MB for a total of 2 GB. Pakistani operators are adopting the global trend of incrementally allocating more data per plan as consumers continue to use more data-intensive applications.

As seen in Q1, the five Pakistani operators tracked—Mobilink, Telenor, Zong, Ufone and Warid—had a typical cost spread; closely grouped in price in some categories but with substantial ranges in others. On average, Telenor continues to be the most expensive provider, sometimes by a substantial margin. Outside of this operator, the remaining four tended to be priced relatively similarly, trading positions or tying based on the specific profile requirements and plans selected.

Qatar

As in past quarters, Qatar performed poorly when compared globally—ranking 19th in the postpaid sector and 18th in the prepaid market. Even though the country had a two level drop from Q1 2017 in the postpaid market, its mobile prices in this sector still looked far better when examining its costs against its regional

peers. In the prepaid market Qatar's overall position improved by six rankings when compared to the first quarter of 2017. Similar to the postpaid sector, Qatar's prepaid market ranks higher than its regional peers.

Qatar's quarter-over-quarter improvement in the prepaid market makes mobile costs less cost prohibitive than they were in Q1. Qatar's per capita income is reported at USD 129,512.00, and in Q2 2017 consumers spent an average of 0.53 percent of their monthly income—a 0.094 percent decrease from Q1—on wireless service. This statistic for Qatar is comparable to the percent of mobile income that Western European consumers spend; however, the cost of mobile service is less expensive in Western Europe.

In general, the country's rankings were consistent in the postpaid sector where Qatar finished between 16th and 21st. There was a wider spread of the rankings in the prepaid sector as they ranged from 13th to 25th. The cost for prepaid moderate and heavy users of voice and SMS had the lowest rankings. In particular the cost of Ooredoo's flexi plans reduced the mobile spend for these consumer groups.

Across many consumer classes, Ooredoo and Vodafone, the country's two operators, costs remained similar. In some cases—such as the postpaid feature moderate user—both operators have the exact same service volumes and prices. This type of parallel pricing structure is common in markets with only two operators, however it is particularly pronounced in Qatar.

Saudi Arabia

In Q2 2017, Saudi Arabia's rankings still held constant from the end of 2016, with the country finishing as the second most expensive mobile market for postpaid consumers and as the most expensive market for prepaid consumers.

In terms of its profile-by-profile rankings, Saudi Arabia had one of the tightest spreads of any of the countries studied. The country ranked from 21st to 25th for all 18 profiles. These results, however, should be considered within a regional context as all Middle Eastern countries that are tracked finished with very high mobile costs by international standards.

As the consistent rankings would indicate, there were few price changes from the Saudi mobile operators quarter-over-quarter. In the prepaid market, the rankings either did not change or increased or decreased by only one level. On the postpaid side, all but three profiles remained the same with those three profiles improving by one rank.

In terms of the relative performance between the Saudi operators, Zain and Mobily tended to be relatively close, with Zain the least expensive provider in 7 of the 18 consumer profiles and Mobily winning 8. Using data recharges enabled Mobily to decrease costs for its data only offerings. Zain and Mobily also tied with the lowest price in 3 of the profiles. As is common with market leaders, STC tended to have higher prices than its two competitors.

One important item to consider when examining the prices of Saudi Arabian mobile service is the impact of the country's affluence on prices. If mobile prices are evaluated as a share of average monthly income, Saudi Arabia's performance improves dramatically. For instance, when using this lens of analysis, the percentage of monthly income that Saudi Arabians need to spend is on average 2.23 percent, ranking the country 15th among the countries studied for this report.

Singapore

Singapore continues to place near the average of the countries benchmarked, with postpaid continuing to improve from 11th place to 10th and prepaid holding steady quarter-over-quarter in 12th place. The postpaid data only light user profile sustained its strong downward pricing trend in Q2 and now ranks 7th—moving up 4 places from Q2. In addition, the prepaid data only light user profile improved as well, albeit to a lesser degree, moving from 12th to 10th.

Overall, the data only profiles rank the highest in Singapore, with the prepaid data only moderate use being the top ranked profile at 6th. However, this is not the result of Singaporean operators specifically cutting prices on data only plans, in fact only two plan changes were made on data only plans in Q2, but rather is a result of operators in other benchmarked countries increasing prices. That said, M1 dropped prices marginally across several of its postpaid and prepaid voice/SMS plans, and Starhub lowered prices on its “Sim Only S” plan. Singtel’s only changes were to increase the data allowance of one of its prepaid and one of its postpaid plans.

M1 continues to be, on average, the least expensive operator in Singapore across most of the user profiles, but Singtel and Starhub remain competitive and the pricing spreads are tight. The widest pricing gaps were in the heavy user profiles, Starhub consistently being the most expensive and M1 the cheapest.

South Africa

South Africa remained at 16th place in both the prepaid and postpaid plans. This is largely due to the three operators in South Africa not making any significant changes to their plans. Vodacom reduced the price on its 5 GB data-only plan from ZAR 249.00 to ZAR 199.00, but this was offset by Telkom increasing the price of its 10 GB data-only plan from ZAR 299.00 to ZAR 349.00.

South Africa continues to have the widest spread in terms of performance in its postpaid market of any country in the study, with its results ranging from 2nd to 22nd across the nine profiles. The prepaid sector does not have such wide deviation from the mean across the profiles, with a range of 11th to 22nd. In both plan categories, the data-heavy profiles fair the worst relative to other markets.

The primary driver of this range of postpaid performance is the highly varied plan structures seen in the country. All three operators are very price competitive in the light-user profiles, especially the data-only, whereas the heavy-user profiles are much more expensive and differ greatly between carriers. It is likely that consumer demand is concentrated on inexpensive data and the average customer does not have the purchasing power to afford the data-heavy higher end plans.

South Korea

In the second quarter of 2017, plan offerings from mobile operators in South Korea remained the same. Despite this stability in its own offers, the country’s rankings still changed slightly because of price fluctuations in other countries in this study. In the postpaid sector, South Korea ranked at 17th and in the prepaid sector it ranked at 19th.

In the postpaid sector, the country performed consistently across the spectrum—typically between 15th and 18th. However, it ranked much better at 10th in the postpaid voice and SMS light user profile and much worse at 23rd in the postpaid data only heavy user profile. The country generally performed worse in the prepaid sector, except in the data-only light user profile where it ranked eighth, which was the country's best performing category. This, however, was a drop from last quarter where it was seventh.

As in previous reports, South Korea's mobile operators—SK Telecom, olleh and LG Uplus—were very closely priced in most categories. These MNOs all tend to structure their pricing and offers in similar ways. For instance, all charge per-second for calling (with limited included calling allotments, particularly for prepaid plans), offer bundled plans with calling, messaging and data only in the postpaid sector and all have similar breakpoints for data only offers. These similarities are showcased in the light user profile for voice, SMS and data postpaid consumers. In this profile, the prices of all three operators were exactly the same. All the plans were structured with unlimited calling and messaging and 300 MB of data.

The least expensive operator in South Korea was olleh, which had the cheapest offerings for 10 of the 18 profiles. Sometimes it was far cheaper, such as the postpaid feature light profile where it qualified with a plan that cost KRW 14,388.00 while LG Uplus and SK Telecom each offered plans that were KRW 29,865.00 and KRW 22,000.00, respectively. In another plan it was the cheapest, but only very slightly as shown in the postpaid bundle moderate user profile. In this profile SK Telecom was KRW 39,600.00, LG Uplus was KRW 39,490.00 and olleh came in just under at KRW 39,390.00.

In the postpaid calling and messaging plans, olleh is priced significantly below its two competitors (whose pricing is tightly grouped). These consumer classes—postpaid users who are interested exclusively in calling and messaging and not data—do not make up a large percentage of Korean mobile consumers, who are considered to be among the most sophisticated and data intensive in the world. As such, the pricing discrepancies in this category appear to be an outlier and not representative of differences in the pricing strategies of the Korean operators.

Spain

Spain declined slightly in the 2nd quarter of 2017 across the prepaid sector, yet managed to remain in 17th place relative to its peers. The postpaid sector also remained stable in 13th place. Relative to other European mobile markets, Spain continues to lag, finishing last in both prepaid and postpaid among the five E.U. countries tracked.

The shift towards unlimited calling and texting is apparent across all Spanish operators as several plans changed to include unlimited minutes or SMS, especially in the heavy and medium user profiles. It should be noted that the use of SMS by Spaniards is almost non-existent, as such even inexpensive plans in the light use category now include unlimited SMS. In addition, the trend toward commoditized data in the developed world can be seen in Spain, where all operators in the 2nd quarter had at least one example in postpaid and prepaid plans where the data allotments were significantly increased with either a marginal or no price increase.

As evidence of the growing importance of data, the greatest decrease in price in the prepaid sector was the data only heavy user profile, which jumped two places relative to the previous quarter. This price drop is

significant as this category already experienced a large negative price delta of 33 percent between the 4th quarter of 2016 and the 1st quarter of 2017. The only other prepaid category that saw a price decrease was the voice/SMS light user, although this decrease was relatively insignificant.

Spain's postpaid prices fell slightly across all categories, however, Movistar increased the price on several of its top postpaid plans, which caused a drag on the average price decrease of the voice/SMS/data user profiles. Nonetheless, the bundled and data only heavy profiles saw large price decreases as Orange reduced postpaid plan prices and Movistar and Vodafone increased the data allocation on their more expensive postpaid plans with only marginal price increases.

Orange remains the least expensive operator in Spain across all but the moderate bundled postpaid profile. The starkest contrast is in the prepaid heavy user profile where Orange charges EUR 18.90 in comparison to EUR 43.67 at Movistar and EUR 127.67 at Vodafone. Taken on its own, Orange's pricing would compete aggressively in other European markets, but stands out even more in Spain against its more expensive peers.

Sweden

In the second quarter of 2017, Sweden dropped from the 1st place spot to 2nd place in the prepaid market and moved up from 6th to 5th in the postpaid market.

Ranking changes were less severe in the Swedish market, with no plan profile position moving more than three places. Across all the tracked categories, none of the prices changed by 10 percent of monthly income. Prepaid voice/SMS profiles did not budge in the rankings at all; the same was true with all three heavy user profiles in the postpaid market. As is the case with mature markets, Sweden's highest rated profiles tend to be the heavy user versions. This pattern is clear in the postpaid data-only category, where the light user profile ranks 15th but the heavy user profile is in 1st. Though this is true in other categories, some of the prepaid light user plans perform relatively well: voice/SMS/data ranks 2nd as does data-only. The prepaid market in Sweden offers lower volume plans than the postpaid market, which is geared more towards higher volume users.

Breaking down individual provider performances, the Swedish mobile market appears to lean towards postpaid plans. There is little variation in the prepaid offers by Telia, Telenor and Three (and Tele2 does not even offer prepaid options). However, it is worth noting that the heavy user data-only profile for the prepaid market is one of the most competitive, with all three providers offering nearly the same price. In the postpaid market, Telenor consistently has the most expensive plans with no exceptions. At the other end of the price range, Three is the least expensive option in all categories except data only where it is tied with Telia.

Thailand

Thailand rose two spots in the postpaid rankings to travel from 14th to 12th place. After remaining for a few quarters at 19th place in the prepaid rankings, Thailand traveled in the opposite direction, falling to 21st place.

The biggest ranking changes in the postpaid market occurred in the voice/SMS/data light and moderate user profiles, where both profiles moved up five spots. There were also improvements of the remaining postpaid

profiles, with each category moving up one, two or three spots across the board. Thailand's prepaid market saw less consistent changes: In the data only field, light and moderate user profiles improved by four spots while the heavy user profile went down three spots. All three prepaid voice/SMS profiles dropped places while the voice/SMS/data profiles either improved by one or stayed the same.

Thailand is one of the most uneven and irregular mobile markets in the world. Of Thailand's providers, AIS offers the most expensive prepaid options but has the least expensive postpaid plans in each profile. However, there are less distinct patterns with the other providers DTAC and Trumove; in the heavy user data-only profile in the prepaid market, they offer the same price, but do not appear to have any other closely competing prices in other profiles. One clear outcome is how expensive Thailand's prices are. Thailand's relatively high prices may be in part due to the country relying exclusively on OTTs over SMS. While there is usually still some requirement for SMS even in countries where OTTs like WhatsApp, Facebook Messenger, etc. are popular, this does not appear to be the case in Thailand. Instead of including SMS, the Thai operators will often bundle a dedicated data allowance for OTT messengers.

Turkey

Turkey remained one of the most competitive markets in Q2 in both the prepaid and postpaid segments. The postpaid segment held fast in 3rd place, while the prepaid segment slipped one place from 2nd to 3rd. Other than the data only light user profile, Turkey's postpaid categories experienced virtually no change, while all the prepaid profiles improved by at least one position. However, that improvement was still not enough to hold its place in 2nd in Q2.

The Turkish market is price competitive for nearly every consumer type. As noted above, the only exception where the country performed significantly more poorly was the data-only light user profile, where it came in at 11th in postpaid and 7th in prepaid. Turkey ranked as the most consumer-friendly market in 3 of the 12 categories that required calling and messaging, and ranked in the top 3 countries in 4 profiles. This success was driven by the fact that the country offers many plans at entry-level prices that featured high volumes of minutes or SMS. Turkey continues to rank the most consumer-friendly market in 3 of the 12 categories that required calling and messaging, and ranked in the top 3 countries in 4 profiles. Turkey's overall success is driven by operators offering many plans at entry-level prices that featured high volumes of minutes or SMS.

The three Turkish operators made few pricing changes to their plans in Q2, but Turkcell and Avea slightly increased prices on several of their postpaid plans. Overall, the Turkish continue to move in parallel in terms of offer structure and pricing. In general, when targeting the same class of consumers, the Turkish operators offer similar plans at similar price points. Avea is consistently the least expensive operator with Turkcell and Vodafone competing for second.

United Arab Emirates

The Gulf region has some of the highest wireless costs in the world. The United Arab Emirates performs near the bottom in every user profile of this study. In the postpaid user profiles, the U.A.E. has an average ranking of 25th, coming in last or second to last in seven of the nine types of users. The country's performance is

slightly better in the prepaid market with an average ranking of 22.33. The highest rank the country was able to achieve was 20th in the bundled light and bundled moderate user profiles.

A significant factor that contributed to the U.A.E.'s poor performance was high excess usage fees for minutes and SMS. For example, du does not offer any included SMS with its wireless bundles. Therefore, users do not get volume discounts and must pay for every message they send. When this is combined with the relatively low minute allotments per month, the user profile quickly becomes much more expensive with excess usage fees sometimes costing more than one-third of the total plan cost.

In the past, another component that contributed to the high cost of wireless service for Emirati consumers is the high data volumes included in each plan. Because data has become the key driver of cost in much of the developed world, the light or no data user has, in many ways, been left behind. Q2 showed a slight change in the size of data allowances that were available from the UAE operators. Previously, in the feature phone profile, where no data requirement is needed, the least expensive postpaid plan from du came with 6 GB and Etisalat included 3 GB. The operators now have offerings with 500 MB. Thus, users that do not require any data were able to pay less for service they do not use. Although the Emirates has a high cost of wireless, the country does have high per capita income, so costs may not be prohibitive to the average consumer.

There was not a large variance in pricing models between the two operators in the Emirates. In each profile, prices remained either the same or close except for the postpaid data-only moderate and heavy user profiles. In both cases Etisalat was 25 percent less expensive than du.

United Kingdom

As in previous reports the United Kingdom consistently ranks among the least expensive mobile markets in the world, primarily in the postpaid market. This quarter the United Kingdom continued to maintain its overall 1st place ranking in the postpaid sector. This is not surprising as the country finished between the 1st and 6th ranking in every postpaid profile, with seven profiles in the top three rankings. The country had a slight drop in overall rankings in the prepaid market. Quarter-over-quarter saw a drop from 4th place to 5th place.

The country finished first, second or third in all the postpaid user profiles, except in the data-only light and heavy user profiles, where they ranked sixth and fourth, respectively. In the light user profile, this ranking likely resulted because in more developed economies the light user consumes much more data on average than the developing world. With the saturation of smartphone usage, the light user market in these economies has become what a heavy user one might be in another part of the world. Therefore, the higher volumes offered to light users, which they may not need, comes at a higher cost. The country's ranking in the heavy data only user profile was not caused by the offerings of the U.K's mobile operators but by a shift of rankings from the other countries in this study. That said, the country's average performance remained 2.67 which was far ahead of its European peers such as France and Germany.

In the prepaid market, the country performed well across most user profiles, except for the data-only user profiles. The poorest performing profile across all 18 profiles was the data-only light profile, where it was ranked 11th. This ranking also exemplifies light users being offered higher data allowances than what they actually consume. While this was far behind Sweden in this category, which was ranked 1st, the country still finished ahead of its other peers, France and Germany, which lagged behind at 11th and 16th, respectively.

Despite small shifts in the United Kingdom's wireless market this quarter, the market continues to remain static, which is what would be expected in very mature economy. This is particularly clear when the average cost of monthly income is examined. Although some shifts in rankings occurred, this was largely based on movement in other countries in this study. British consumers saw almost no change in the cost of wireless service as part of their monthly income.

United States

Unlike the first quarter of 2017, there were very little changes in mobile plan pricing in the United States in Q2. As the country's four major operators—Verizon, AT&T, Sprint, and T-Mobile—continue to offer unlimited plans the cost of data continues to be inexpensive. This continues to cause the United States to move up in the rankings in the postpaid sector to 18th from 19th last quarter, and maintaining its position at 14th in prepaid. While the overall ranking might seem insignificant, prices in the United States are impacted by several other factors that contribute to poor overall performance.

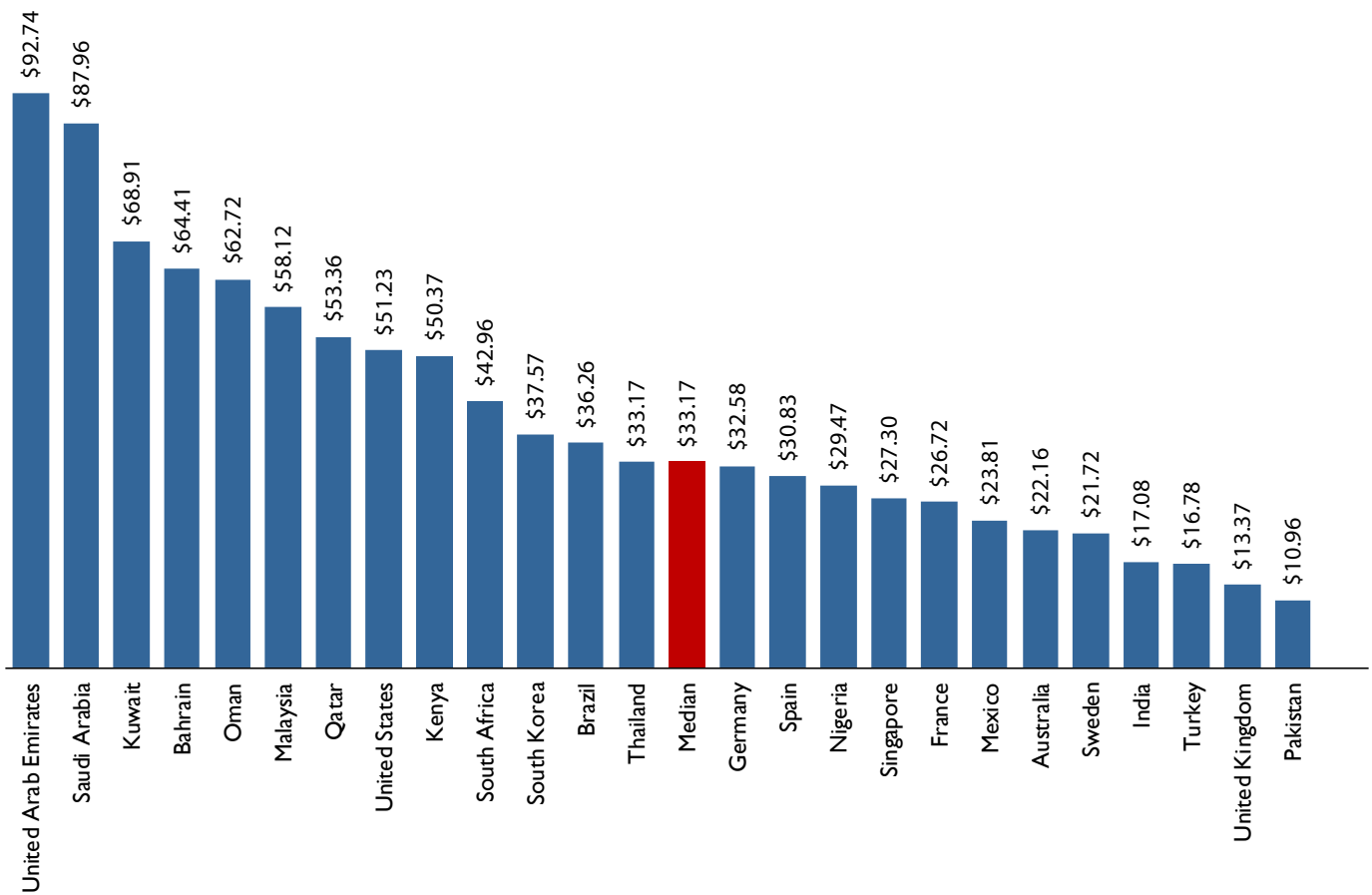
Coupled with the high average monthly income relative to its peers and the dramatic decrease in the cost of data, the United States improved its performance across many profiles. Overall, the U.S. market had reductions in the market price for 10 of the 18 profiles examined in this report.

As noted in prior reports, the United States has long had much higher mobile costs than most other advanced economies. However, fierce competition amongst operators over data-driven pricing has resulted in the U.S. increasing its postpaid ranking in the bundling light profile from 19th to 18th. In the bundled heavy user profile, the United States increased its position by two, bringing it up to 13th. This trend also translates to a reduction of 8 percent in monthly mobile cost for bundled users in both the prepaid and postpaid profiles.

While the United States does not perform well in relation to its peers in this report, it should be noted for the purposes of this study that only single line costs were considered as this is the most preferred pricing structure in most of the world. Consumers in the United States often buy multiple line plans with shared allotments which feature only a modest cost to add an additional line of service. This model tends to reduce the per line cost significantly as consumers add more and more lines to a single plan. With this left out, American operators have some of the highest single line costs relative to their international peers.

Cross Country Comparisons

Market Price of Postpaid Voice/SMS/Data Offerings LIGHT USER

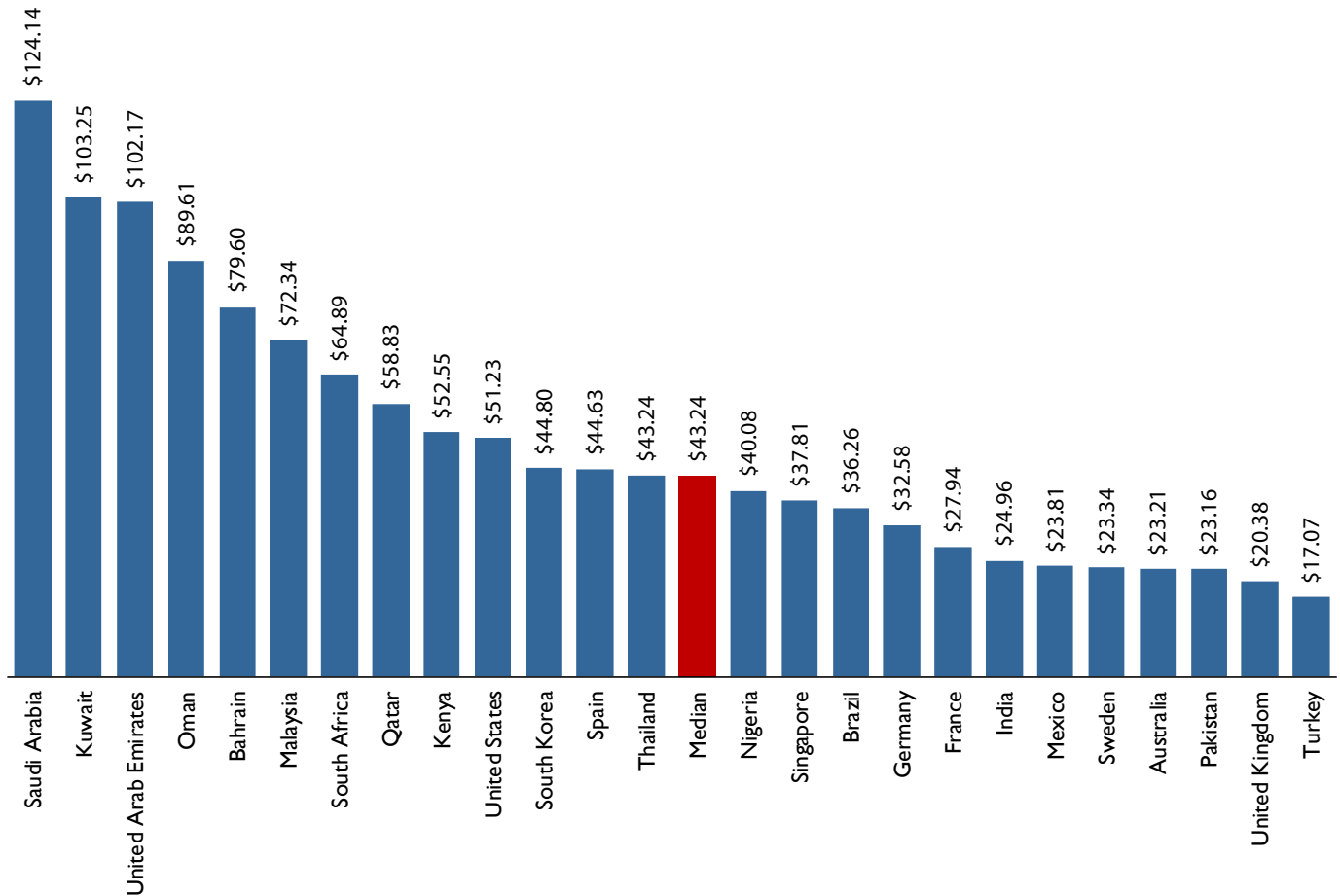


All prices are presented in US Dollars adjusted to reflect Purchasing Power Parity (PPP).

Market prices are calculated by multiplying prices by each operator's market share to produce a total weighted average price for each country.

Market Price of Postpaid Voice/SMS/Data Offerings

MODERATE USER

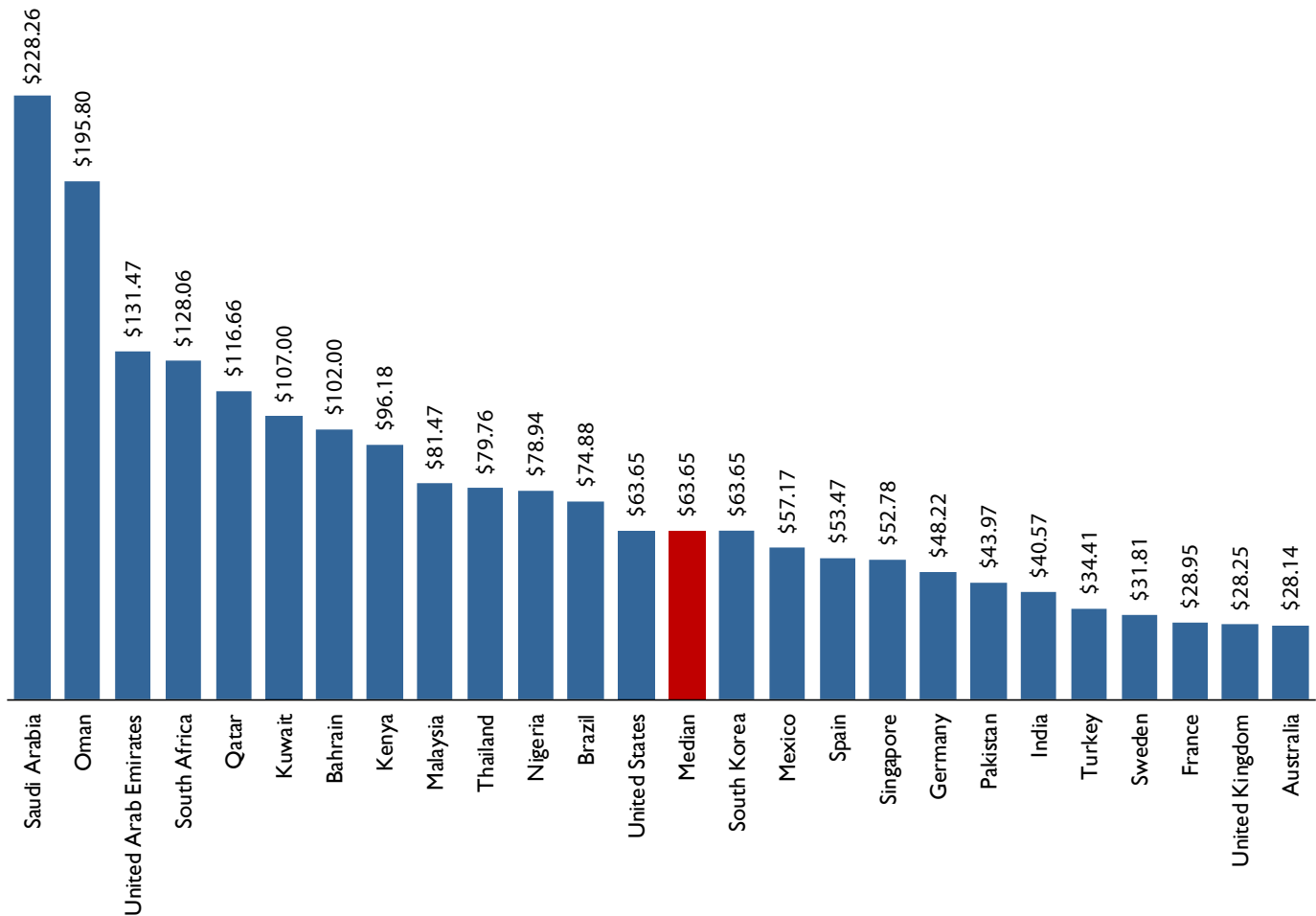


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Market Price of Postpaid Voice/SMS/Data Offerings

HEAVY USER

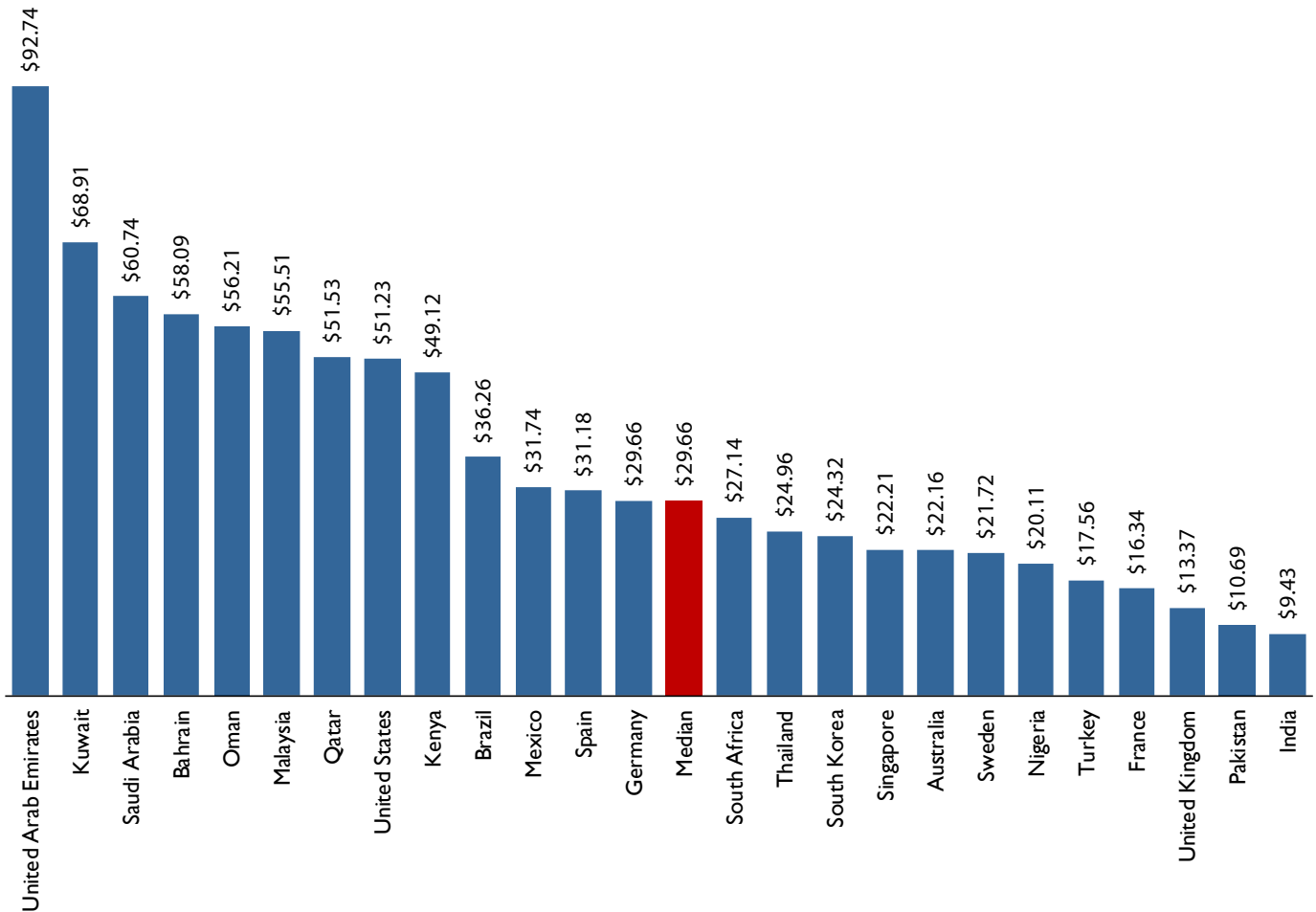


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Market Price of Postpaid Voice/SMS Offerings

LIGHT USER

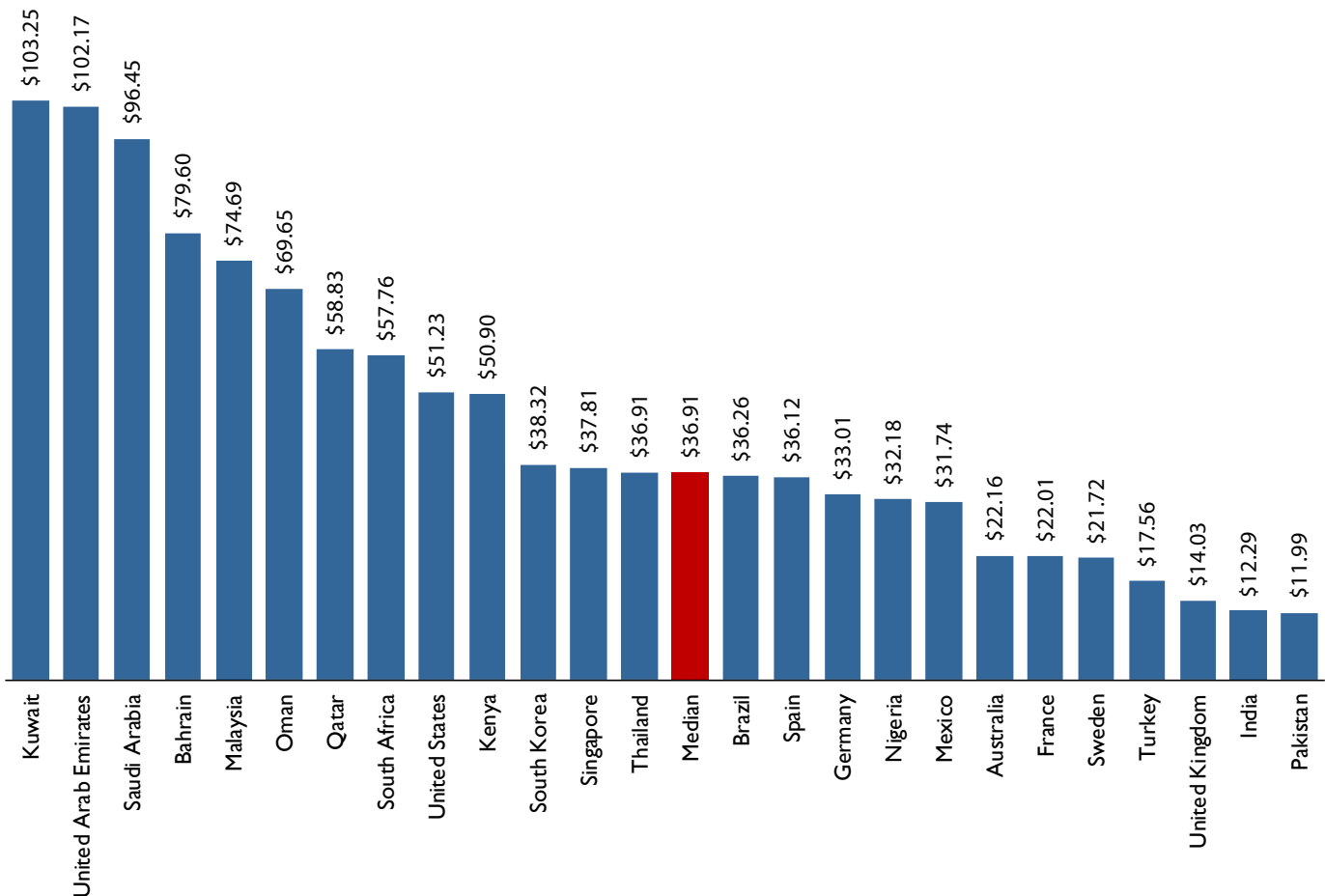


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Market Price of Postpaid Voice/SMS Offerings

MODERATE USER

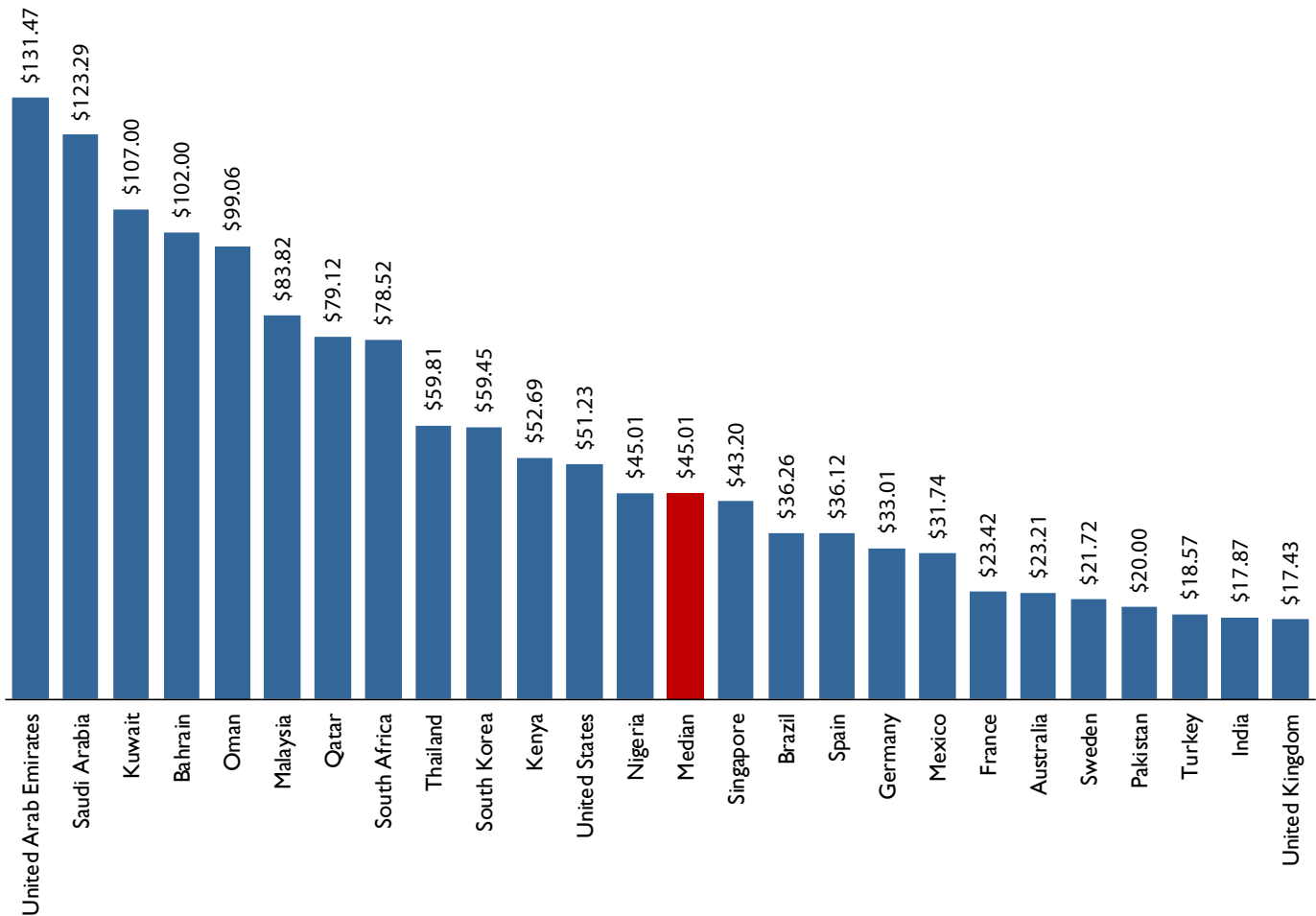


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Market Price of Postpaid Voice/SMS Offerings

HEAVY USER

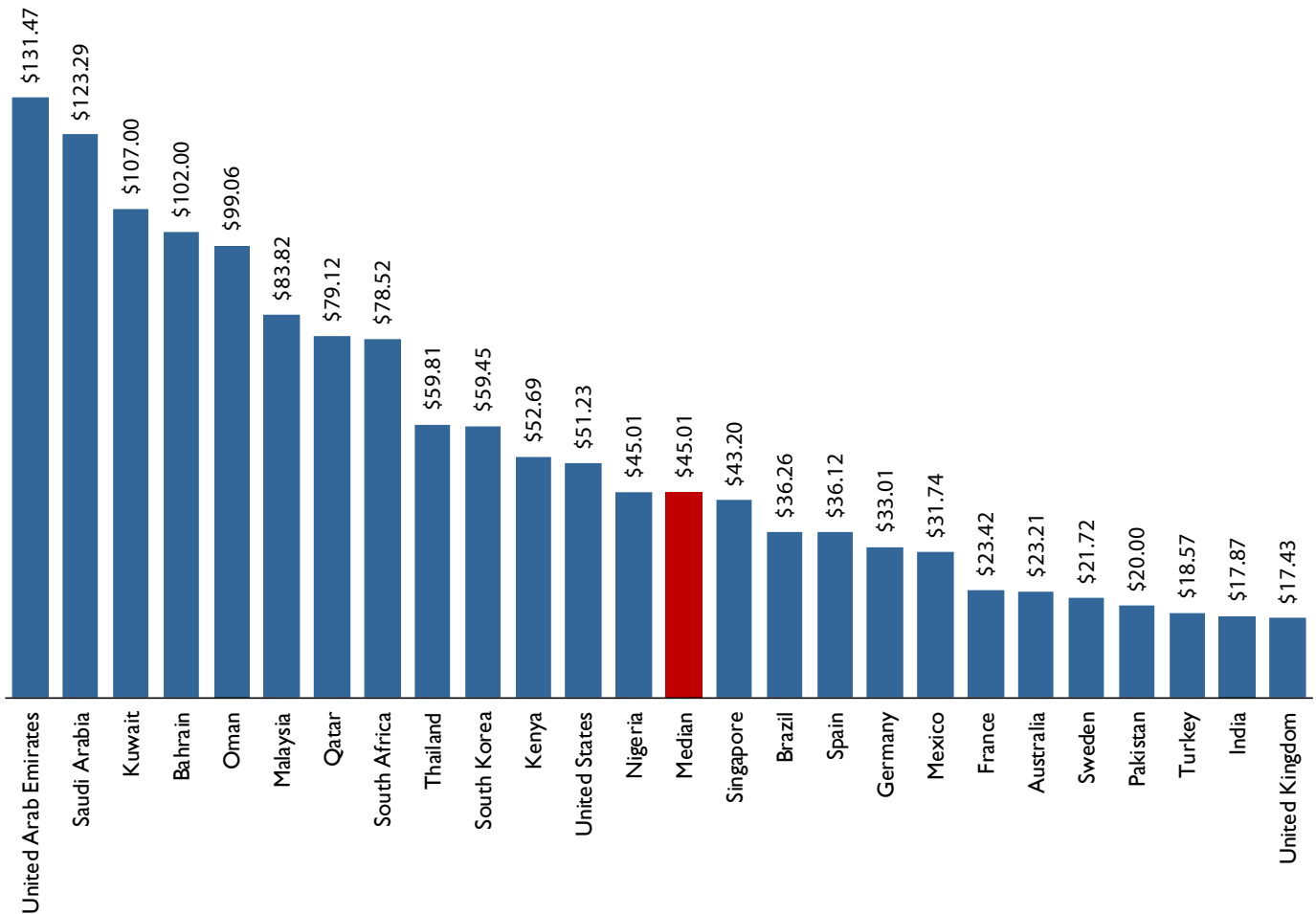


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Market Price of Postpaid Data Only Offerings

LIGHT USER

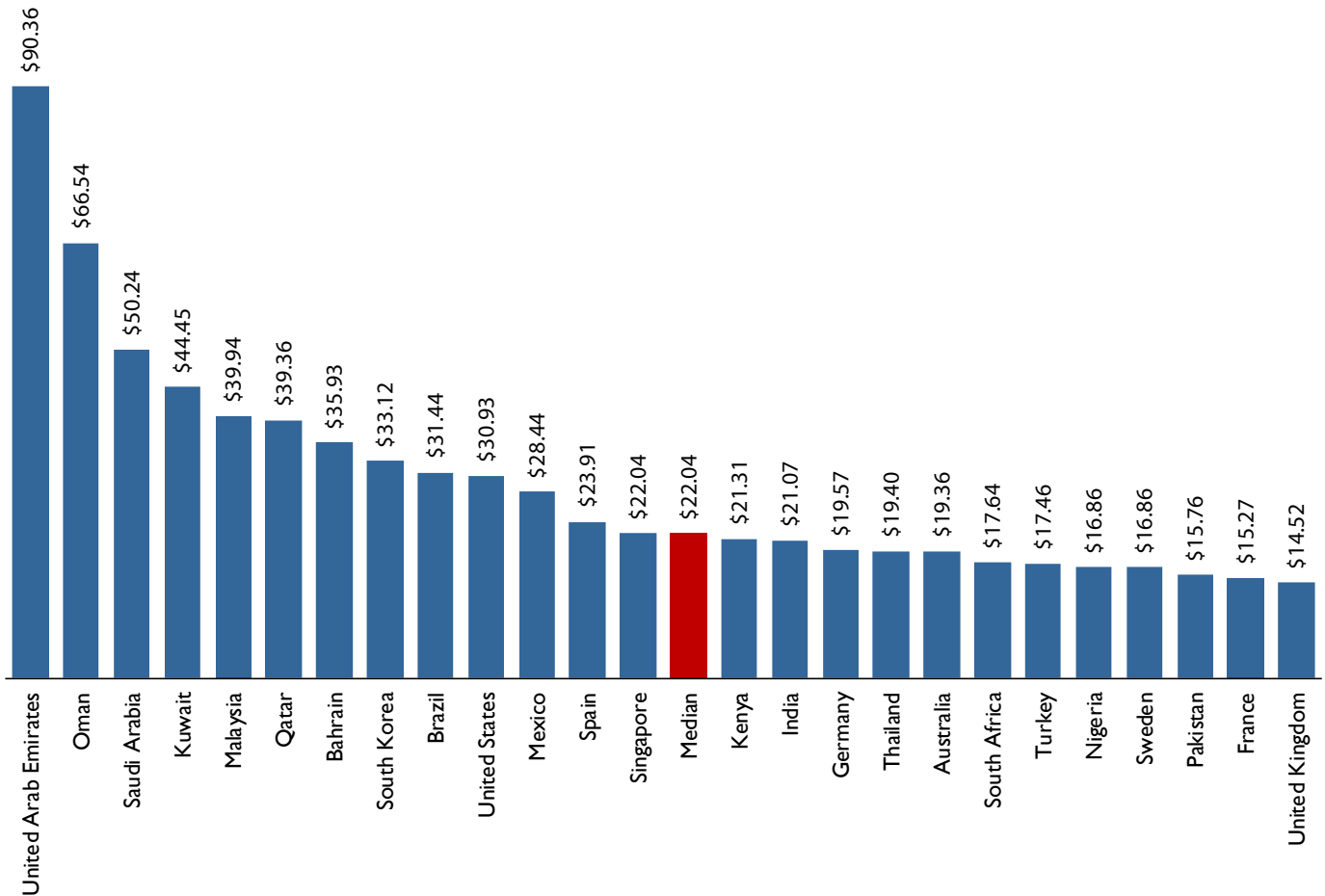


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Market Price of Postpaid Data Only Offerings

MODERATE USER

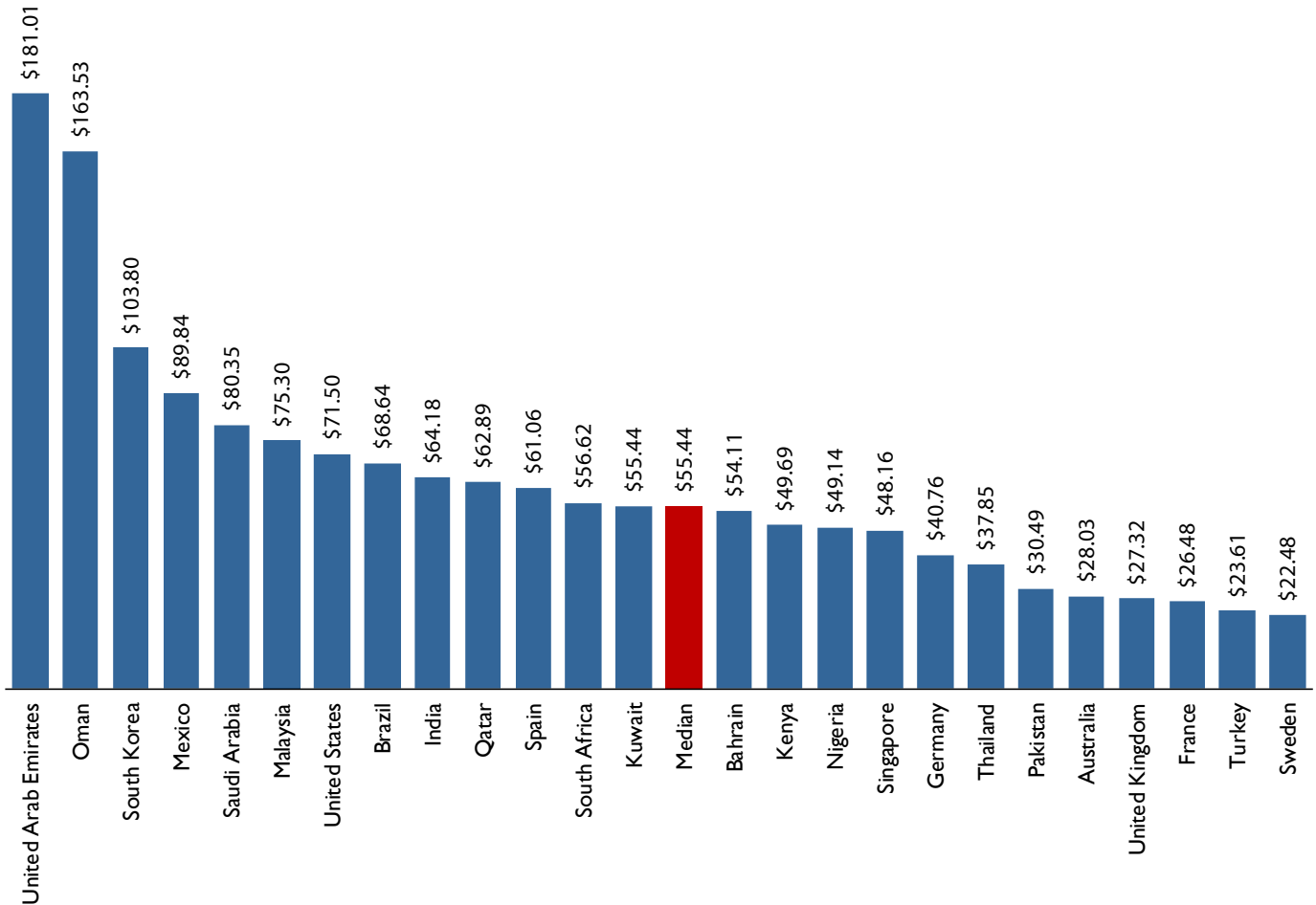


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Market Price of Postpaid Data Only Offerings

HEAVY USER

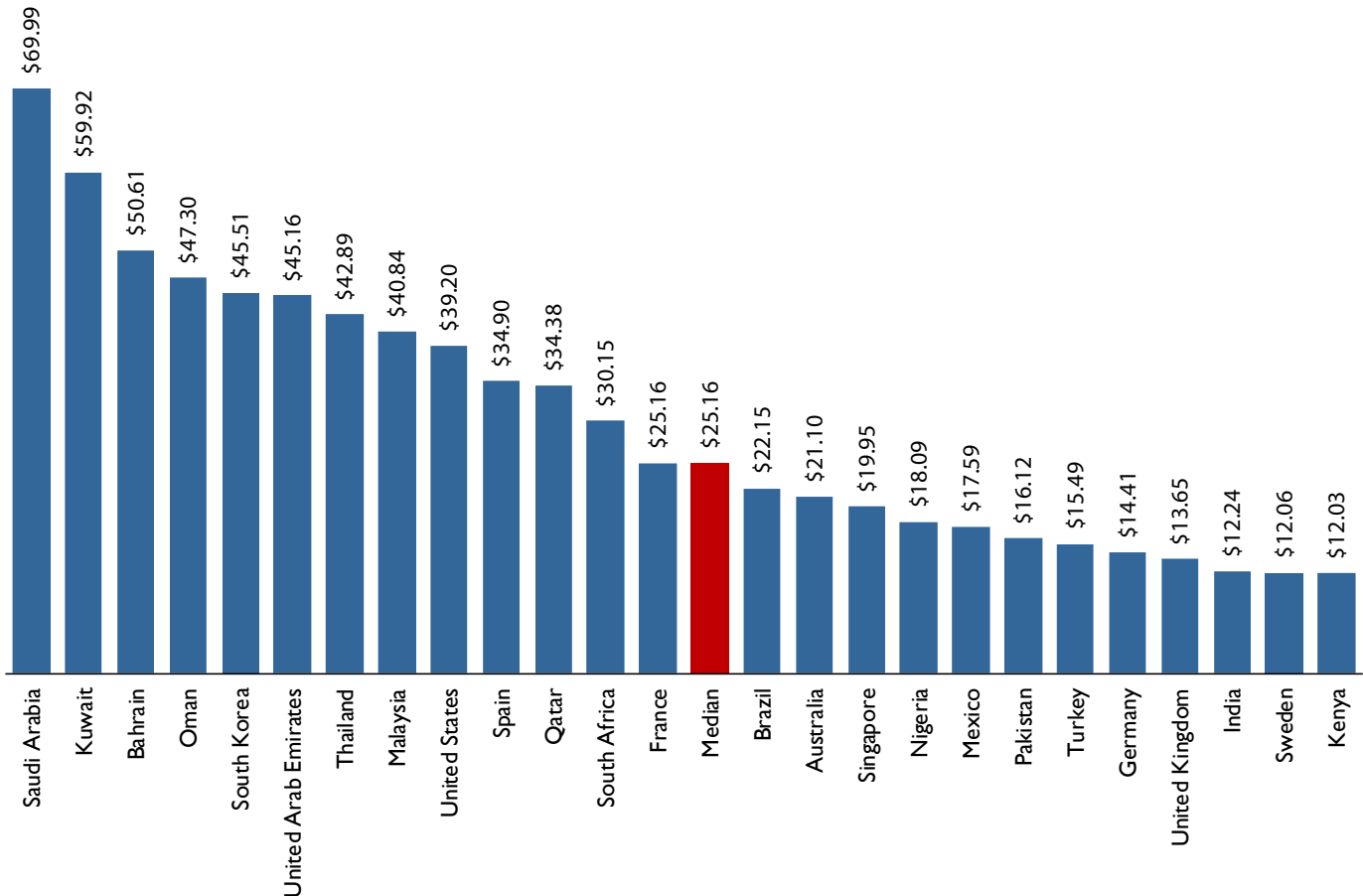


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Market Price of Prepaid Voice/SMS/Data Offerings

LIGHT USER

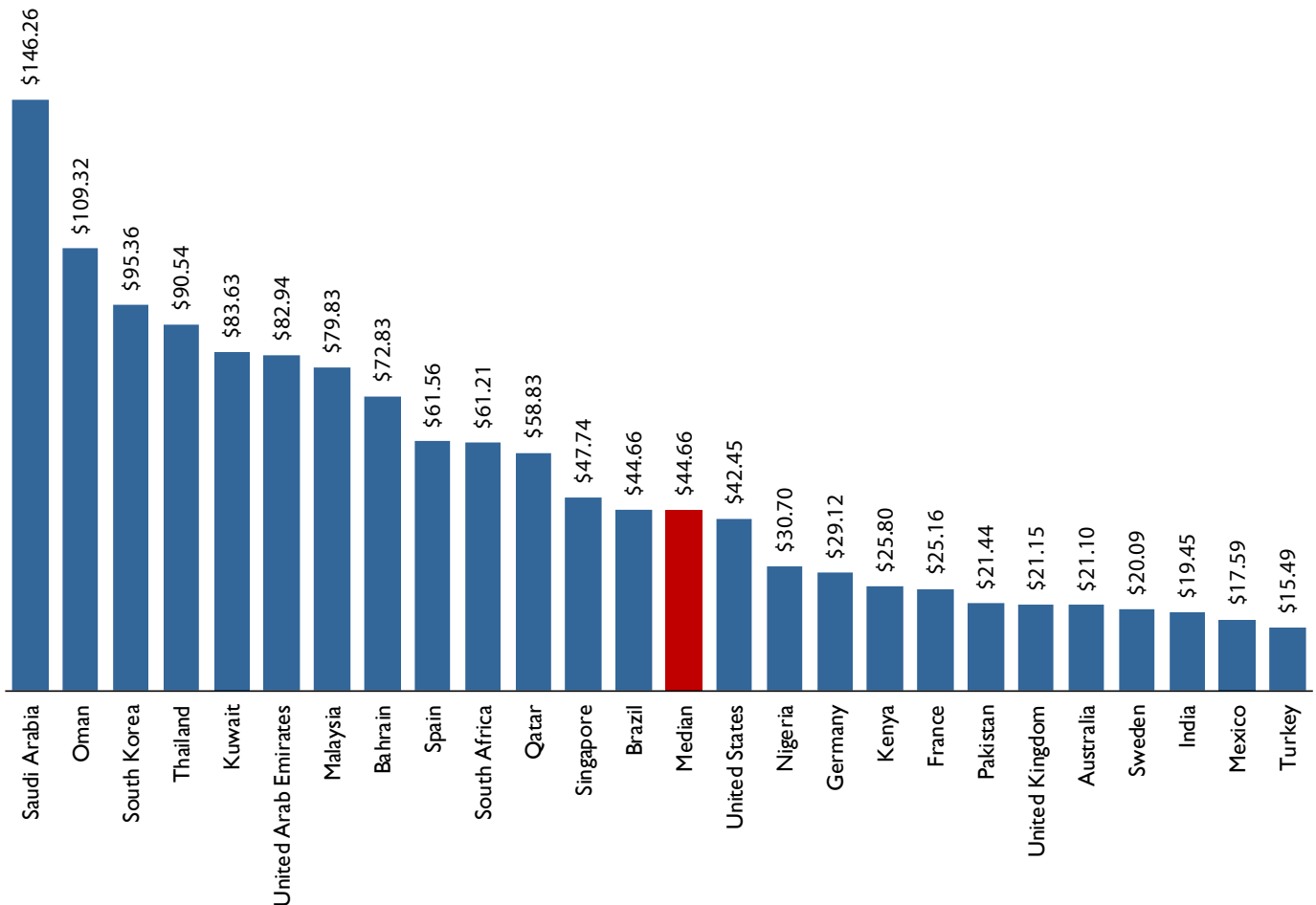


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Market Price of Prepaid Voice/SMS/Data Offerings

MODERATE USER

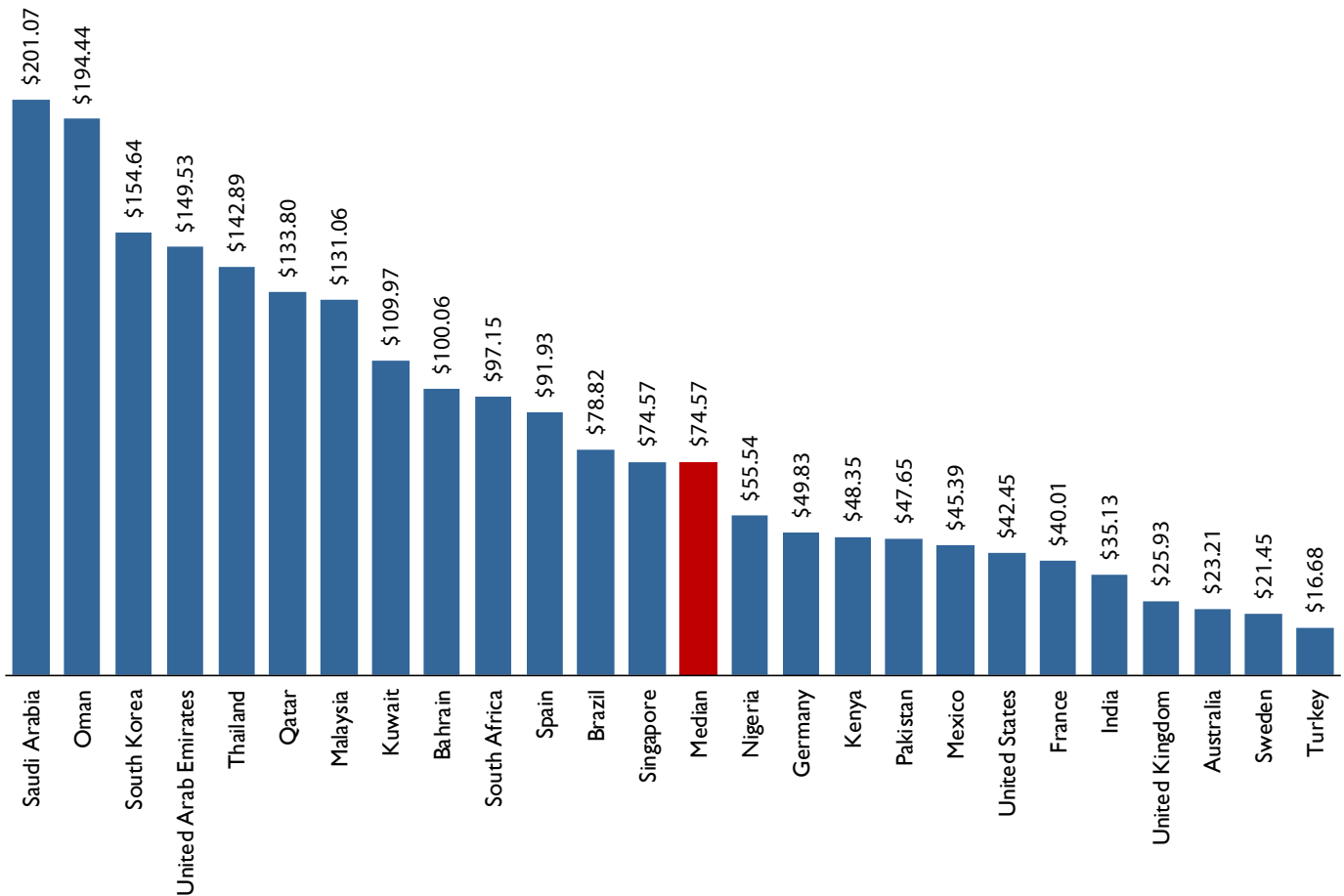


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Market Price of Prepaid Voice/SMS/Data Offerings

HEAVY USER

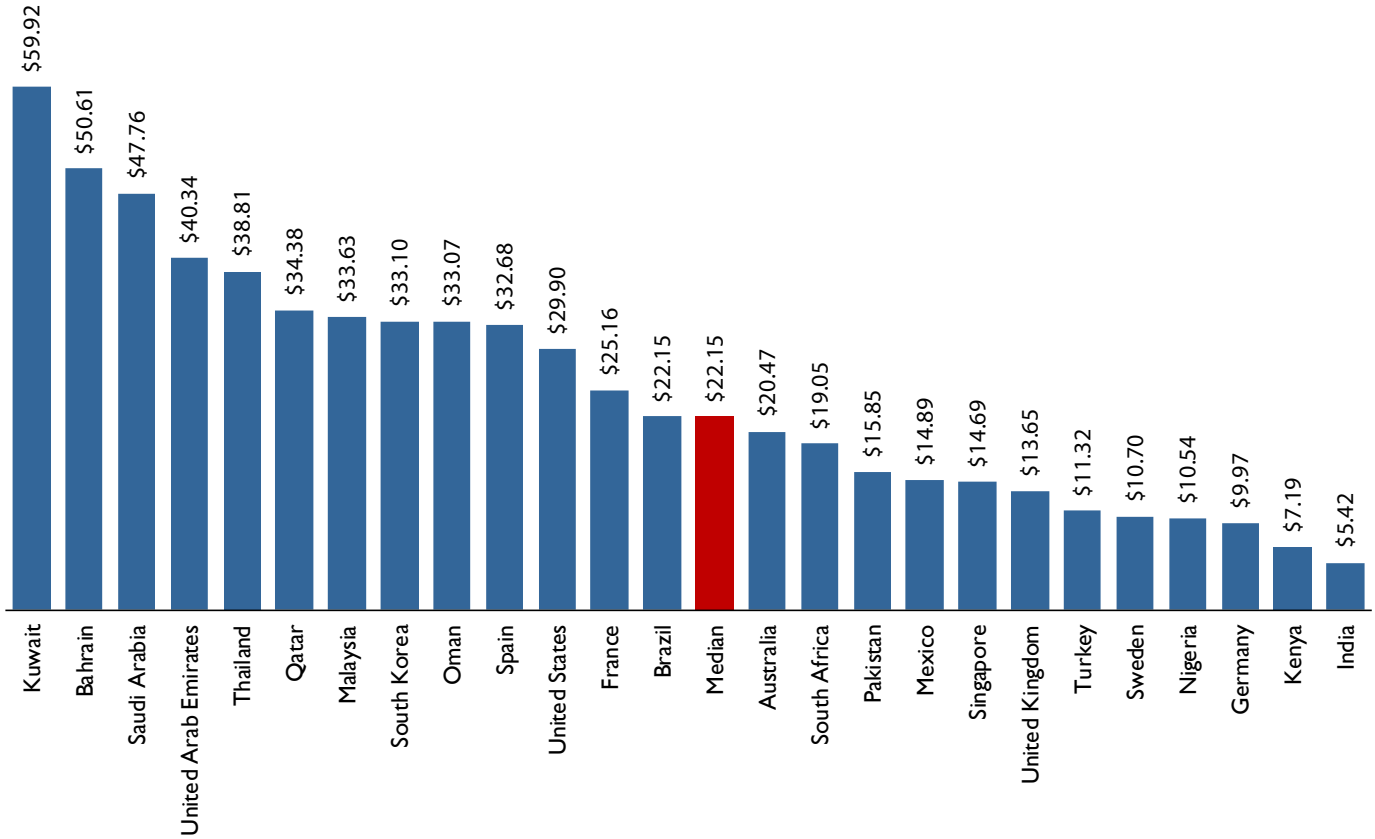


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Market Price of Prepaid Voice/SMS Offerings

LIGHT USER

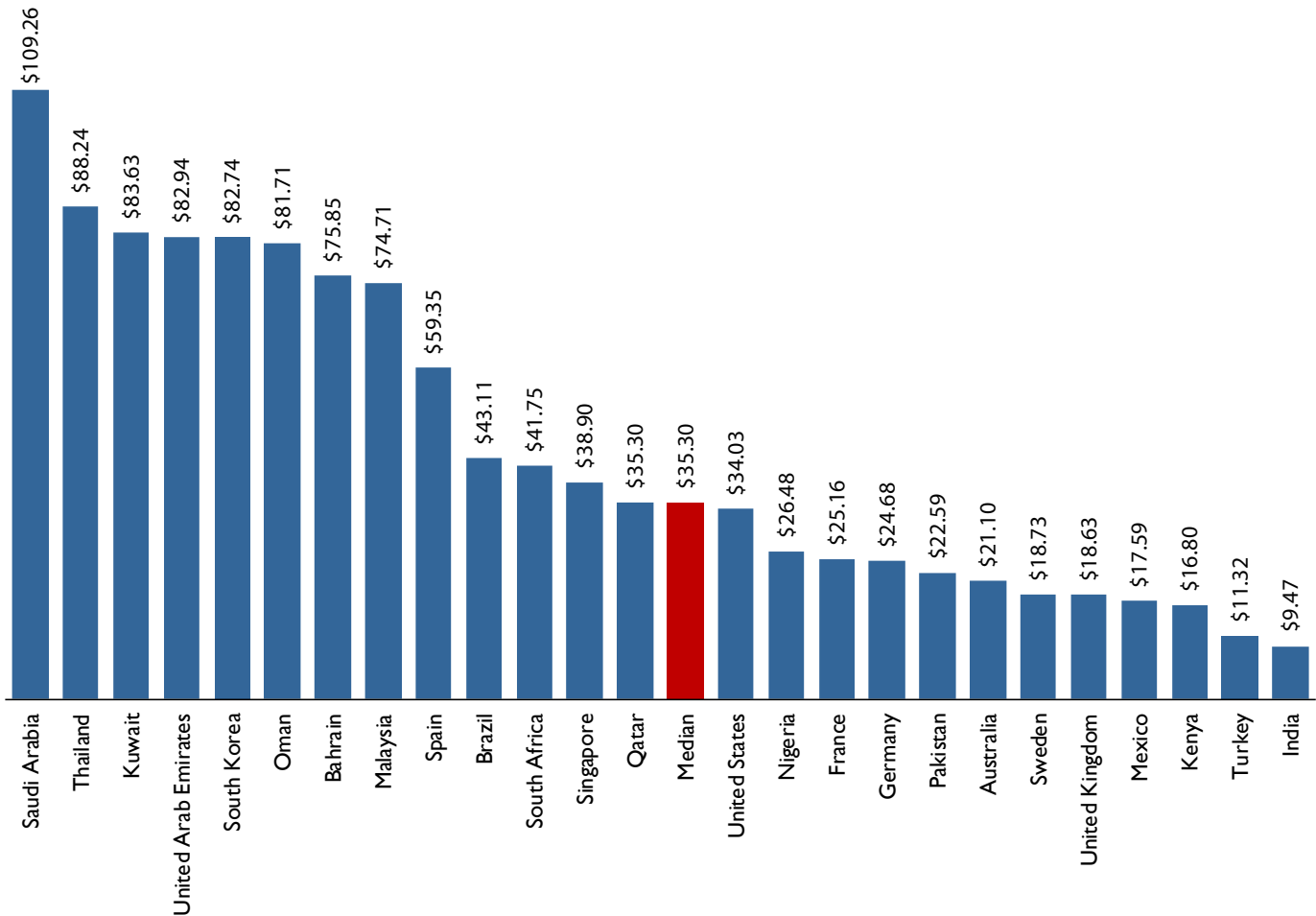


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Market Price of Prepaid Voice/SMS Offerings

MODERATE USER

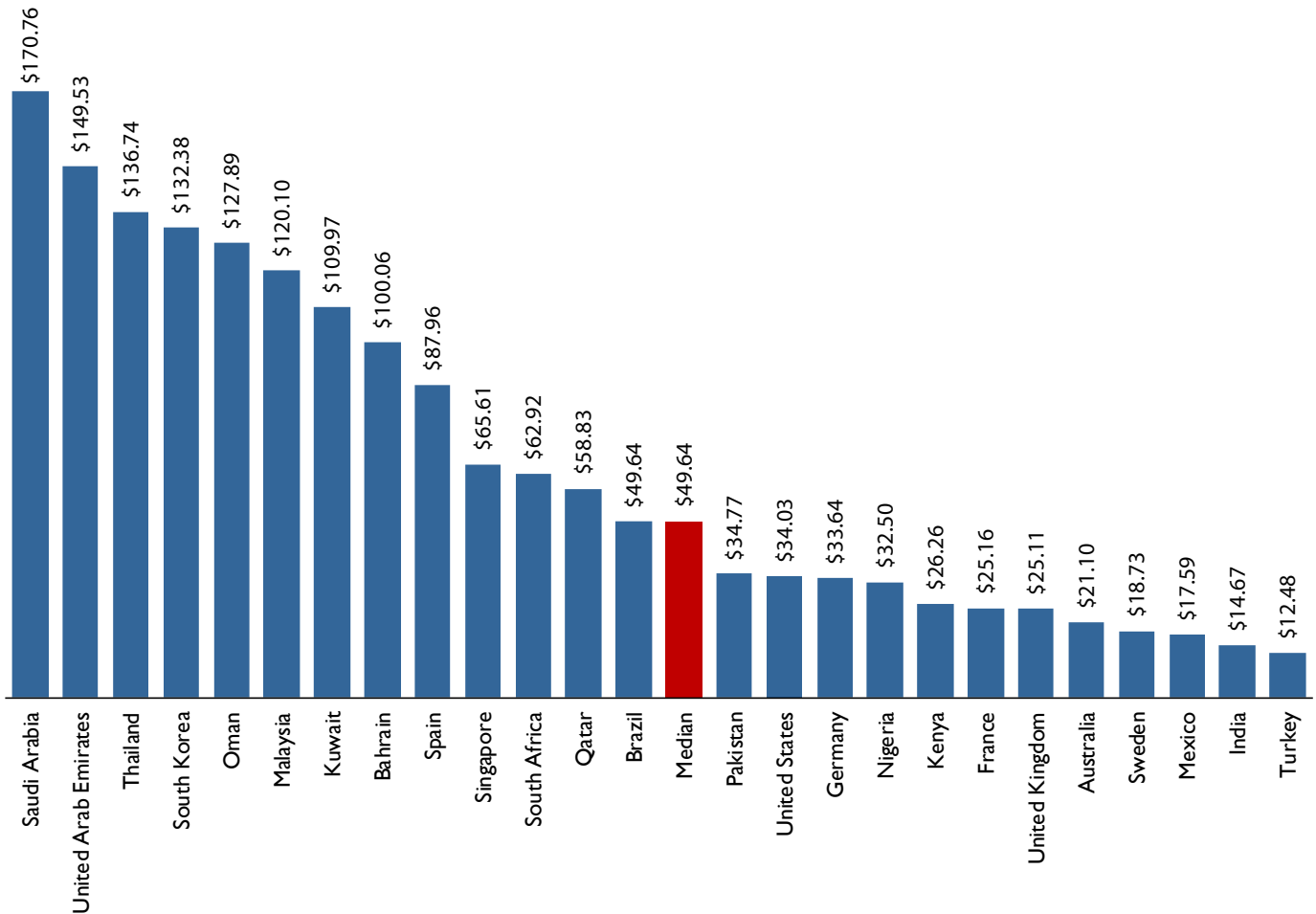


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Market Price of Prepaid Voice/SMS Offerings

HEAVY USER

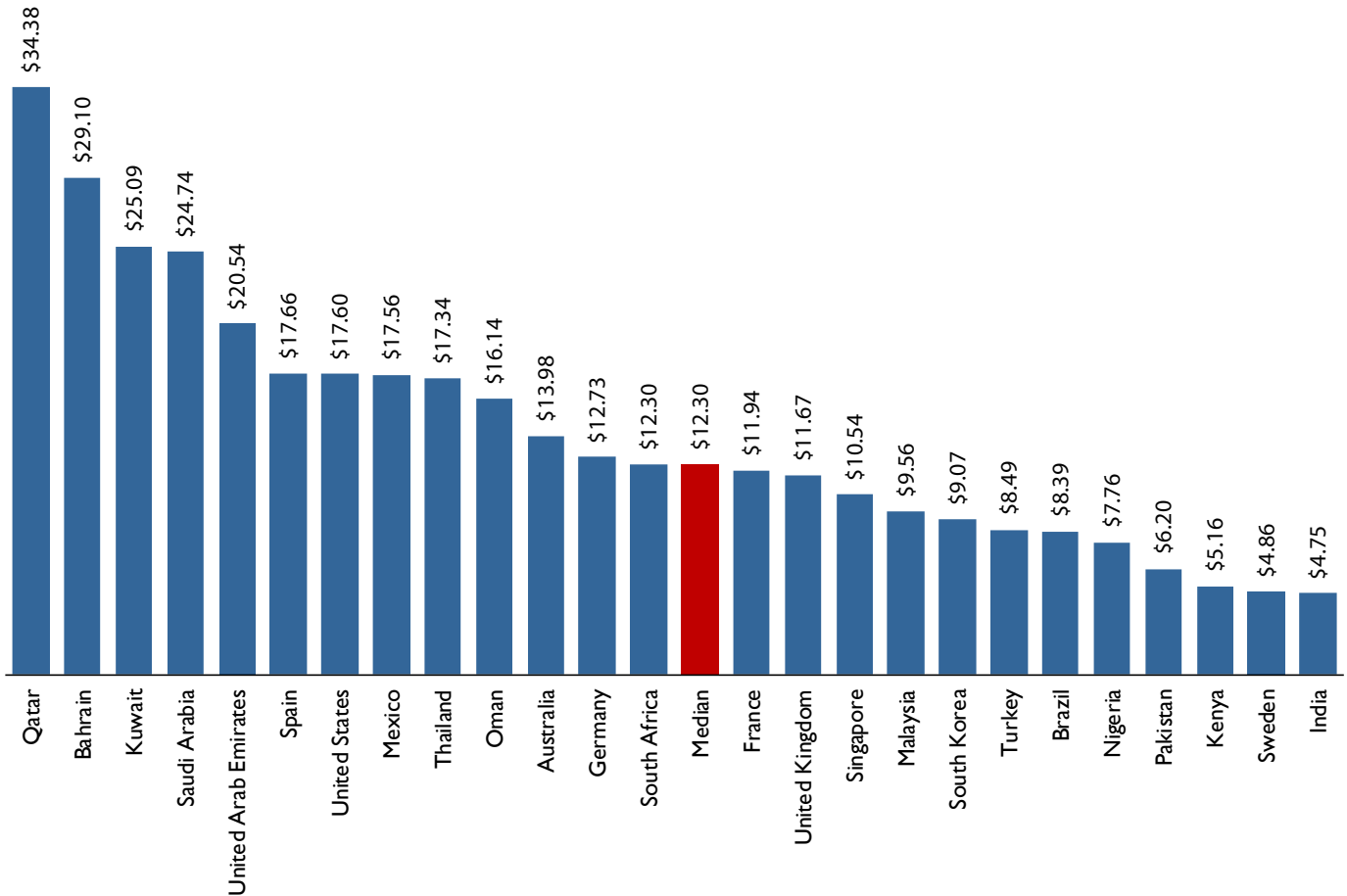


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Market Price of Prepaid Data Only Offerings

LIGHT USER

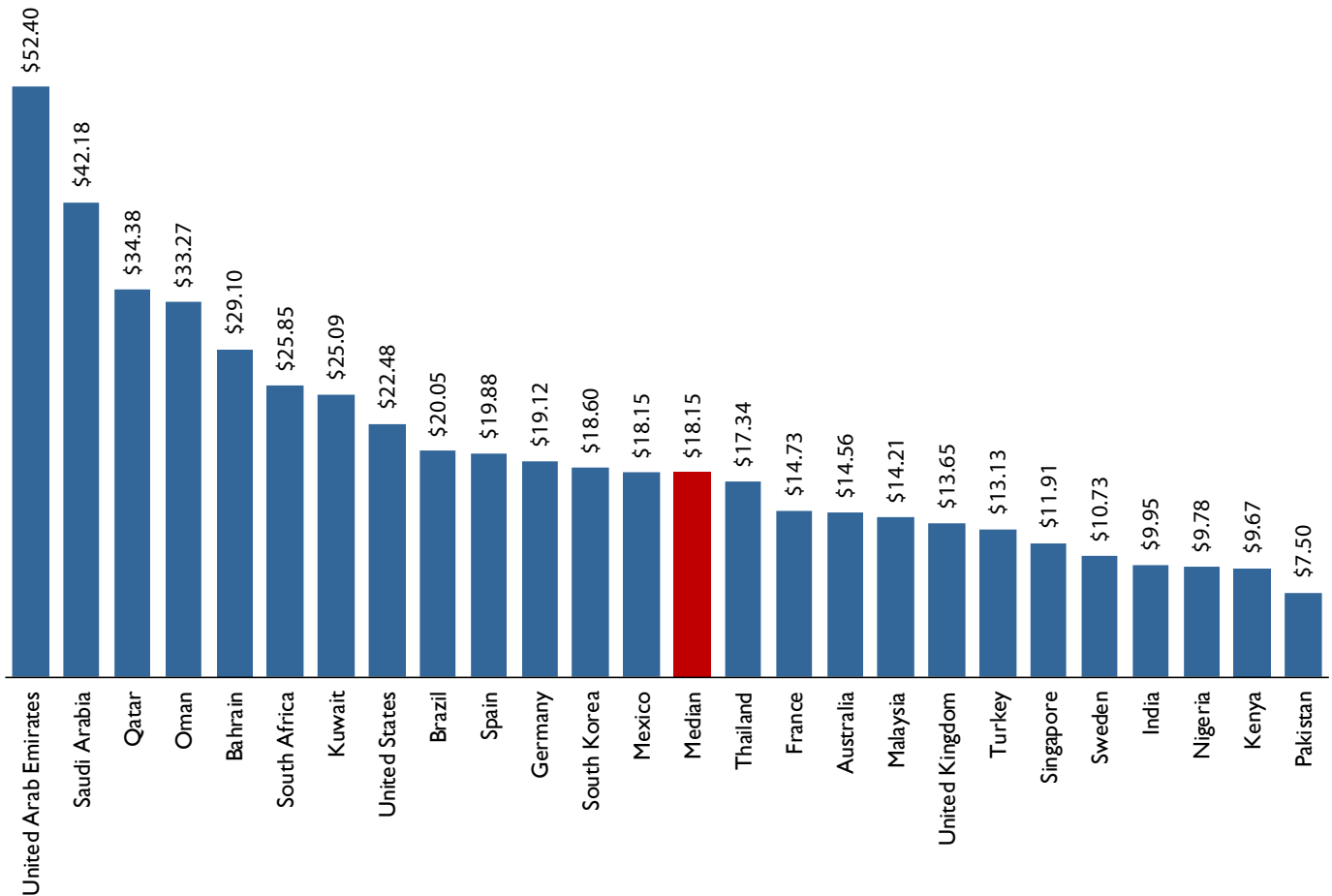


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Market Price of Prepaid Data Only Offerings

MODERATE USER

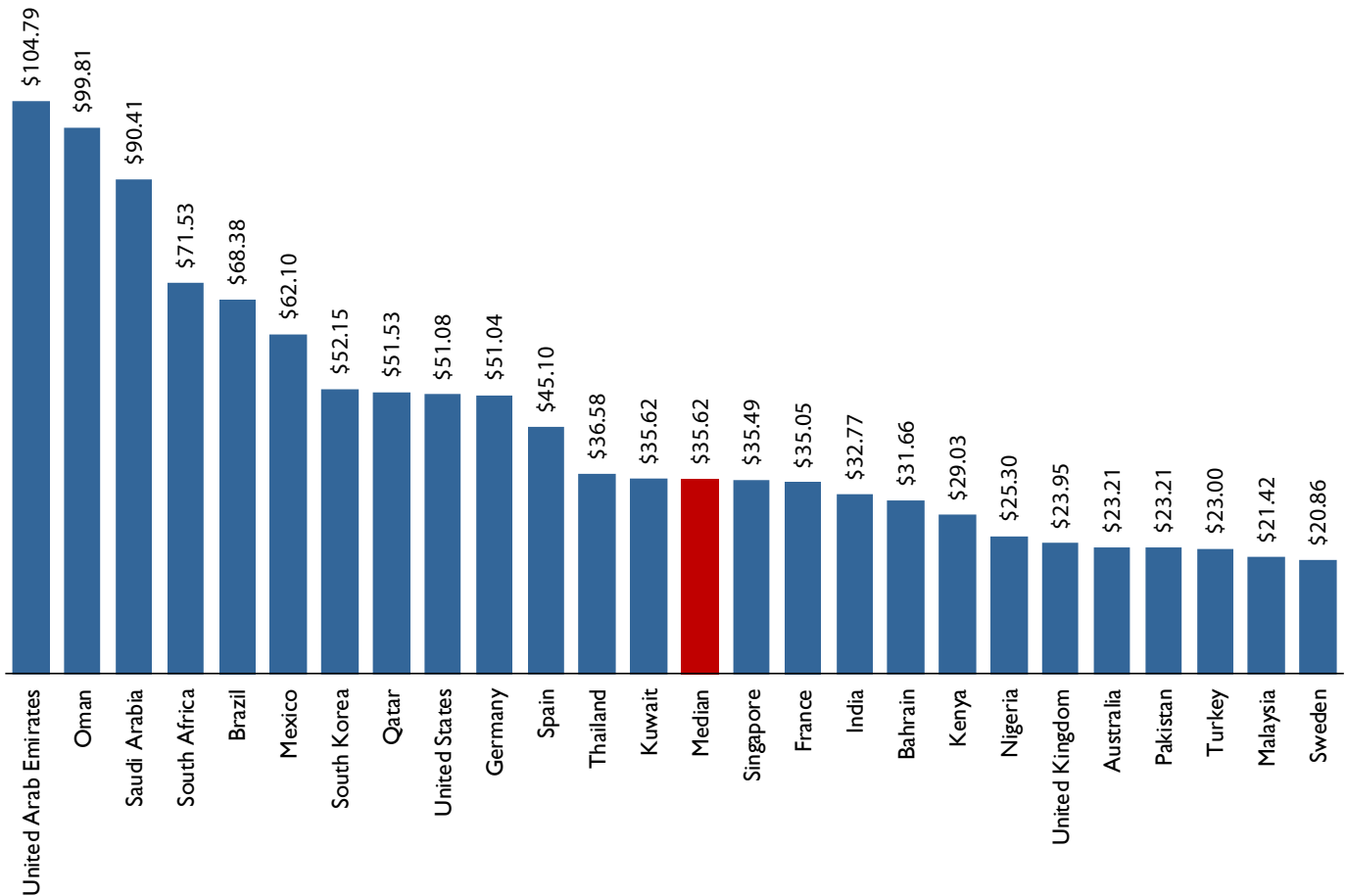


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Market Price of Prepaid Data Only Offerings

HEAVY USER



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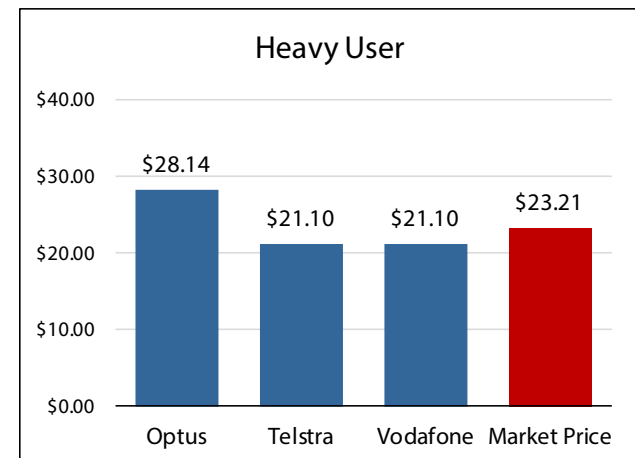
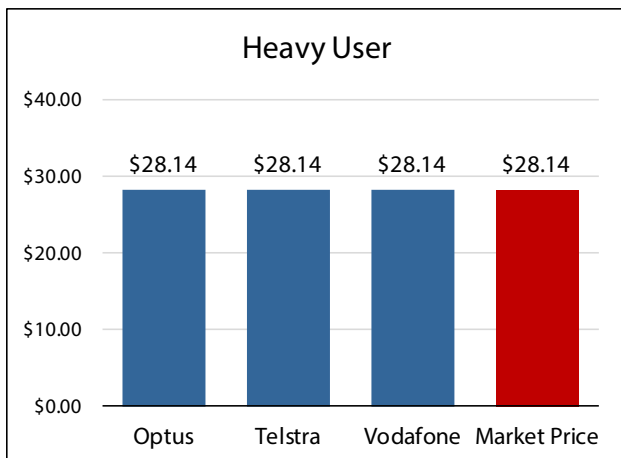
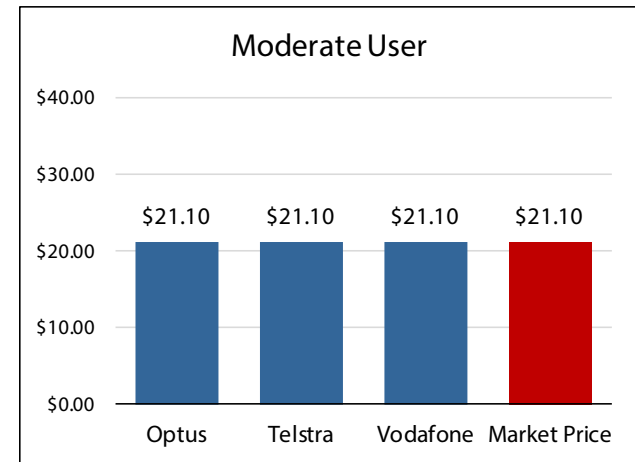
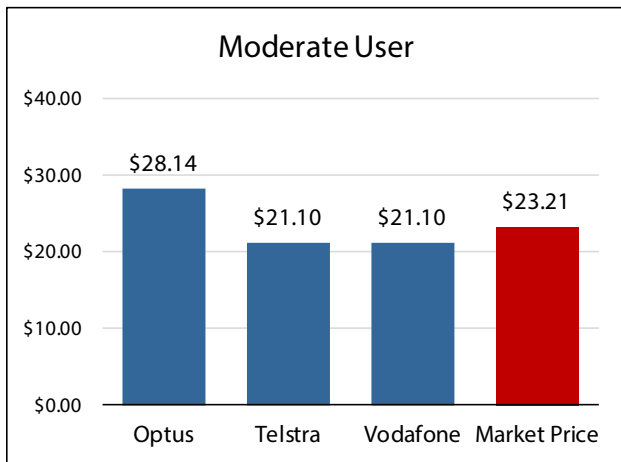
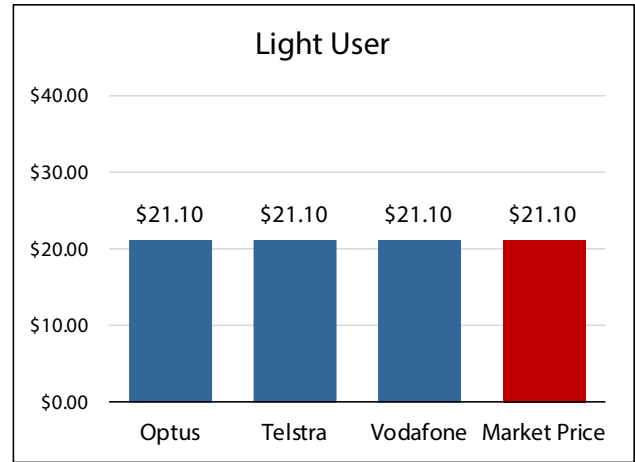
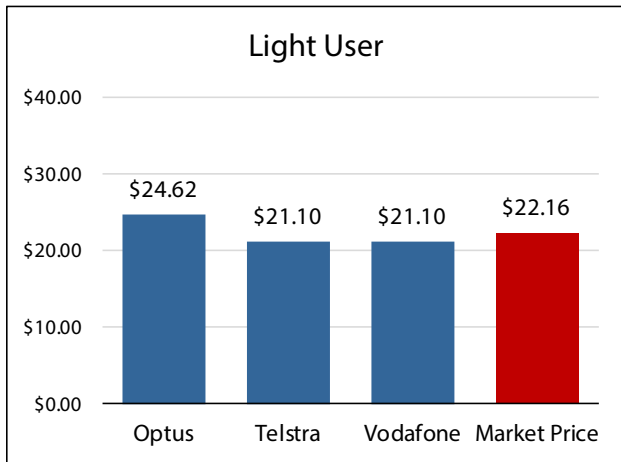
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In Country Operator Comparisons

Australia

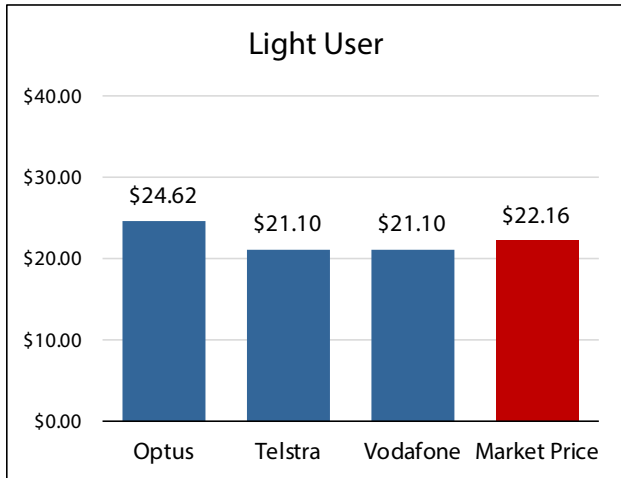
Postpaid Voice/SMS/Data

Prepaid Voice/SMS/Data

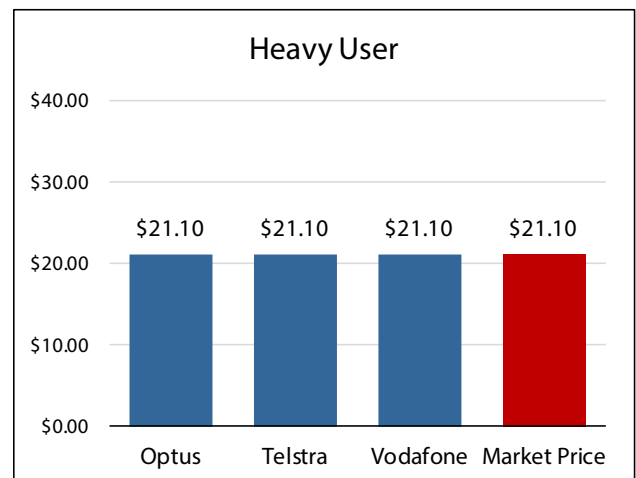
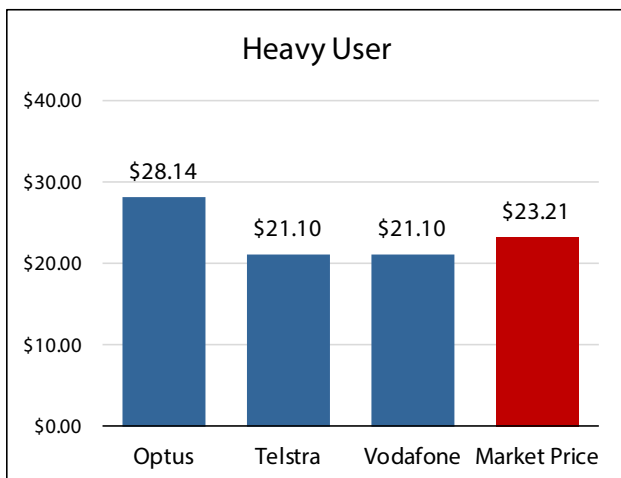
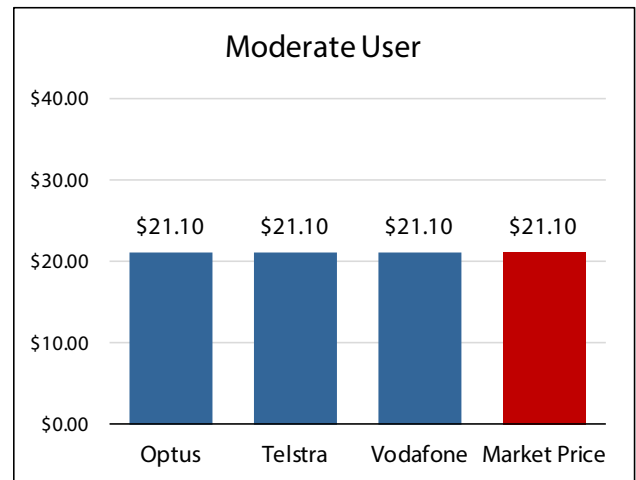
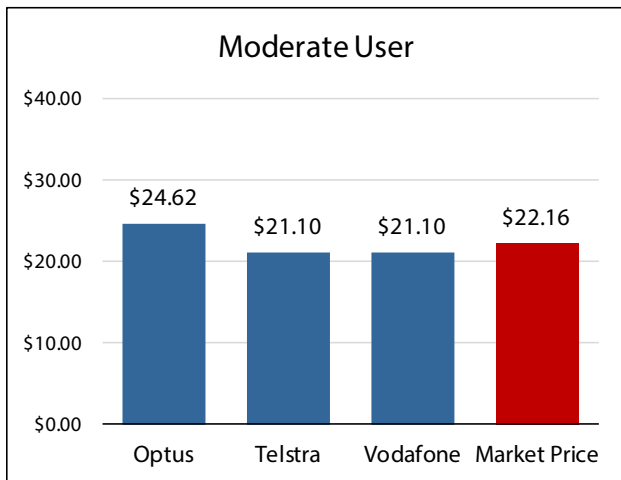
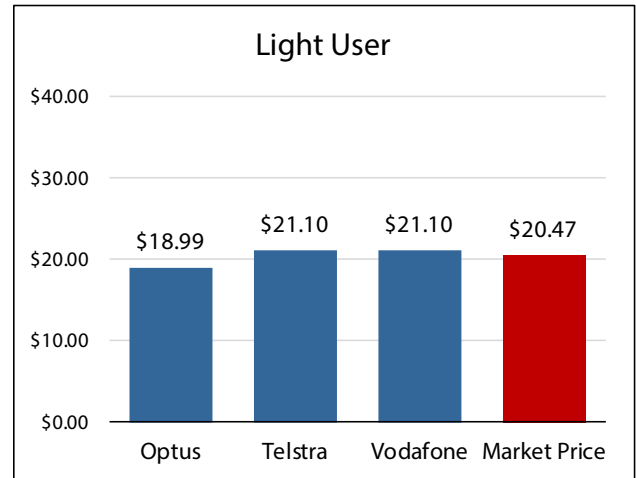


Australia

Postpaid Voice/SMS

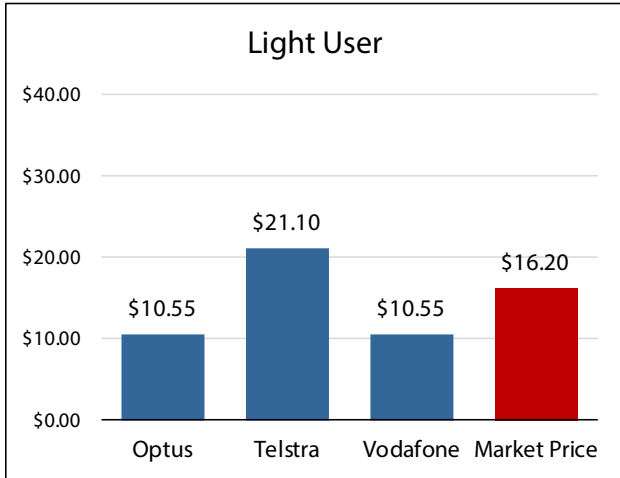


Prepaid Voice/SMS

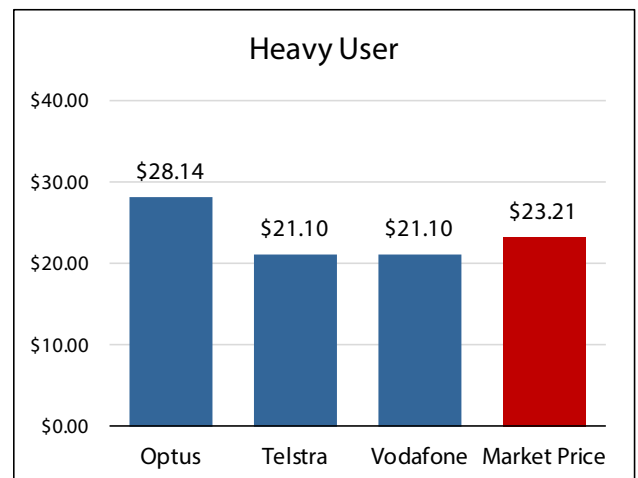
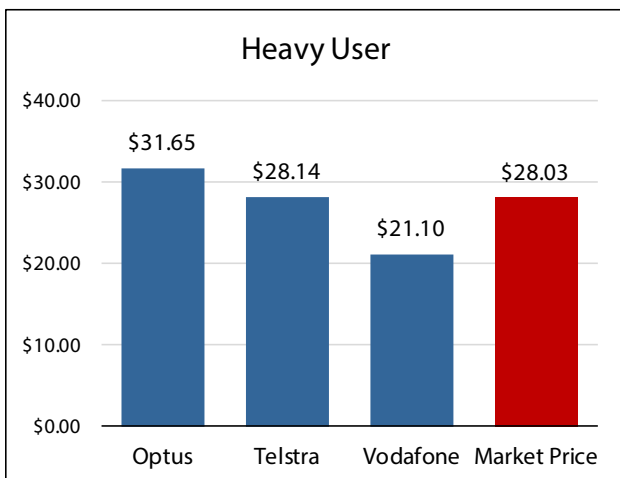
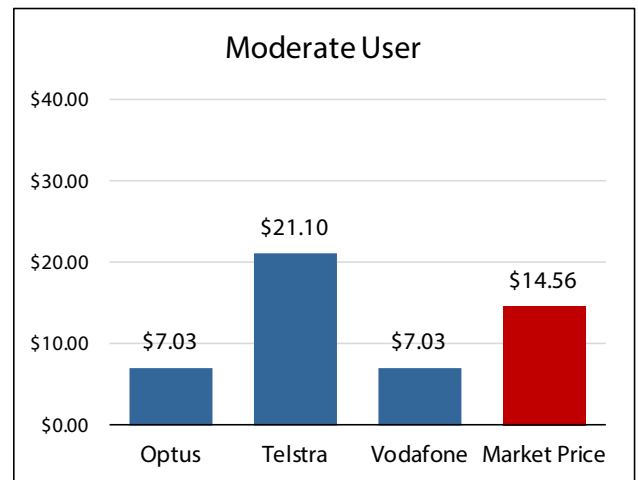
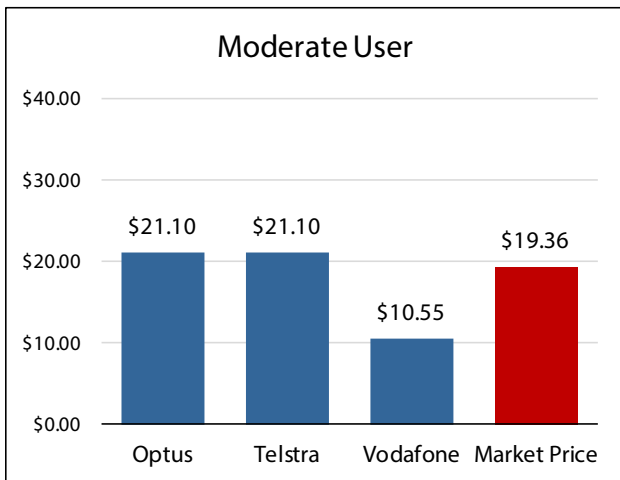
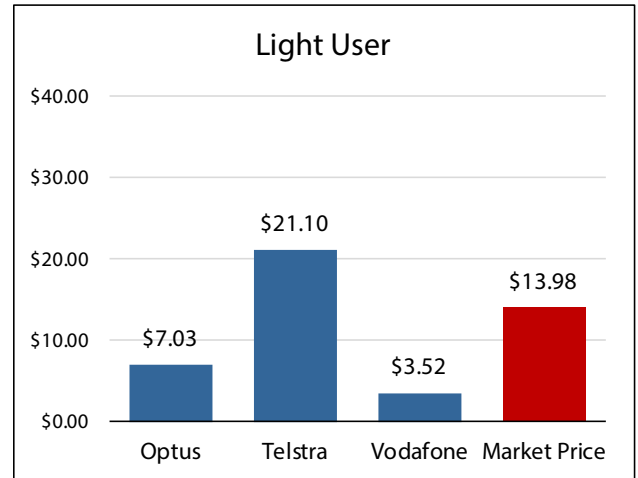


Australia

Postpaid Data Only

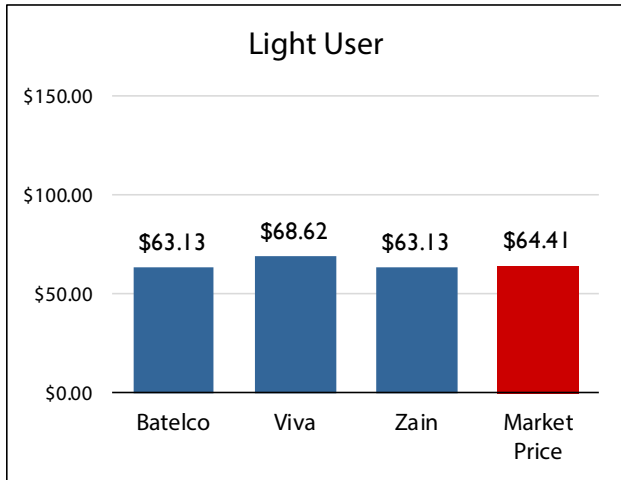


Prepaid Data Only

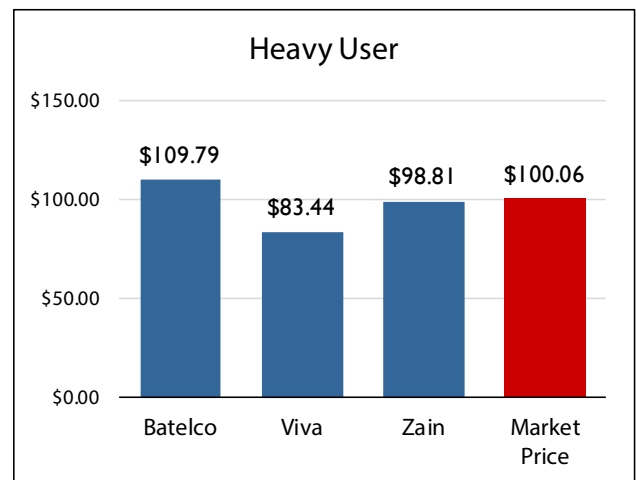
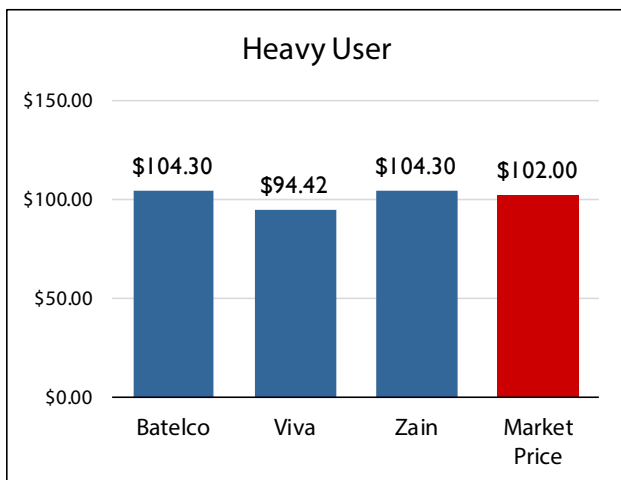
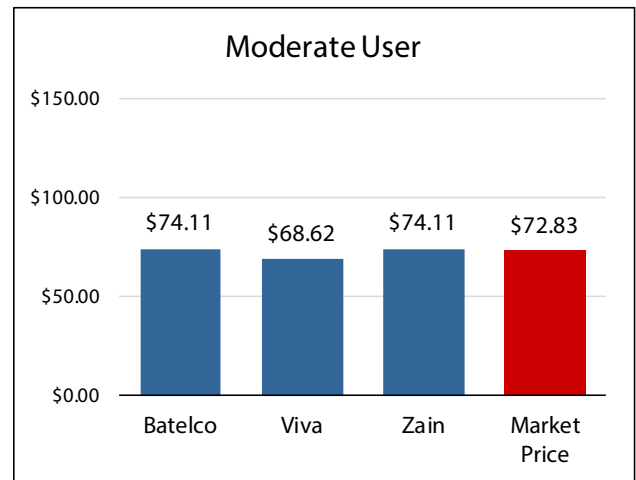
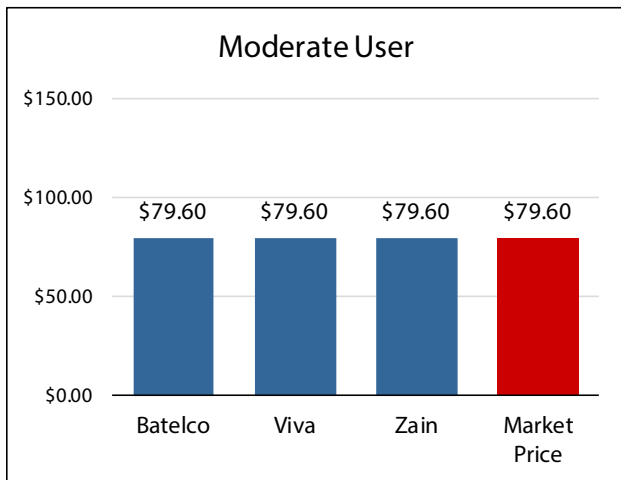
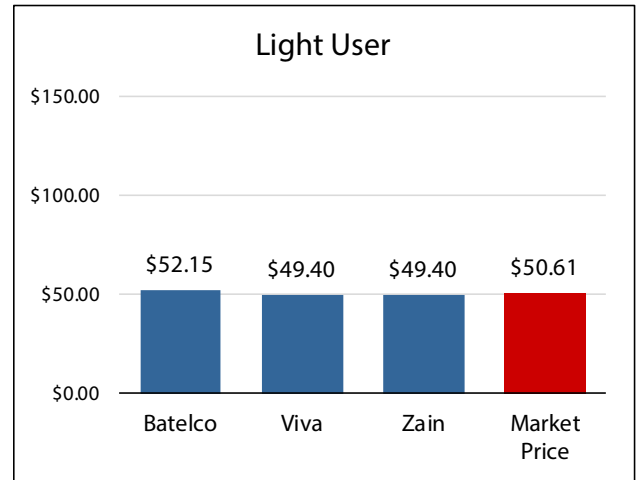


Bahrain

Postpaid Voice/SMS/Data

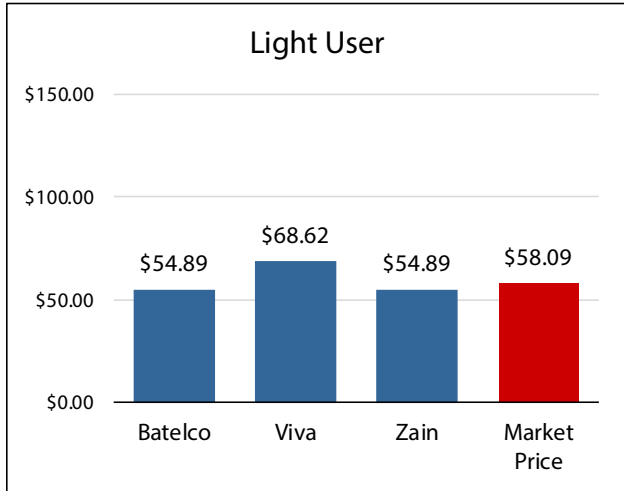


Prepaid Voice/SMS/Data

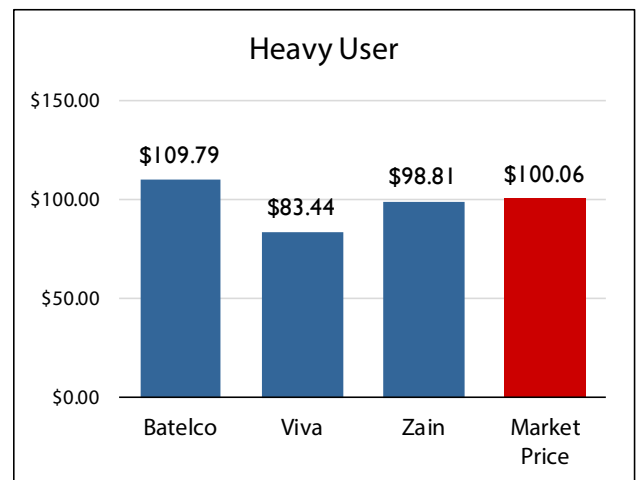
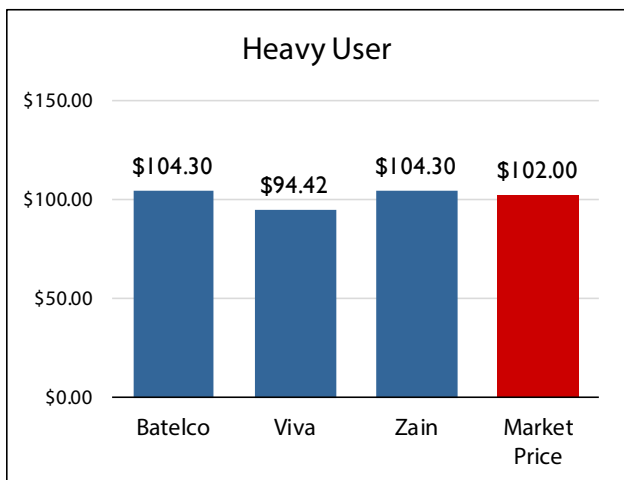
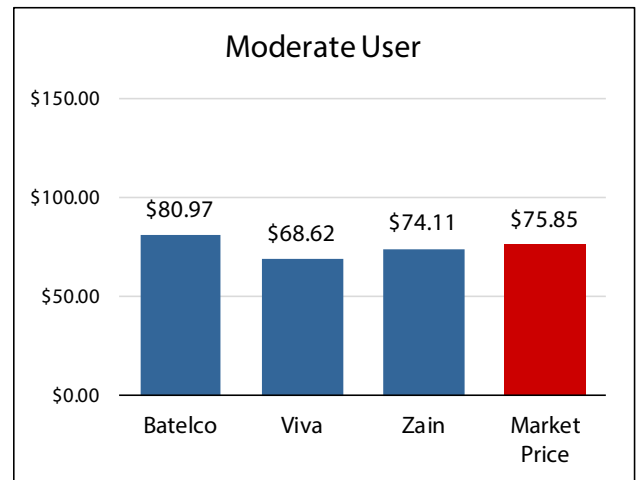
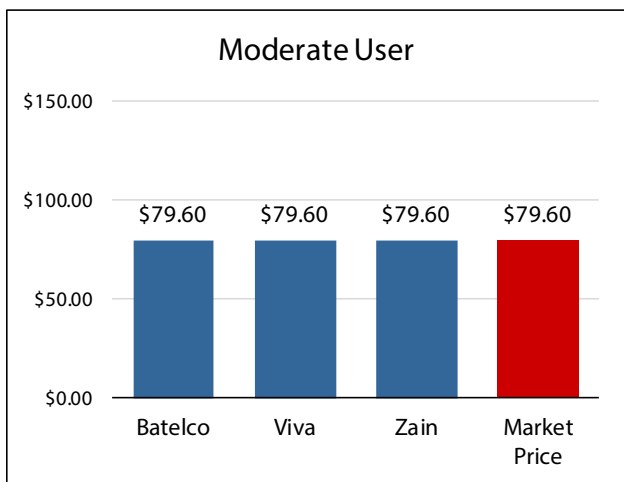
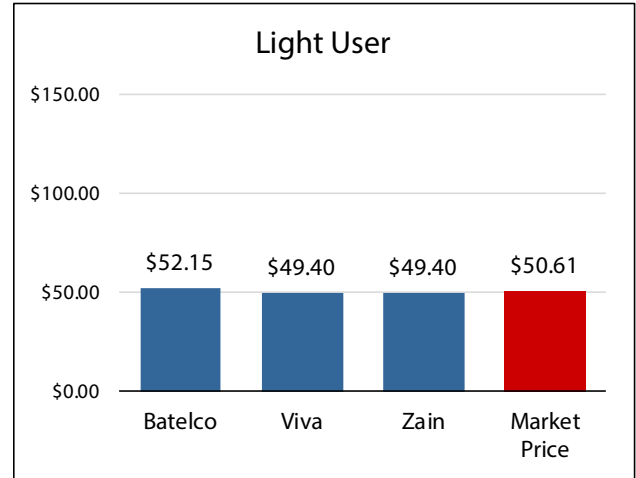


Bahrain

Postpaid Voice/SMS

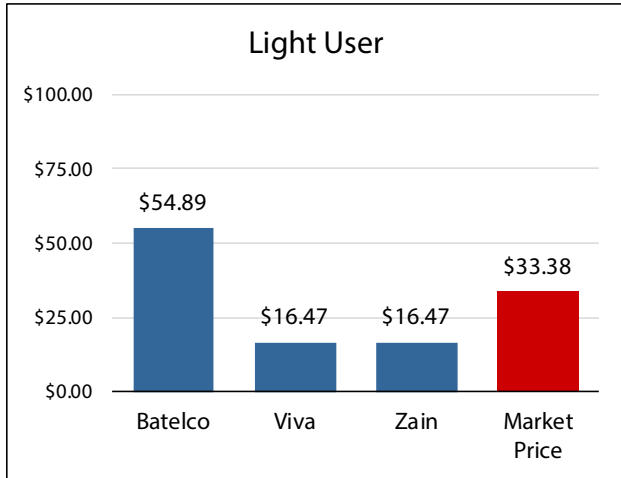


Prepaid Voice/SMS

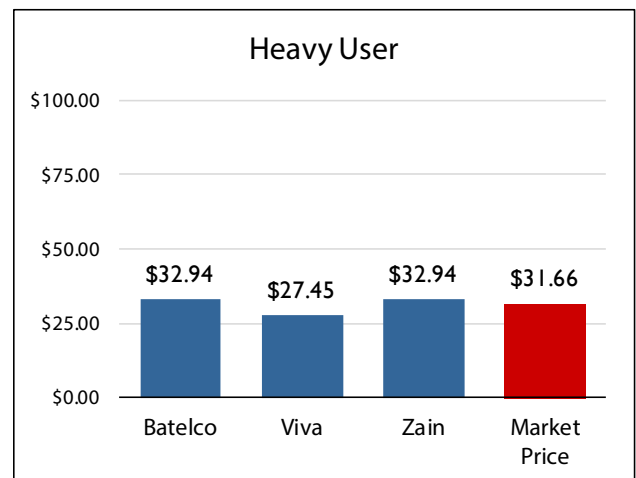
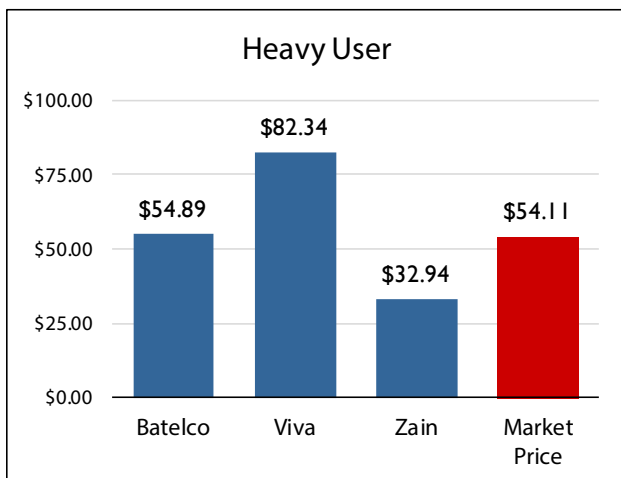
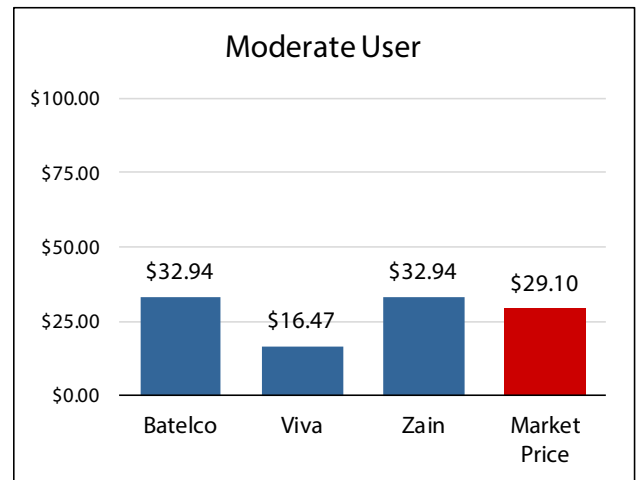
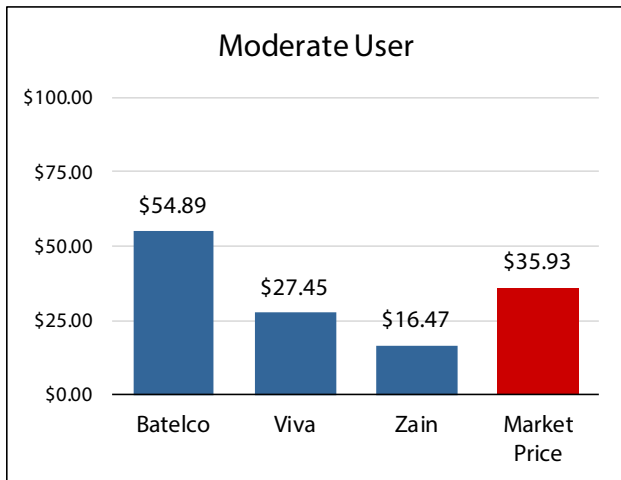
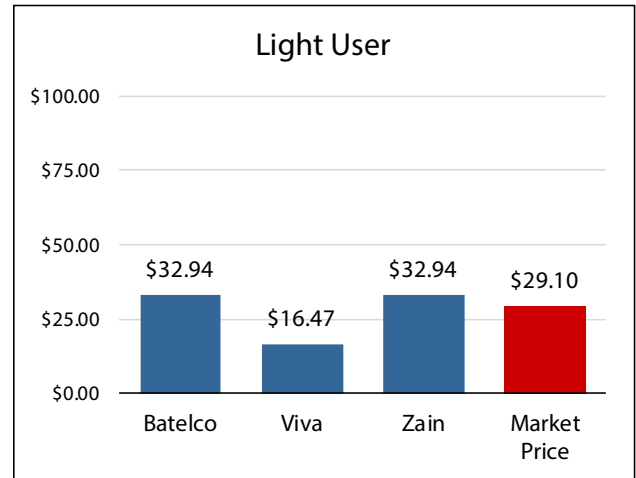


Bahrain

Postpaid Data Only

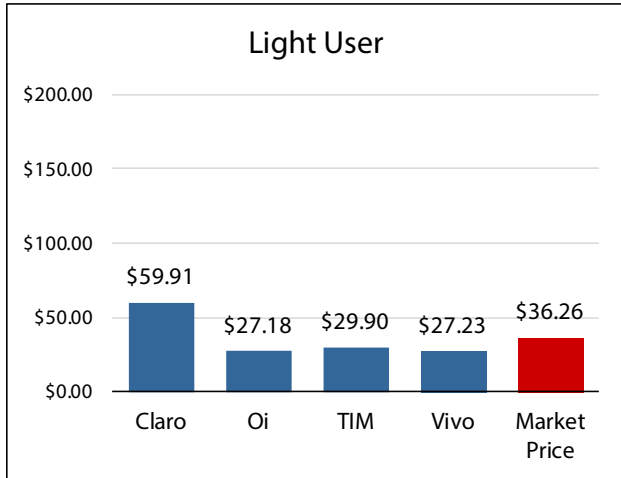


Prepaid Data Only

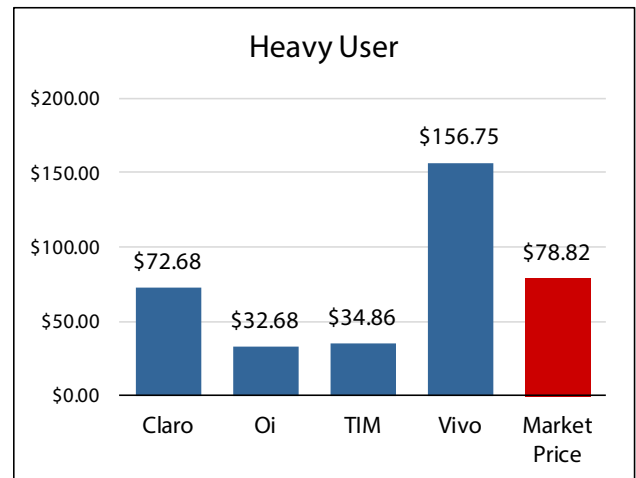
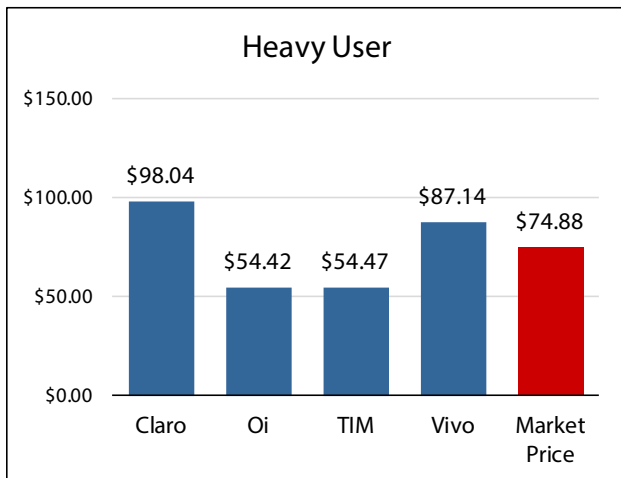
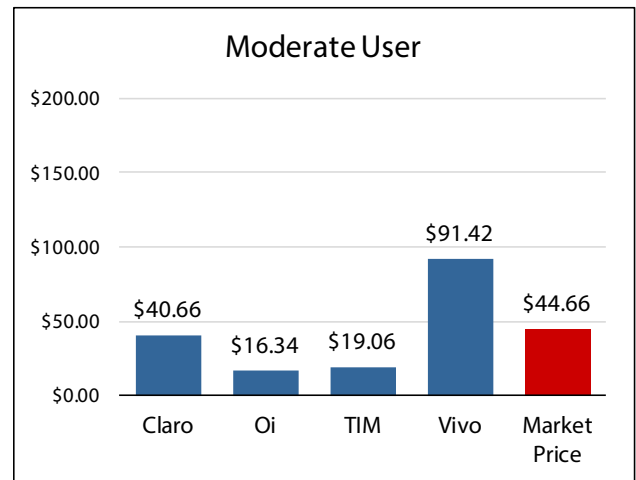
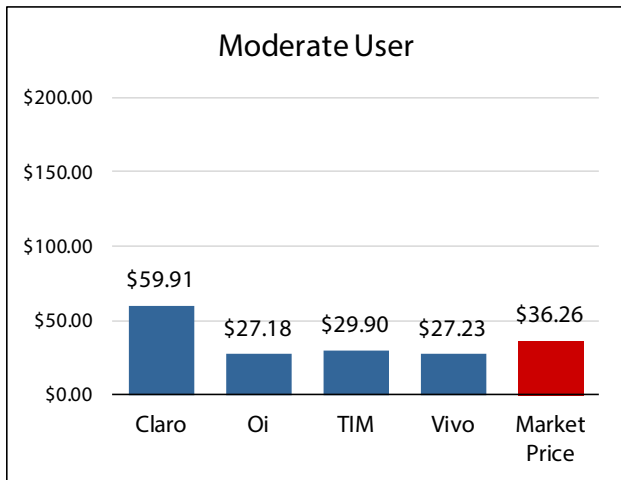
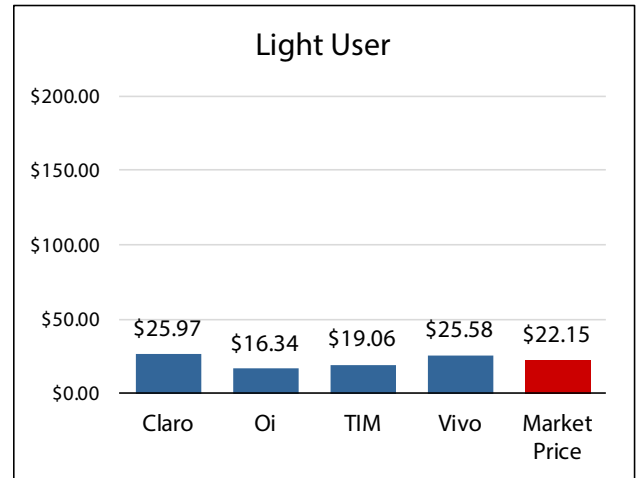


Brazil

Postpaid Voice/SMS/Data

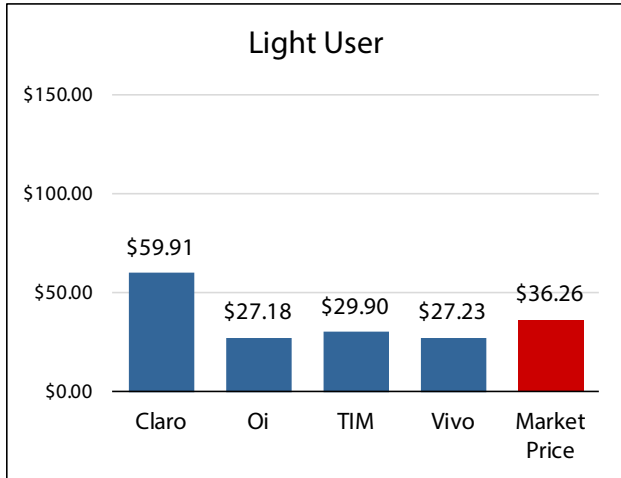


Prepaid Voice/SMS/Data

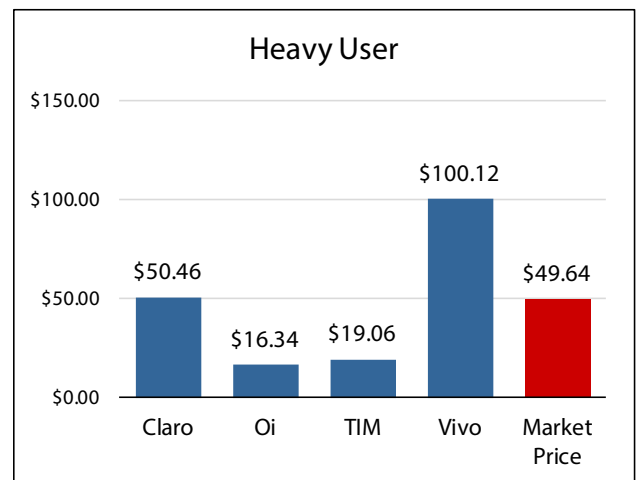
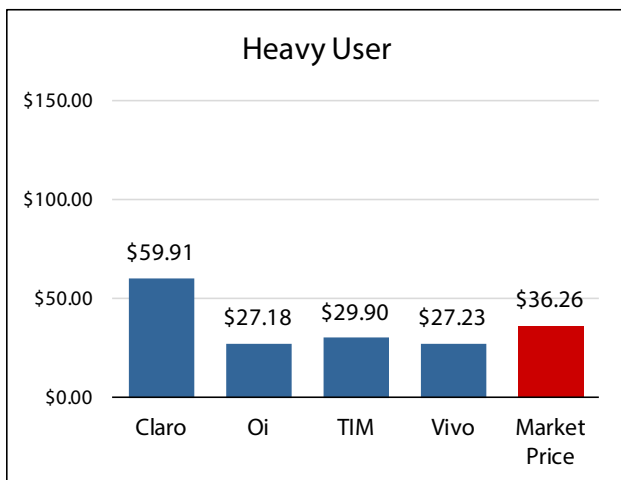
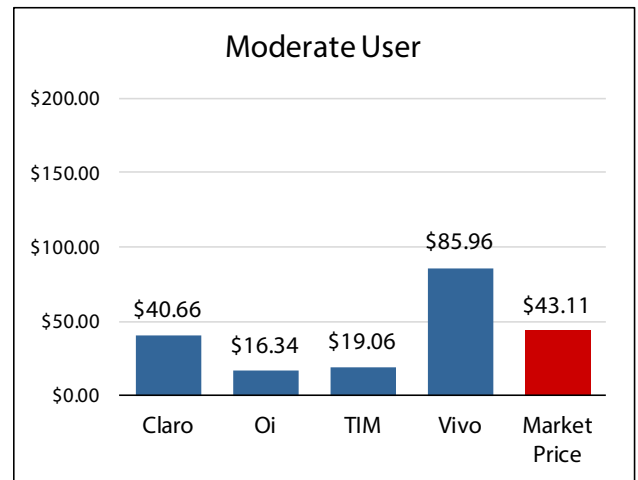
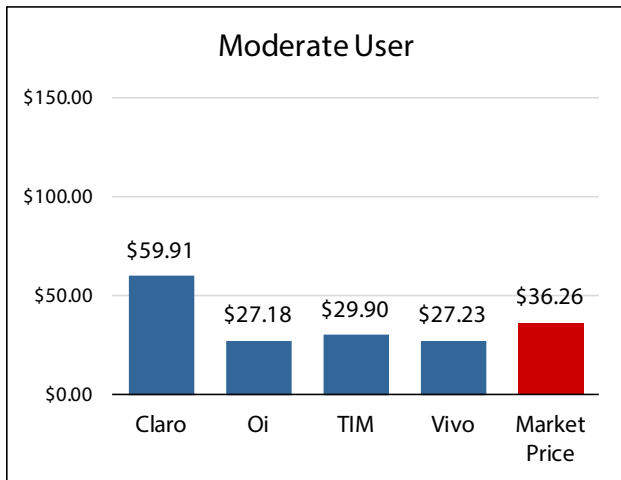
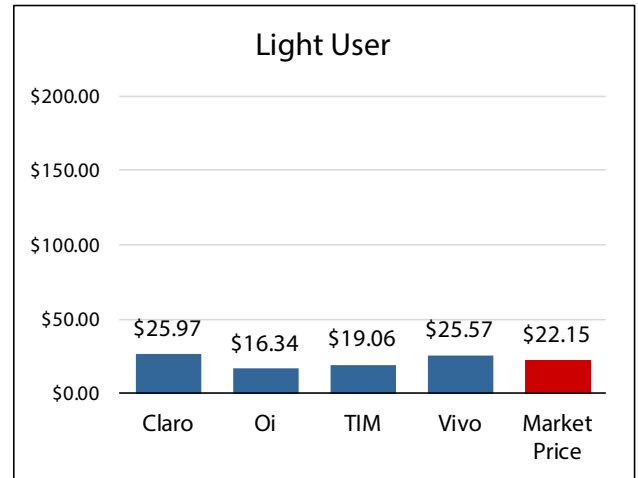


Brazil

Postpaid Voice/SMS

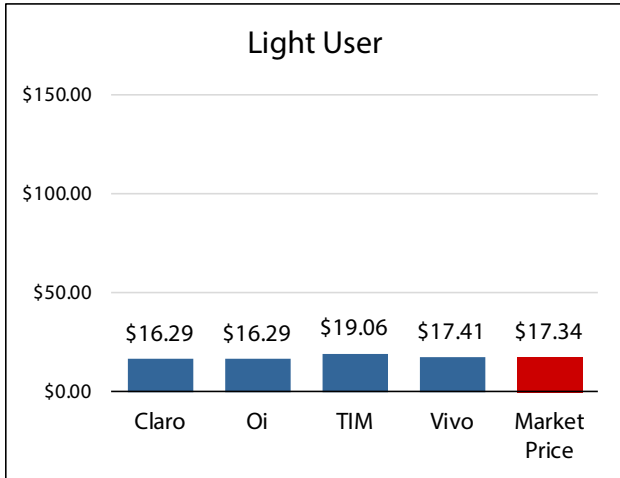


Prepaid Voice/SMS

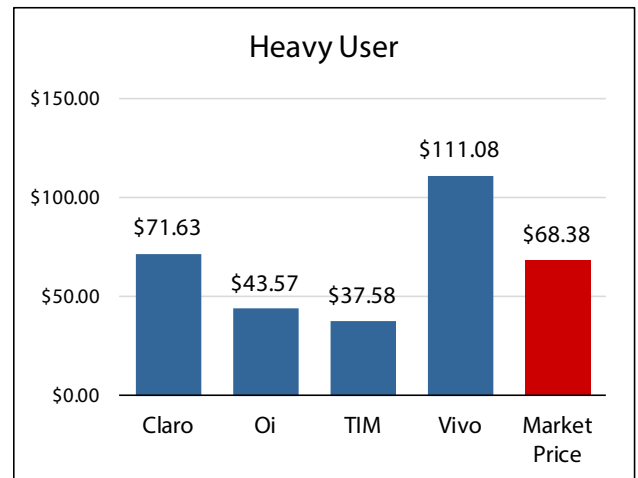
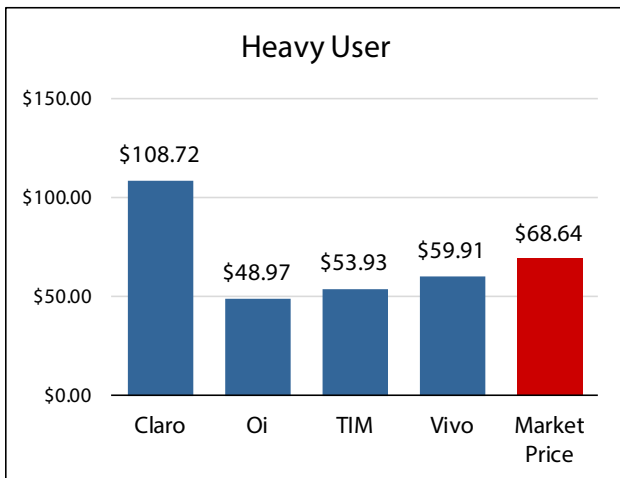
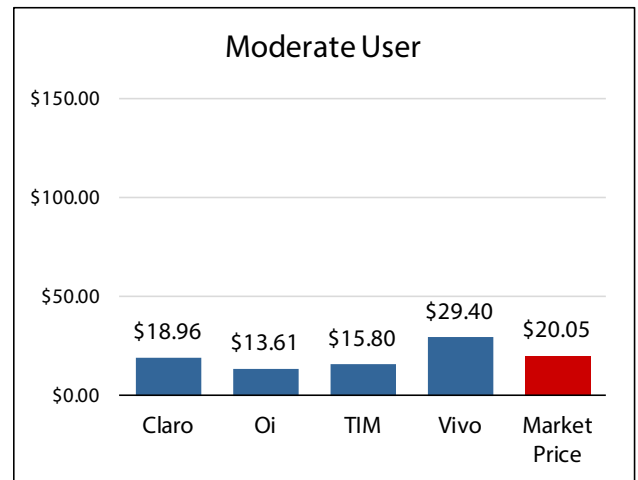
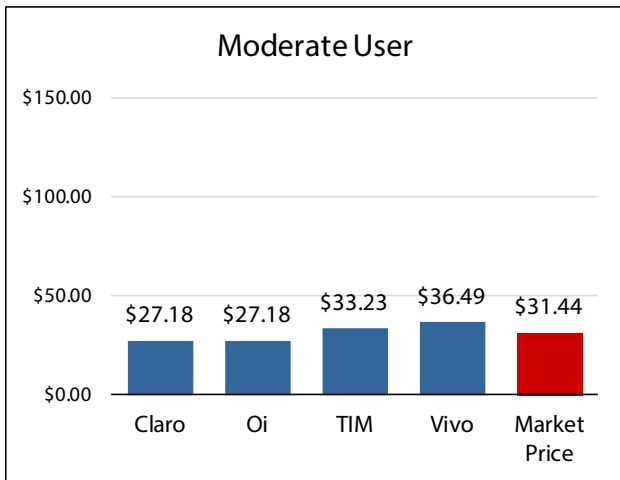
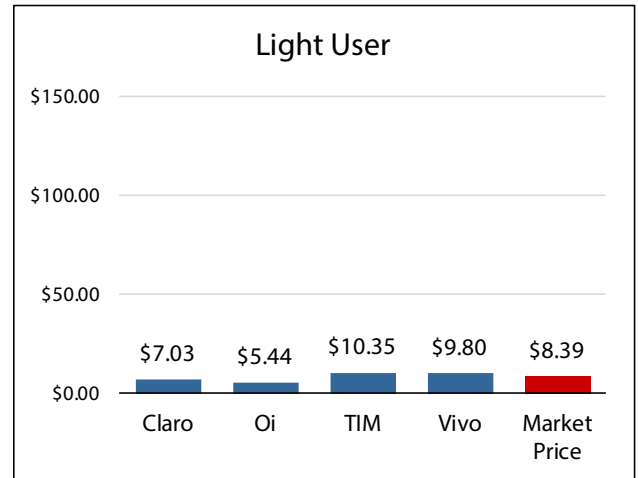


Brazil

Postpaid Data Only

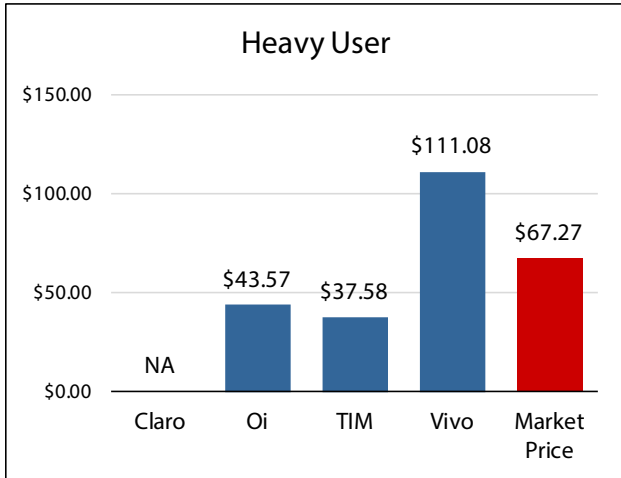


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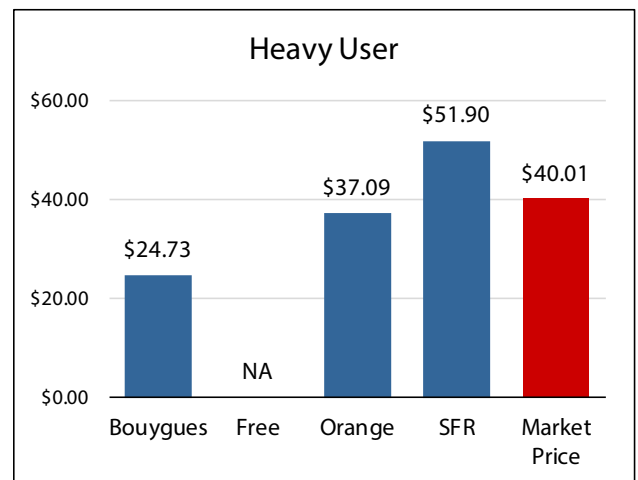
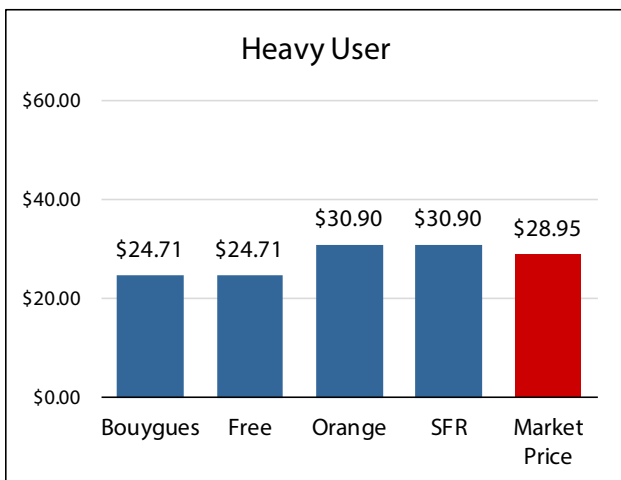
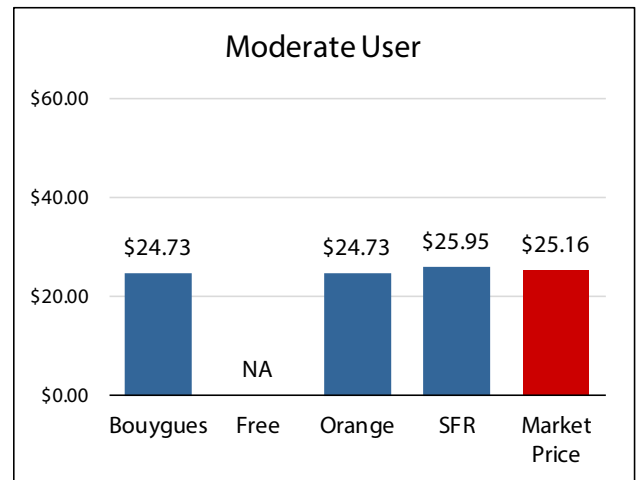
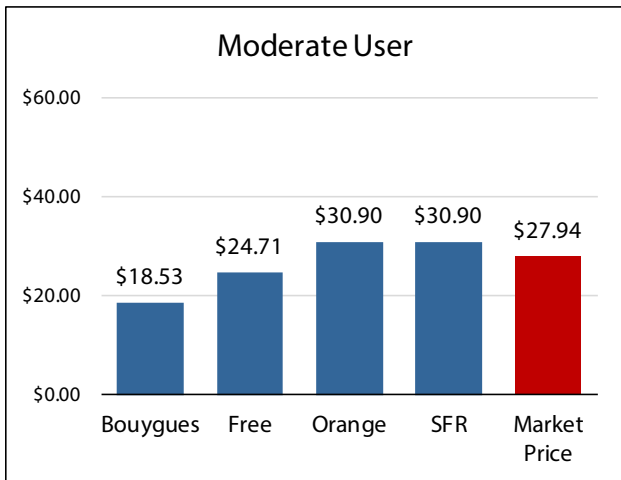
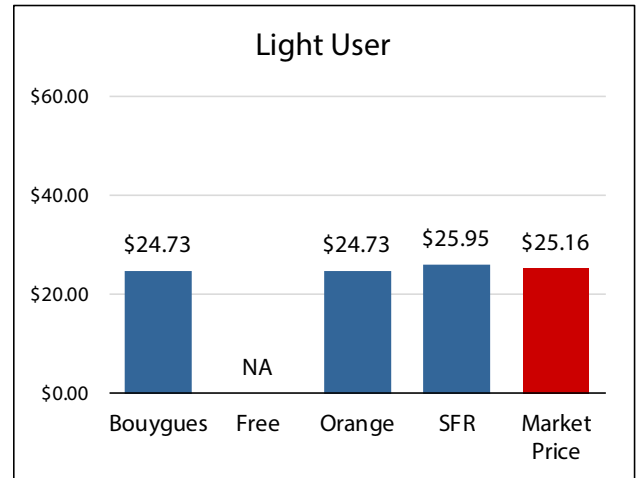


France

Postpaid Voice/SMS/Data

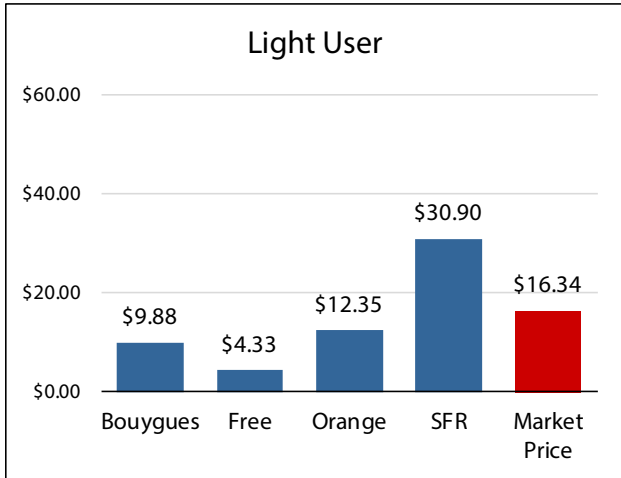


Prepaid Voice/SMS/Data

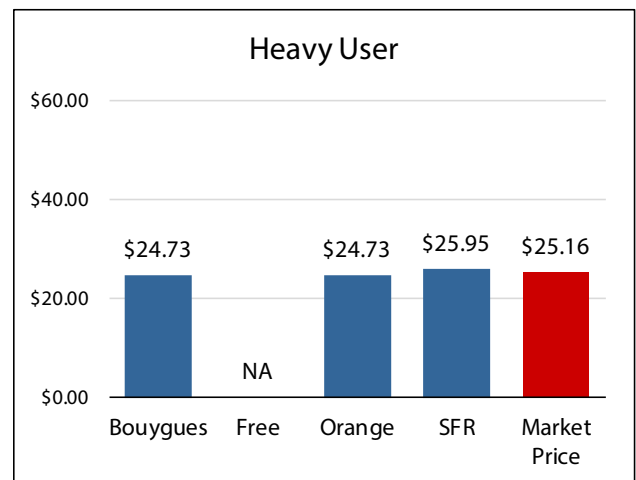
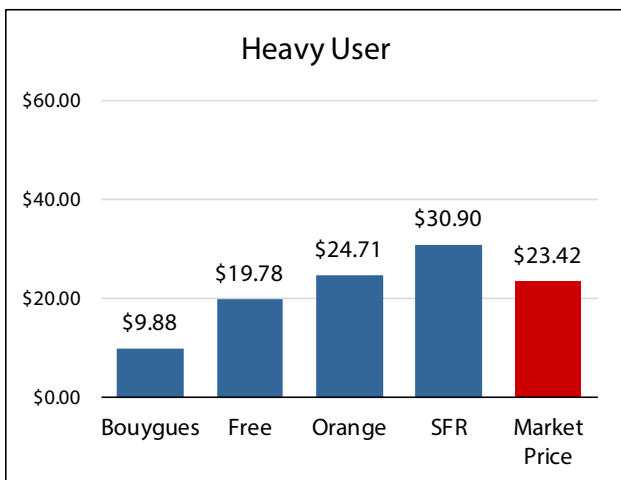
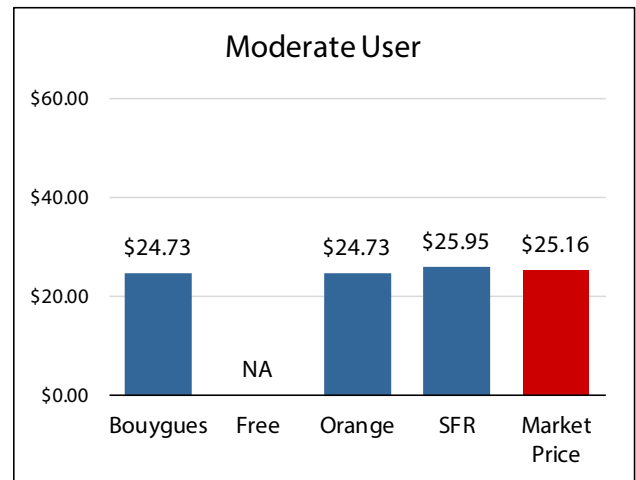
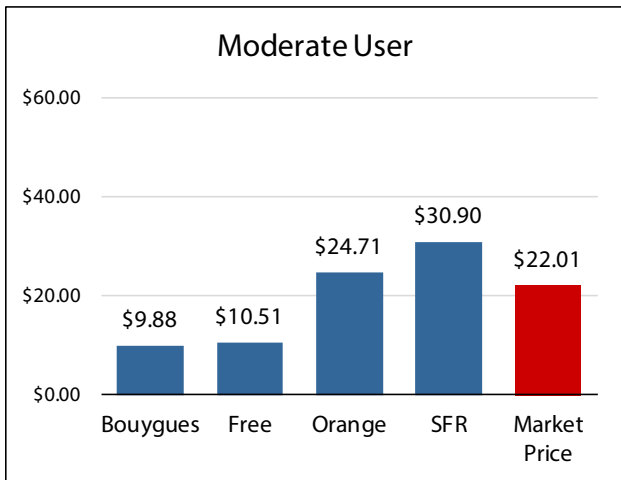
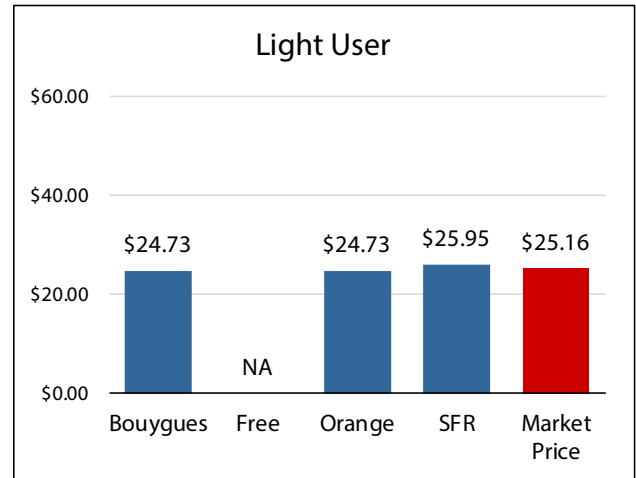


France

Postpaid Voice/SMS

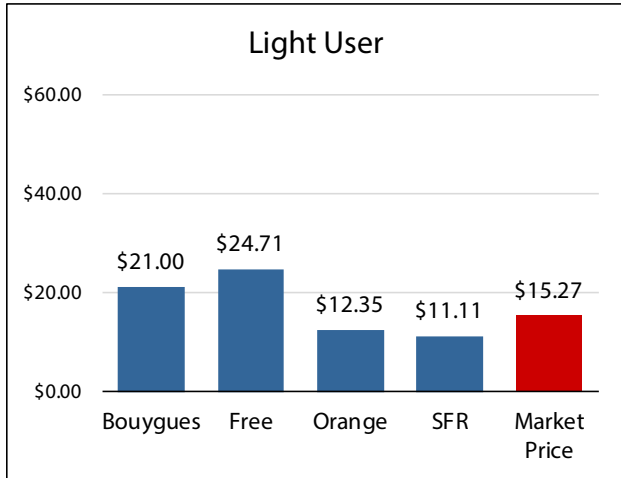


Prepaid Voice/SMS

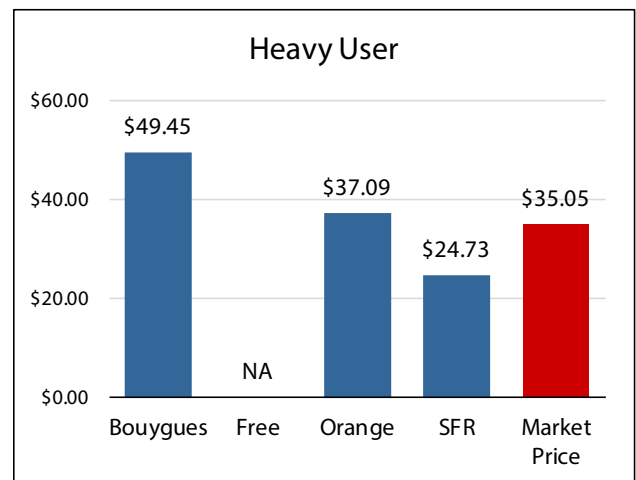
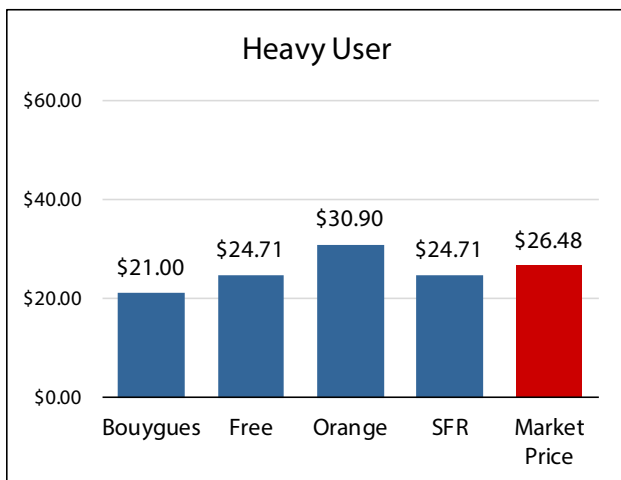
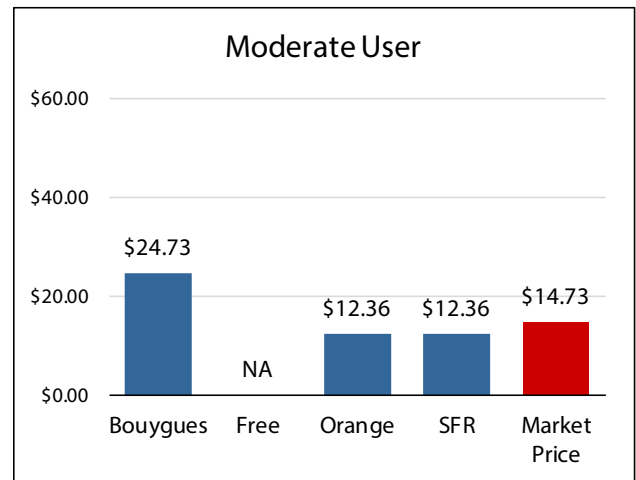
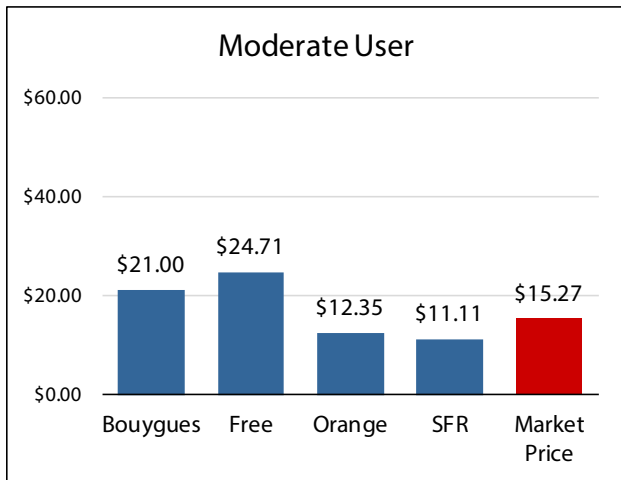
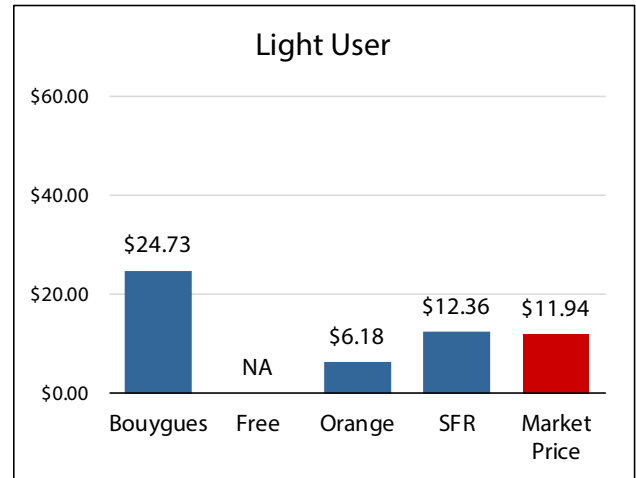


France

Postpaid Data Only

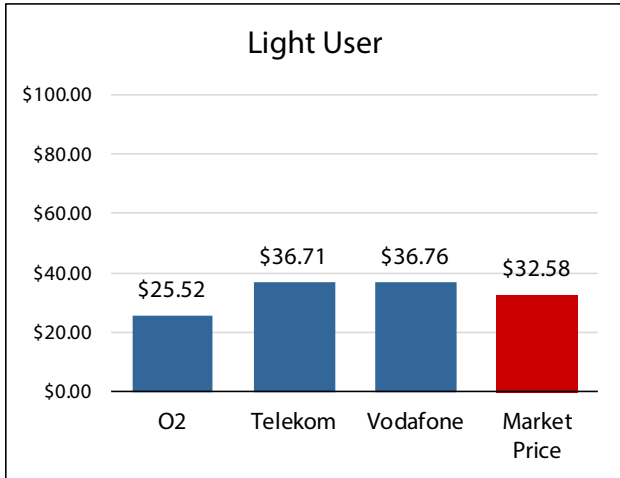


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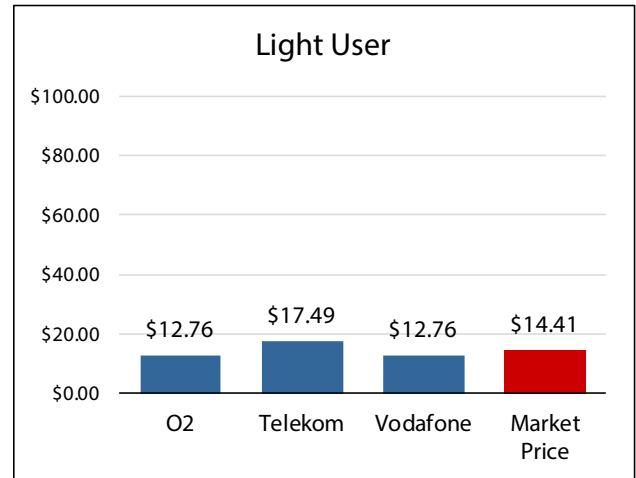


Germany

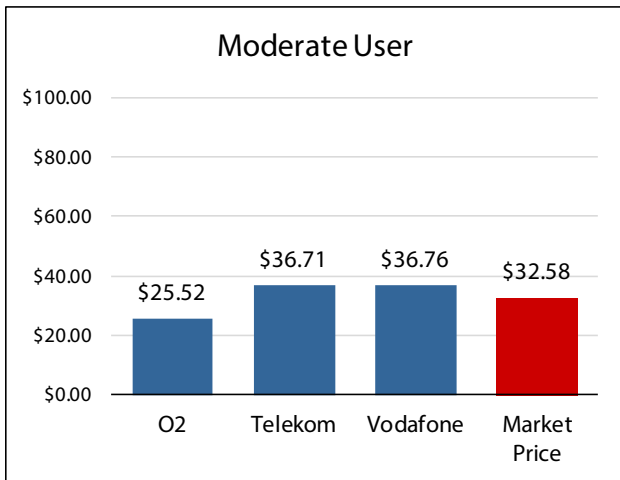
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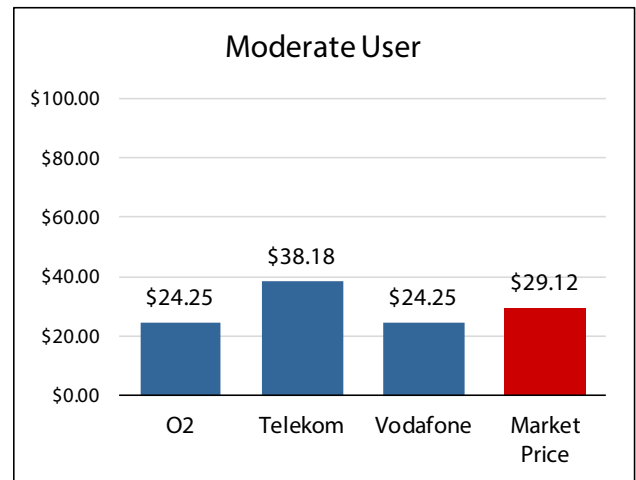
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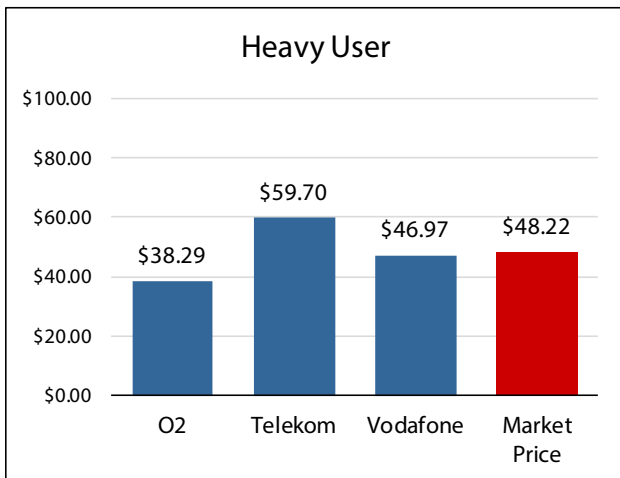
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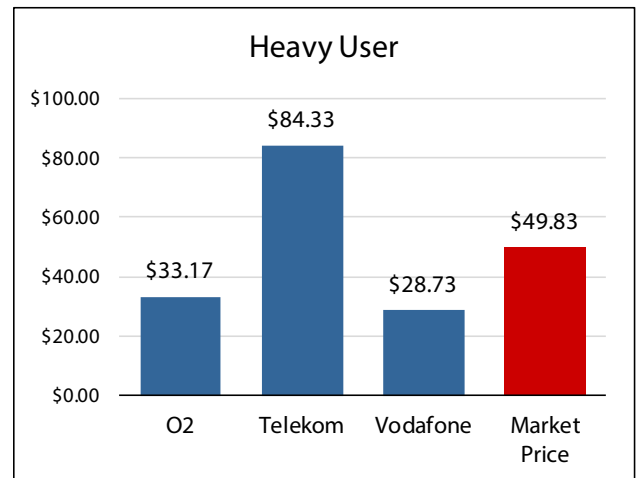
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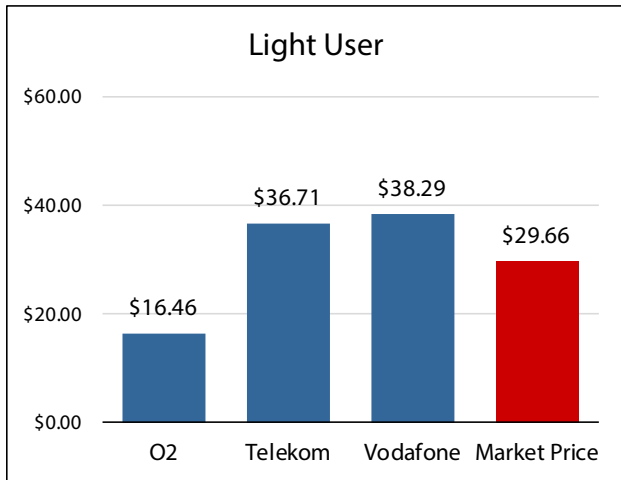


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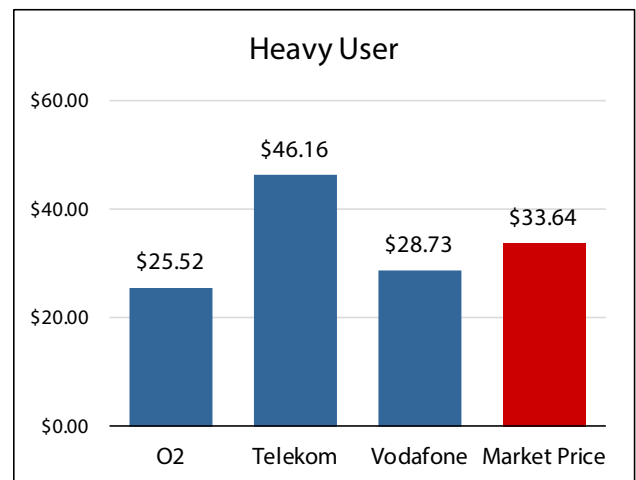
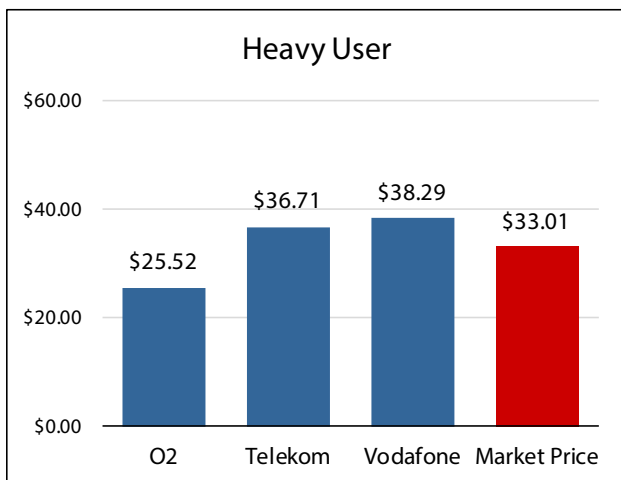
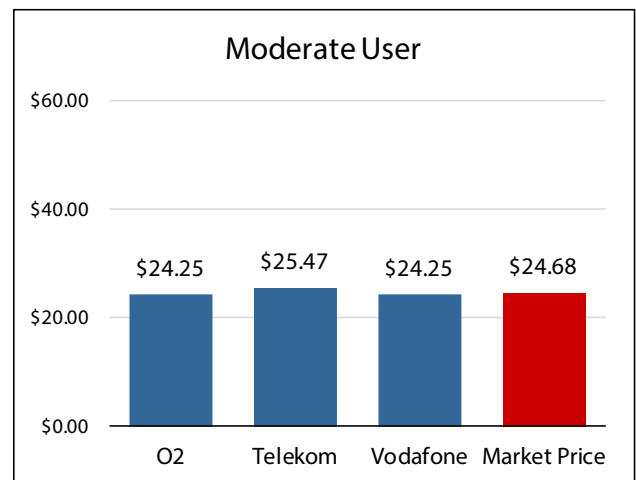
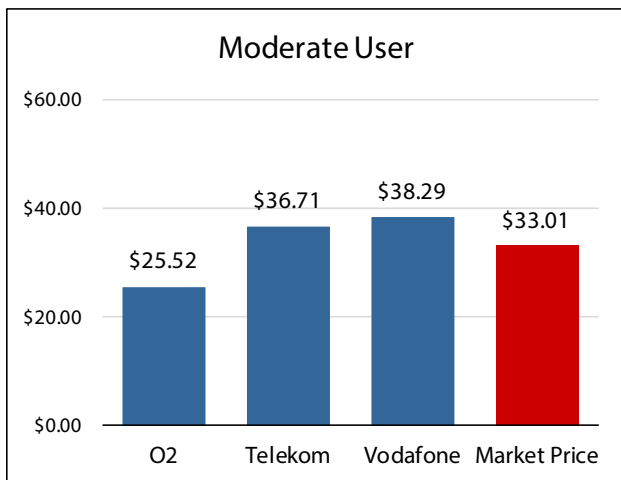
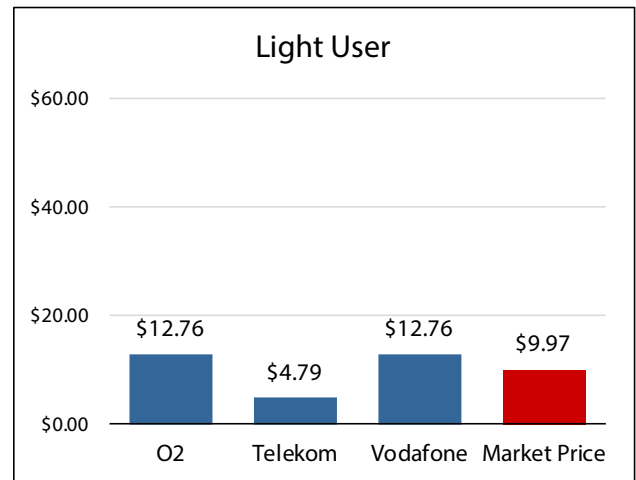


Germany

Postpaid Voice/SMS

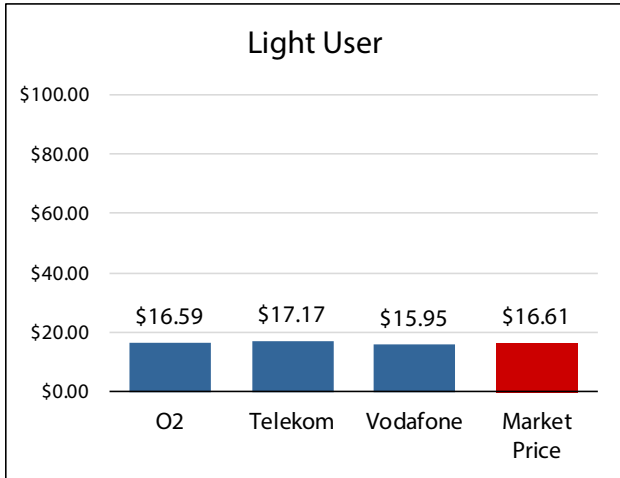


Prepaid Voice/SMS

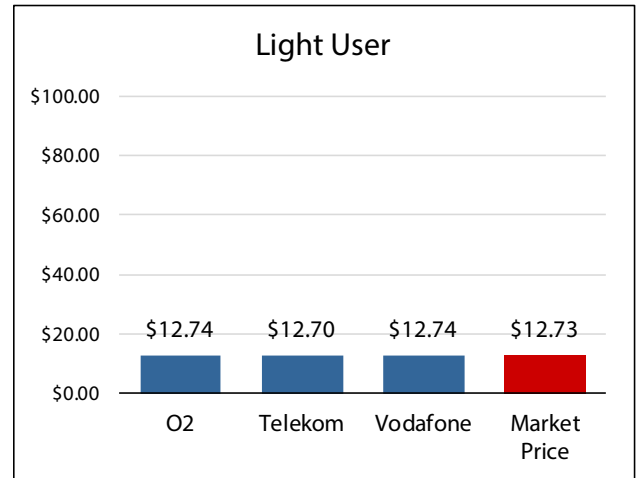


Germany

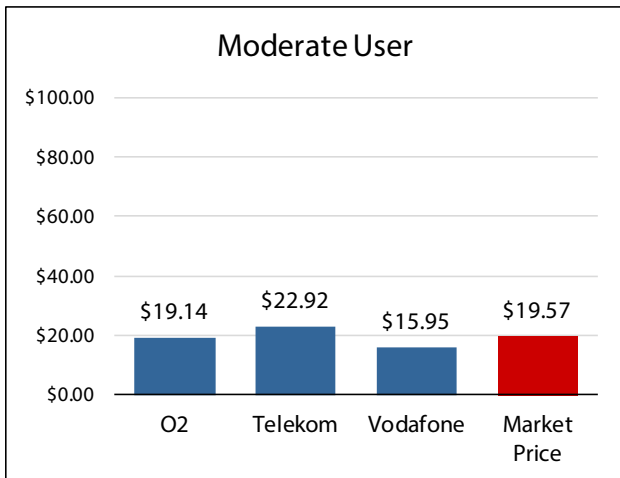
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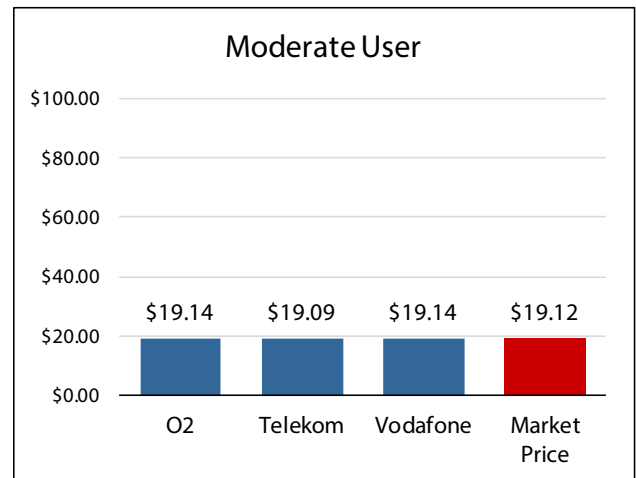
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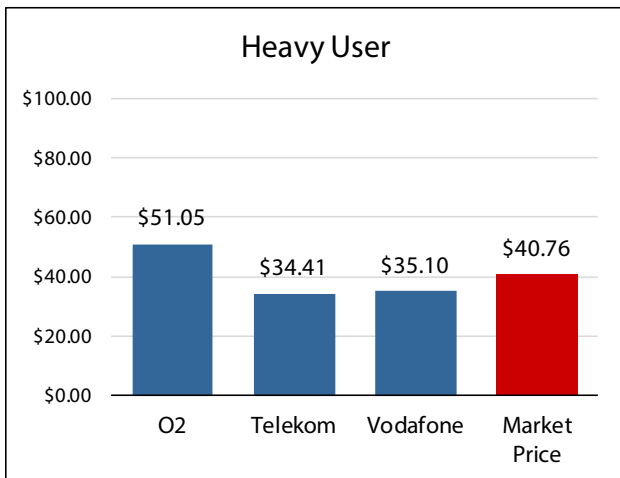
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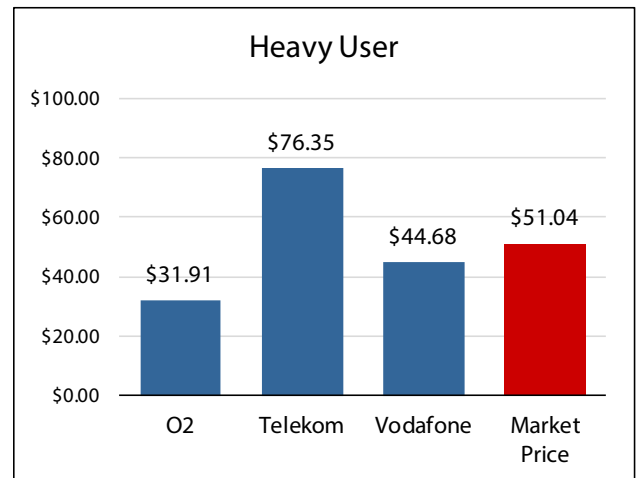
Moderate User



Heavy User

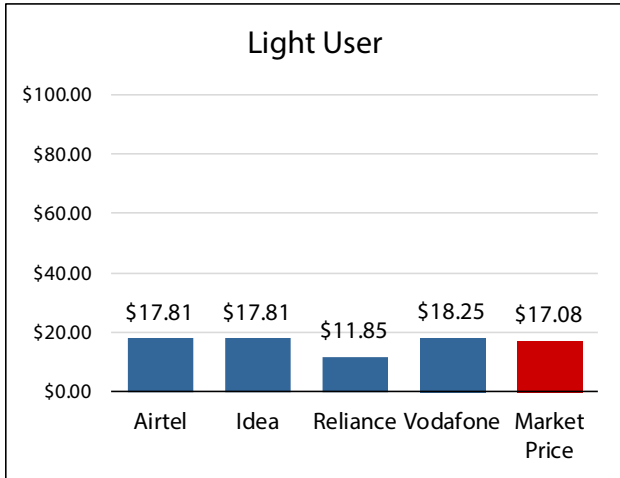


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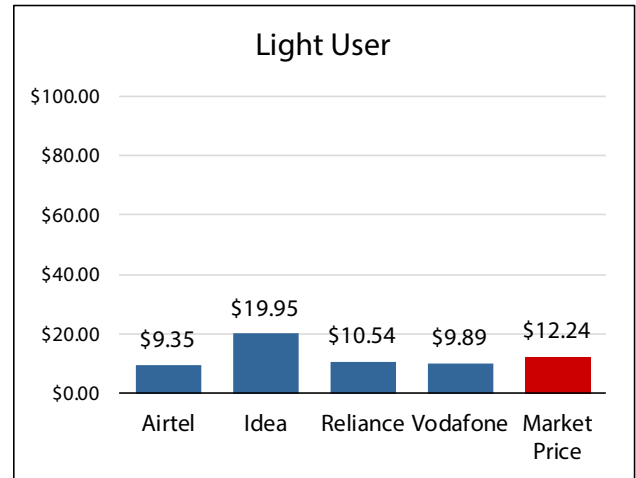


India

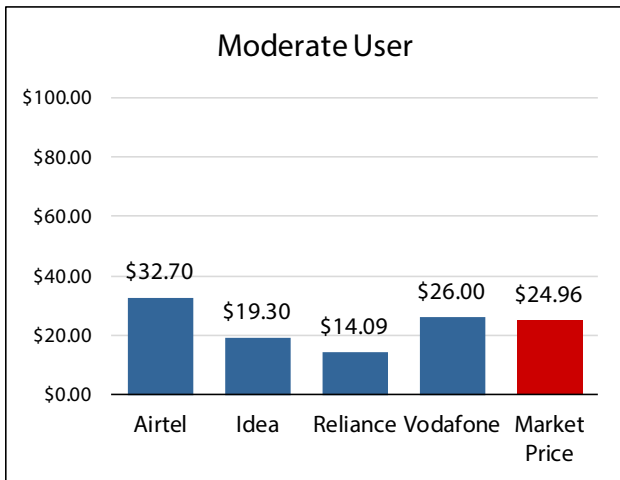
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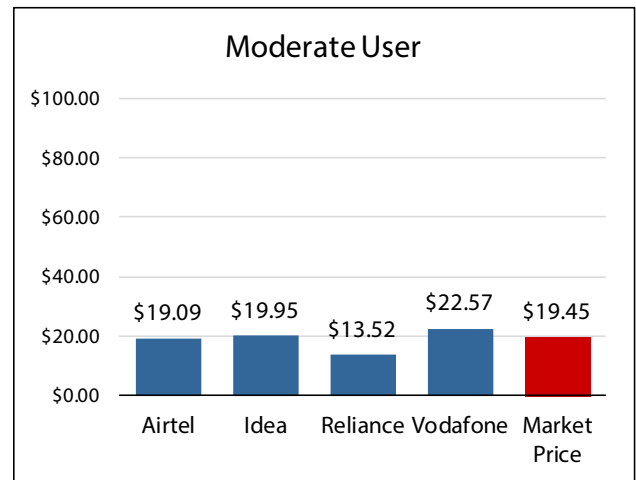
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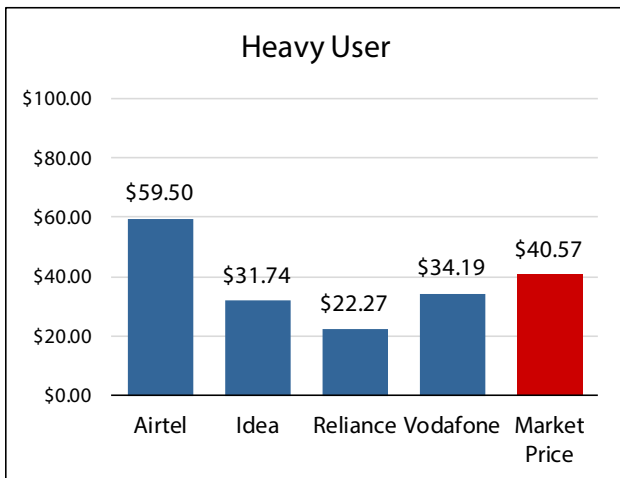
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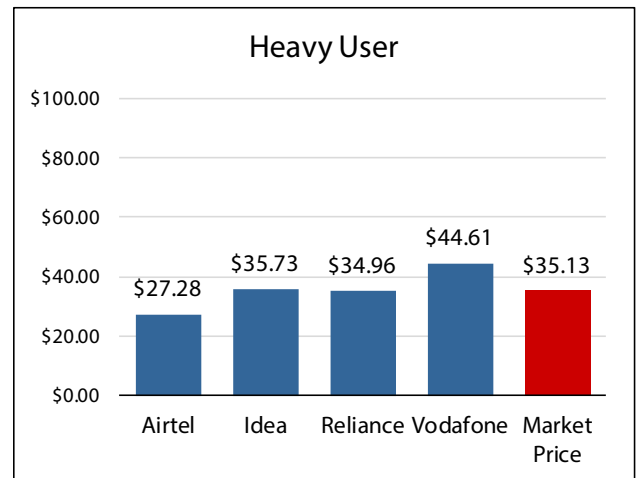
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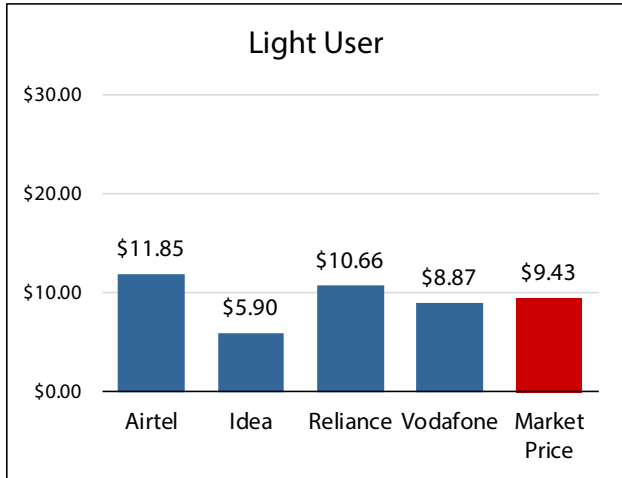


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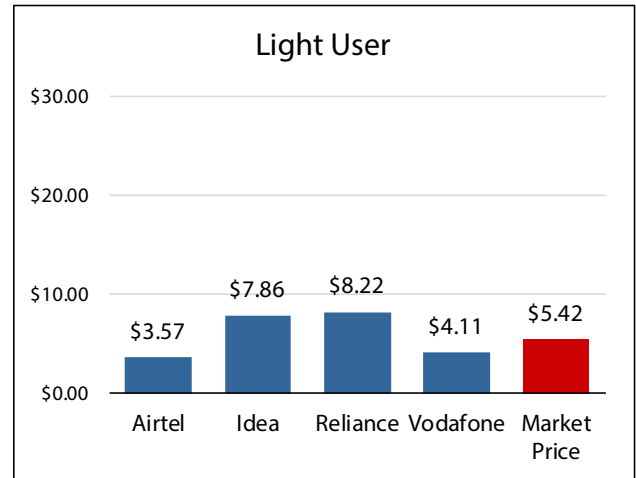


India

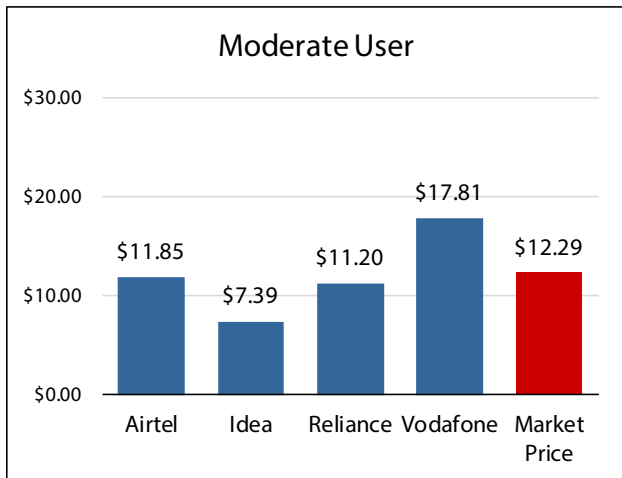
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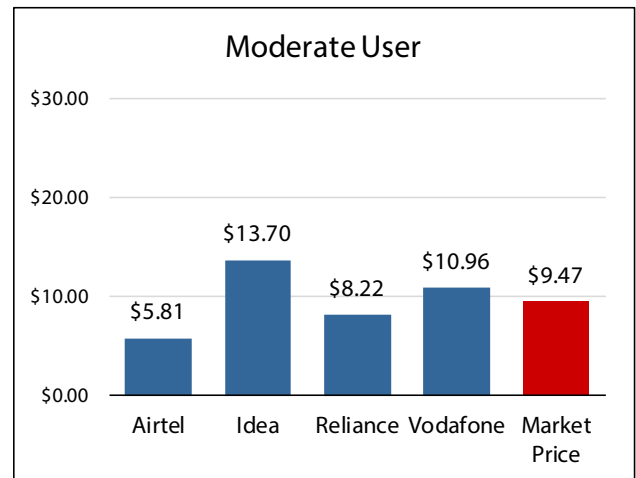
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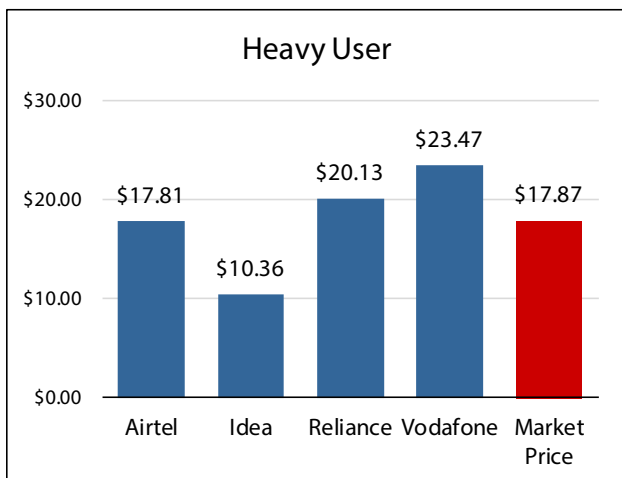
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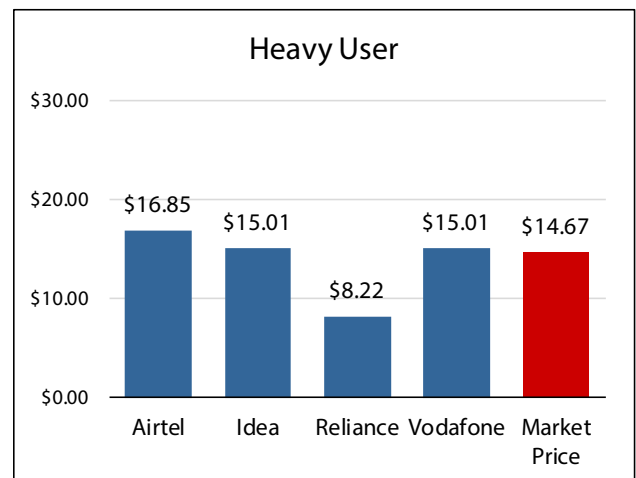
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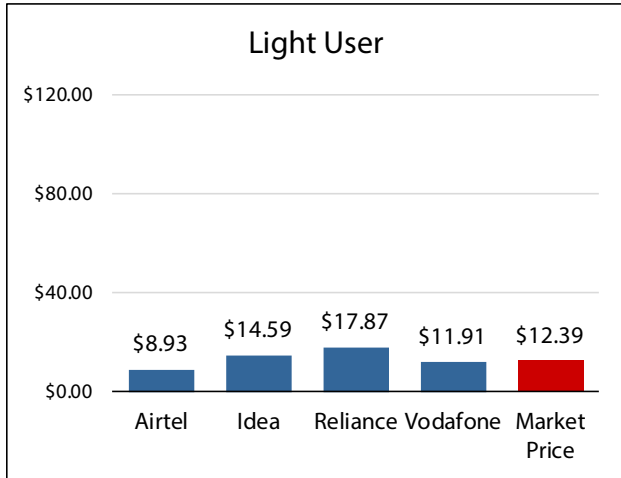


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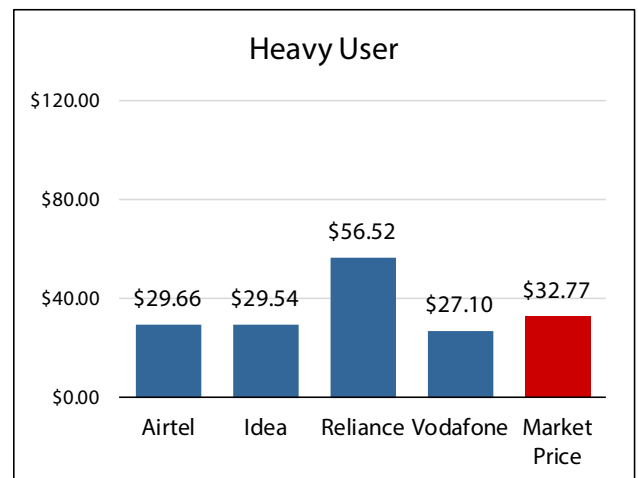
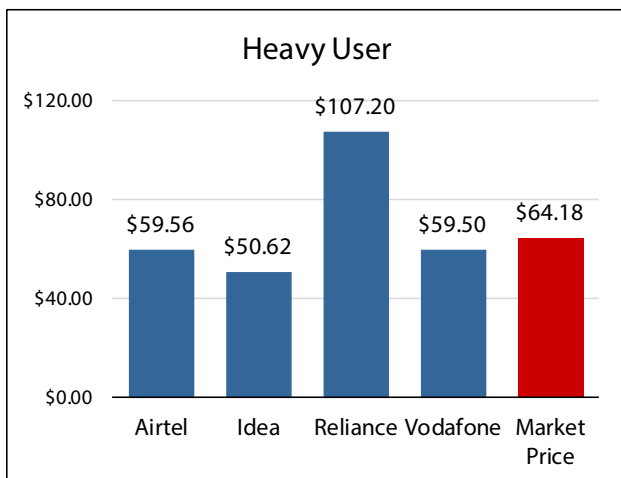
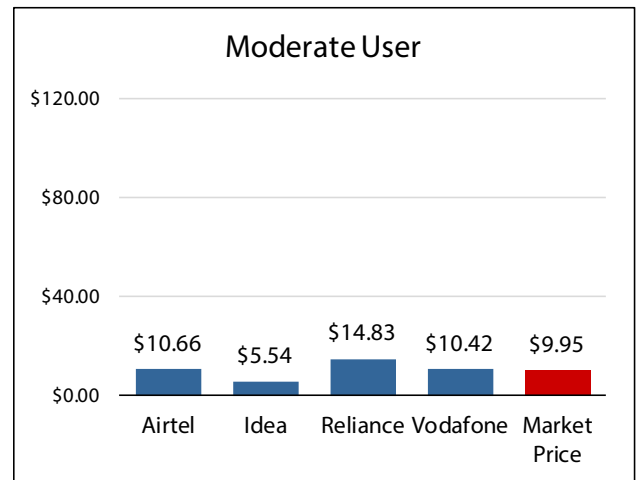
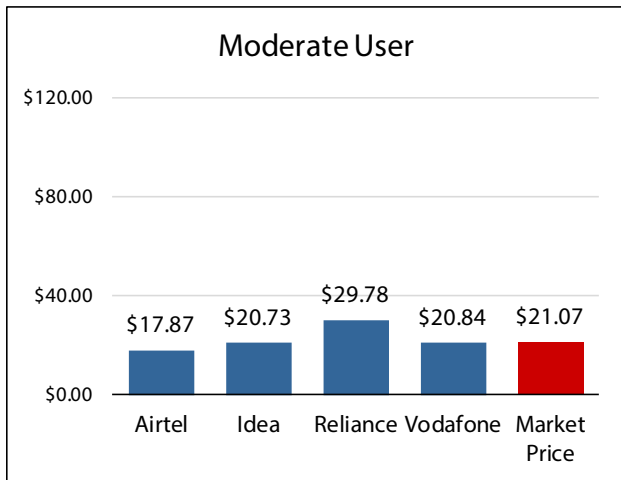
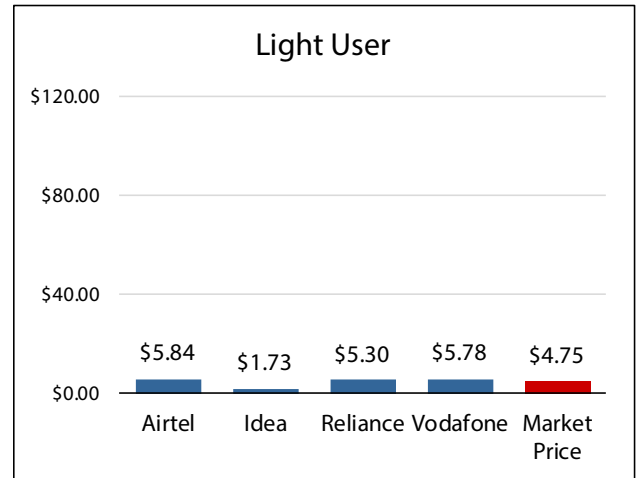


India

Postpaid Data Only

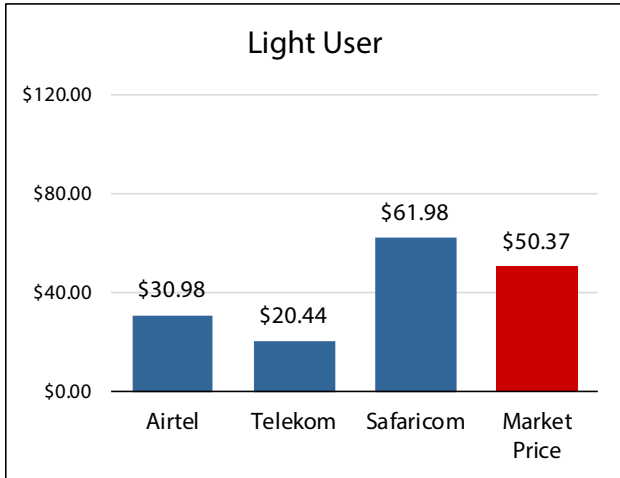


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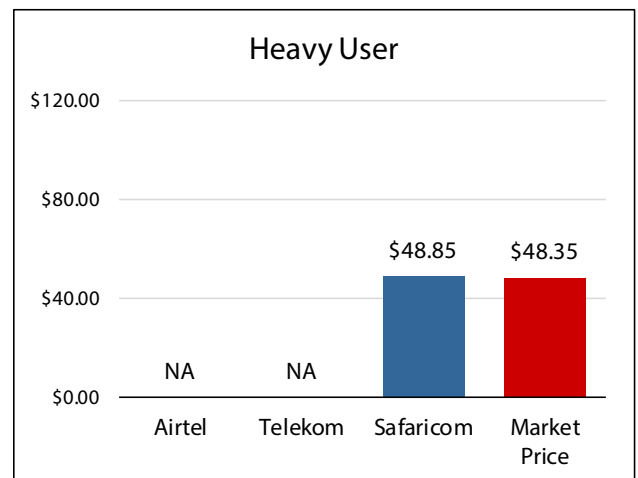
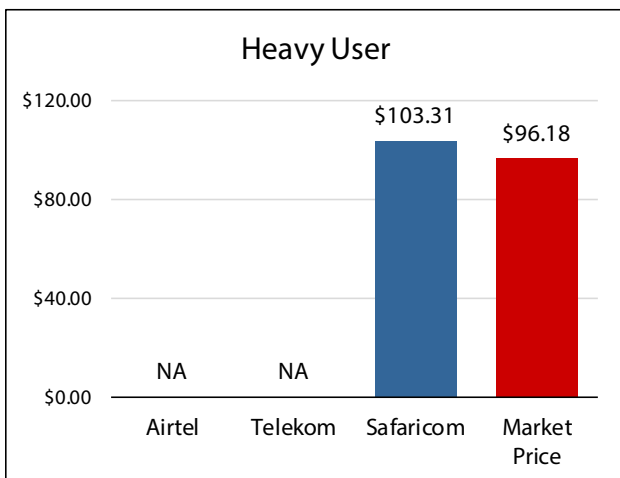
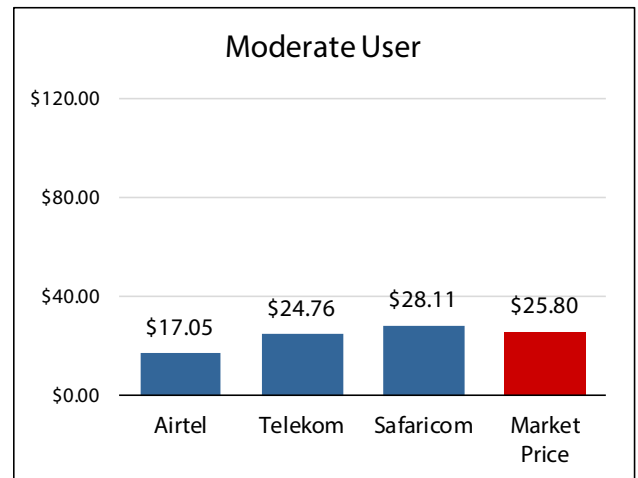
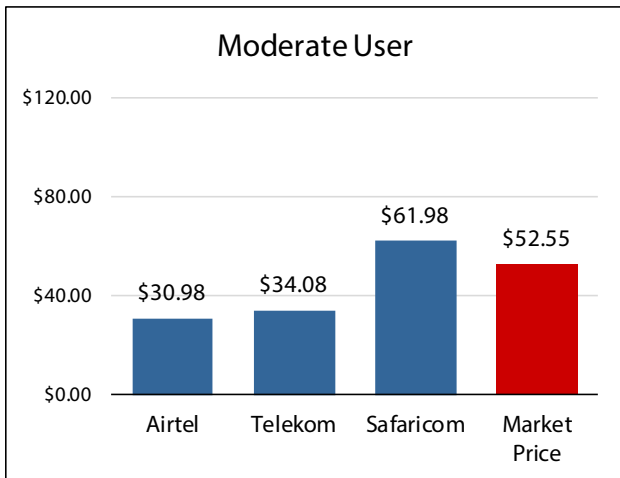
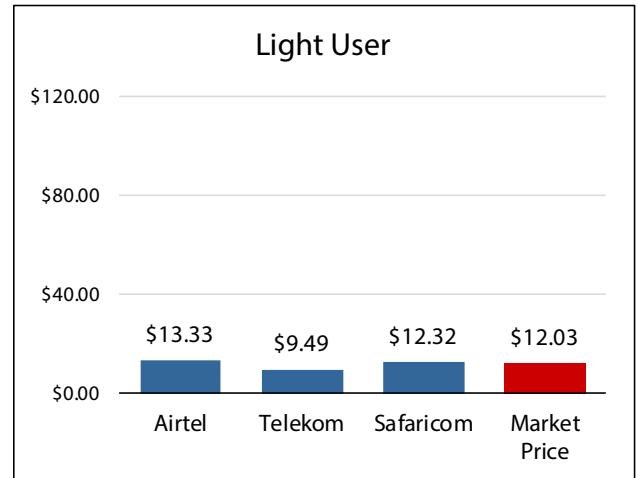


Kenya

Postpaid Voice/SMS/Data

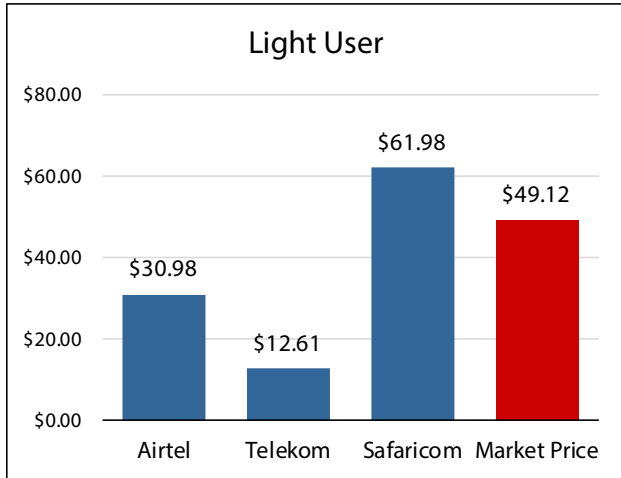


Prepaid Voice/SMS/Data

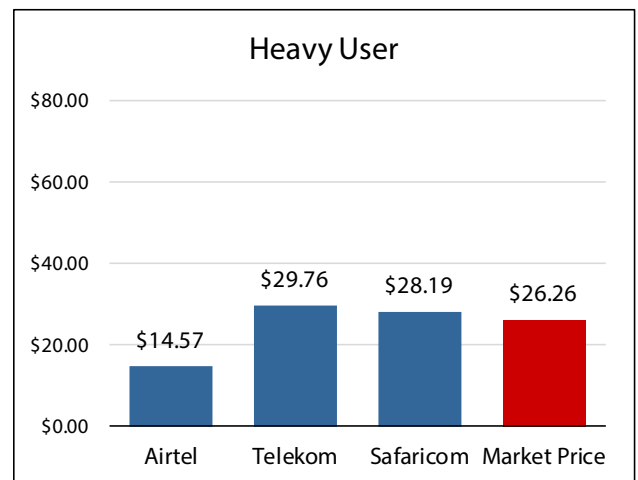
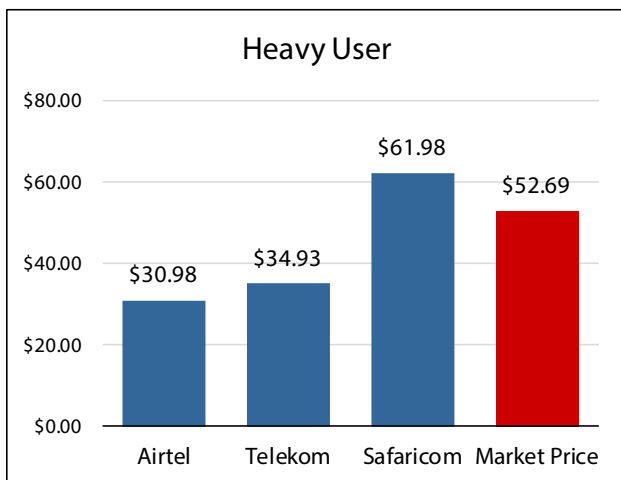
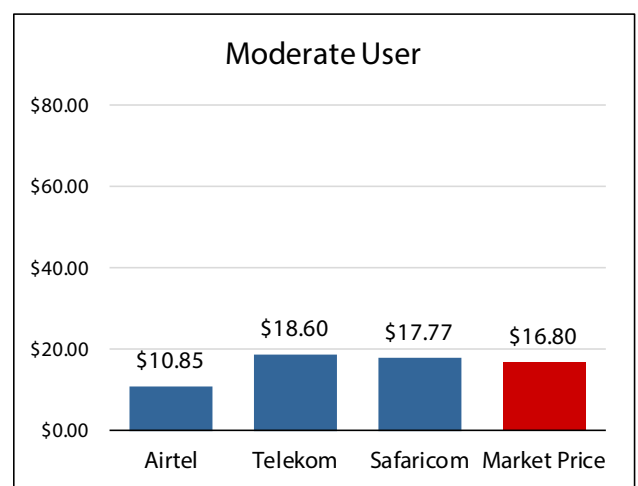
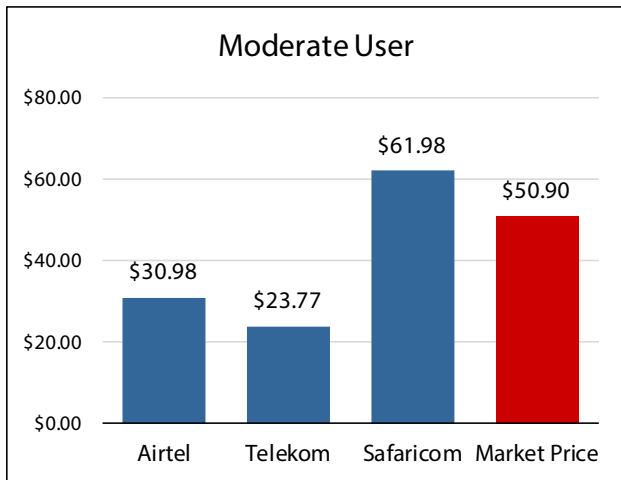
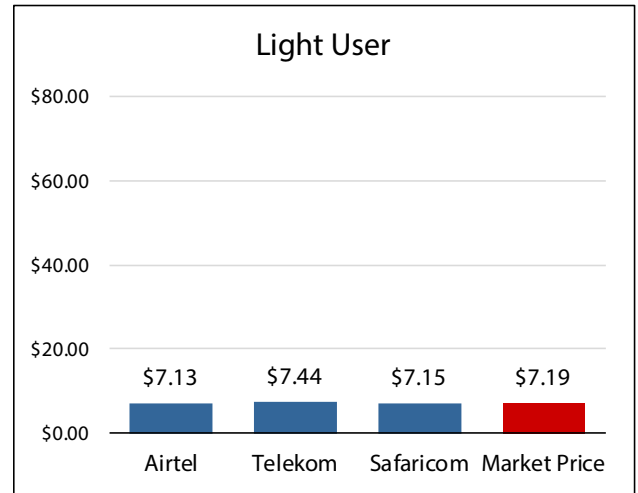


Kenya

Postpaid Voice/SMS

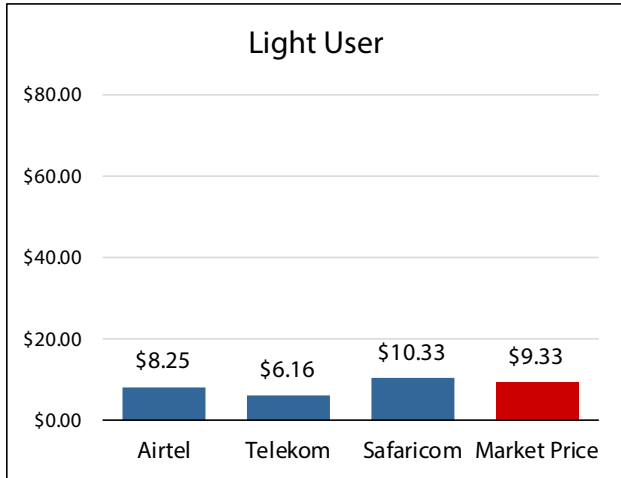


Prepaid Voice/SMS

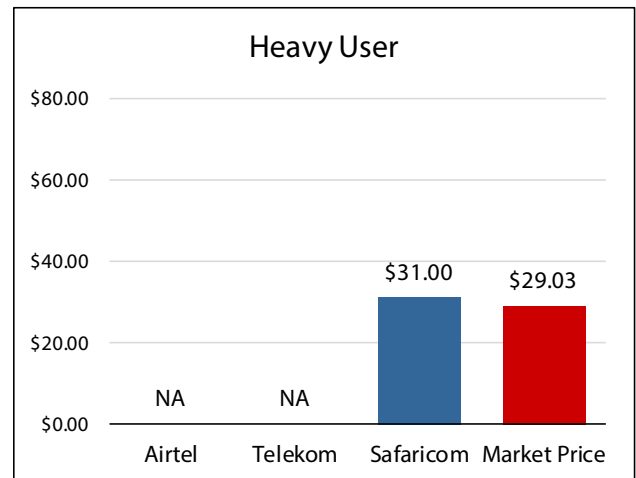
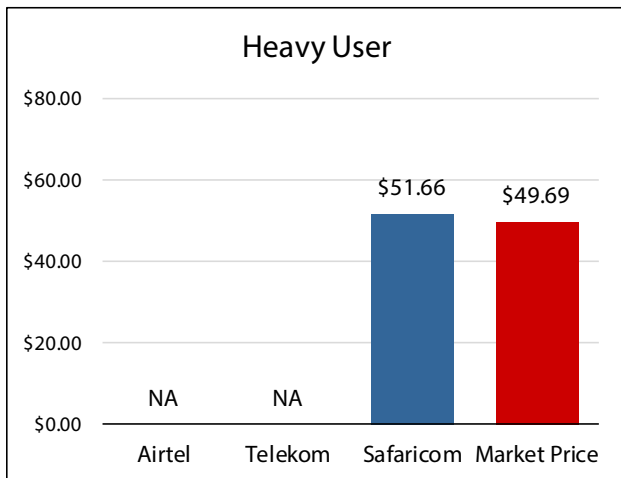
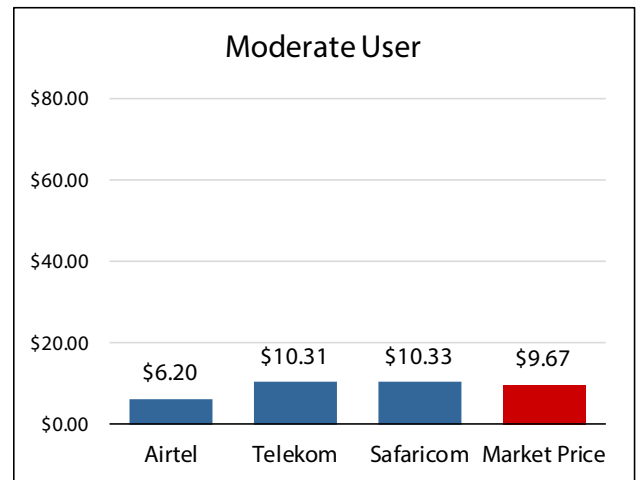
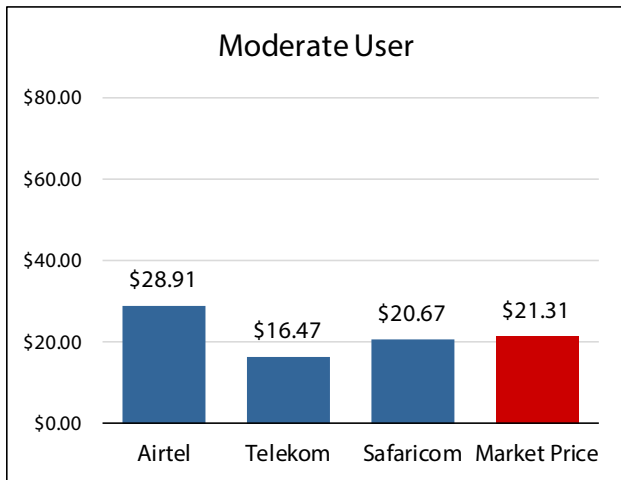
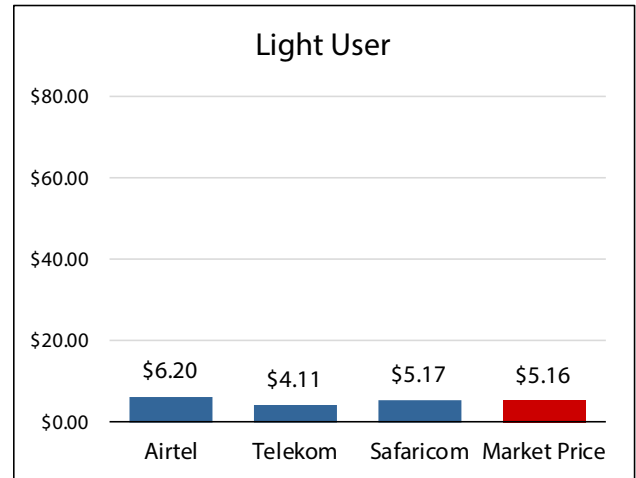


Kenya

Postpaid Data Only

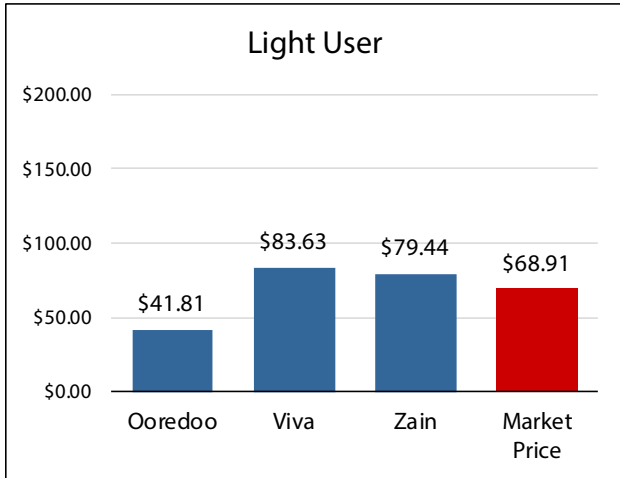


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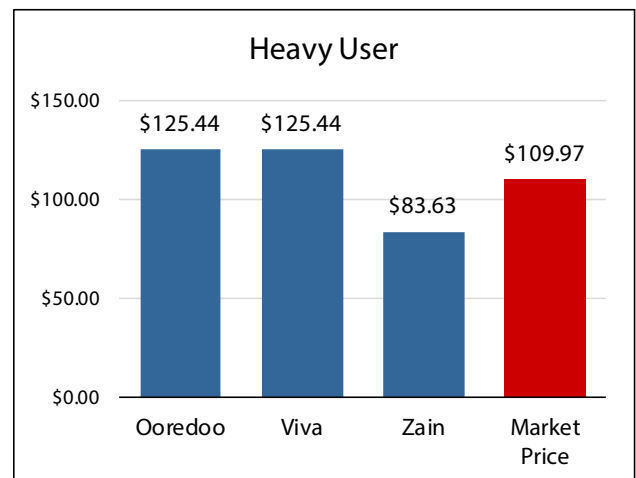
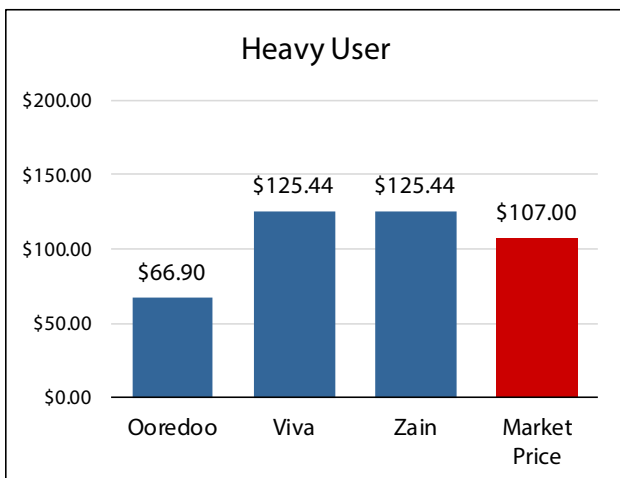
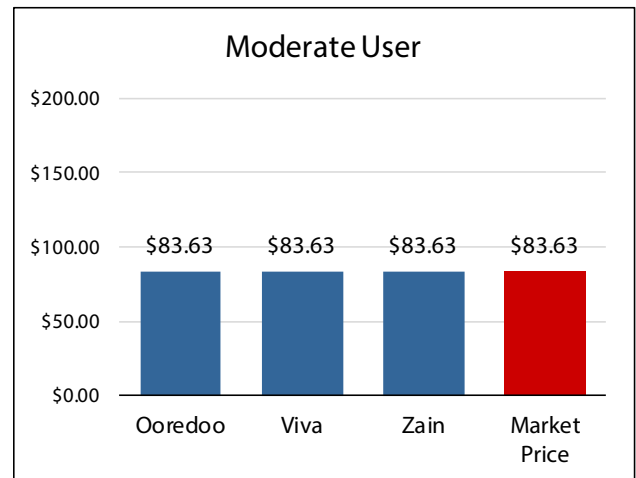
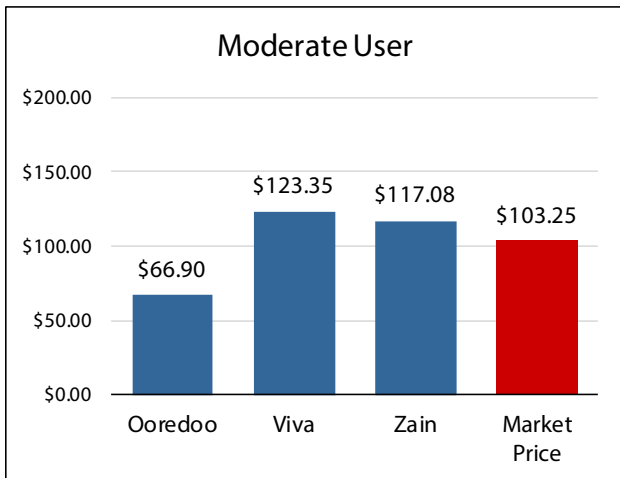
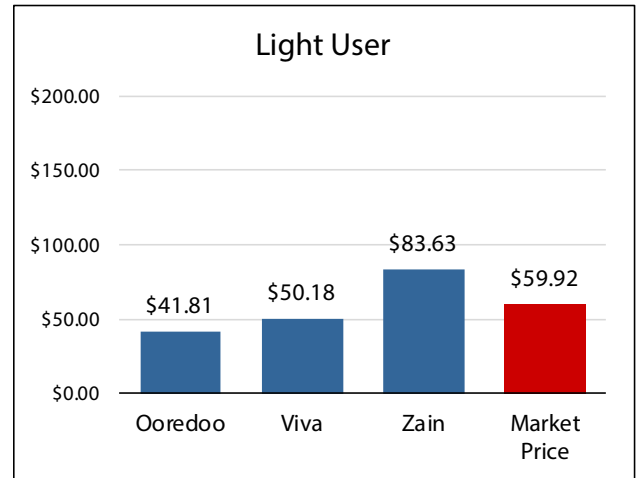


Kuwait

Postpaid Voice/SMS/Data

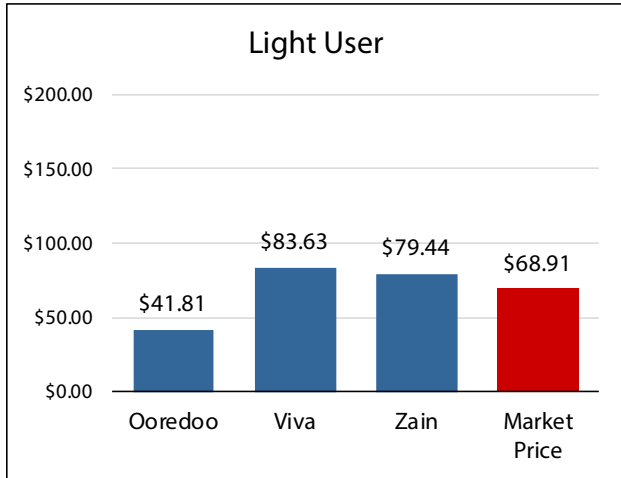


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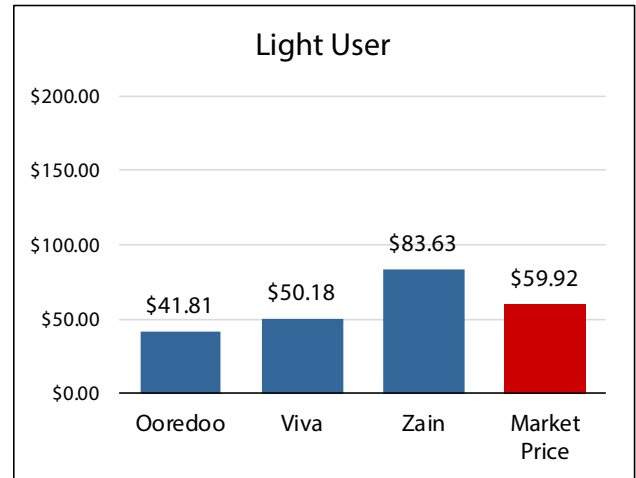


Kuwait

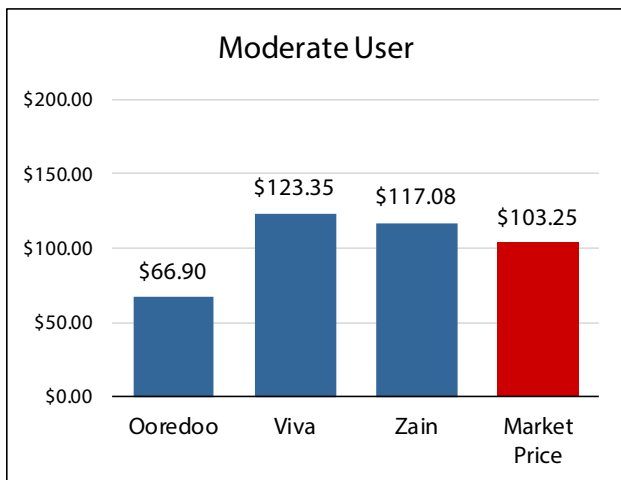
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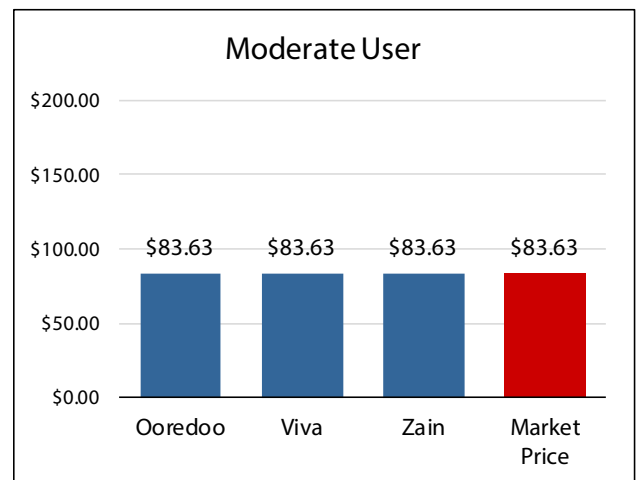
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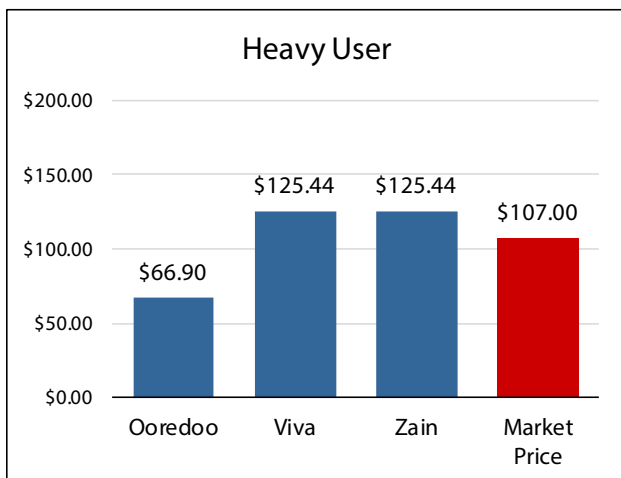
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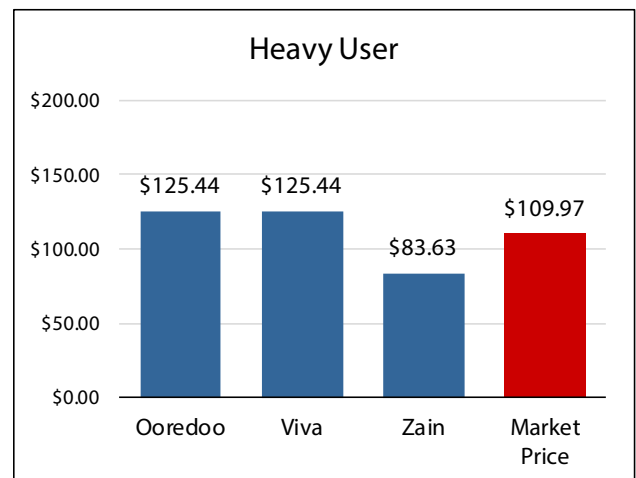
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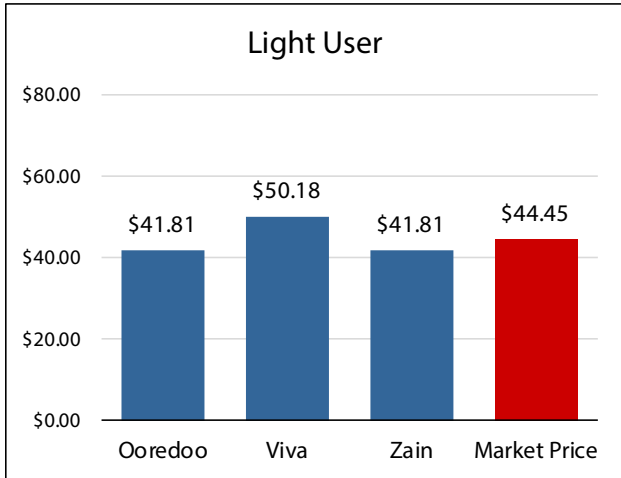


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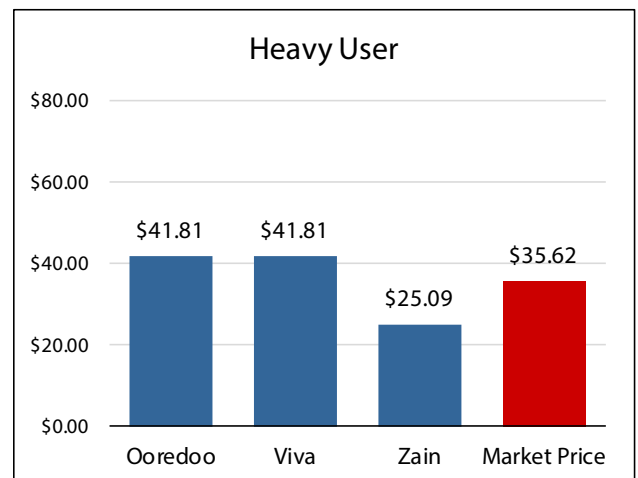
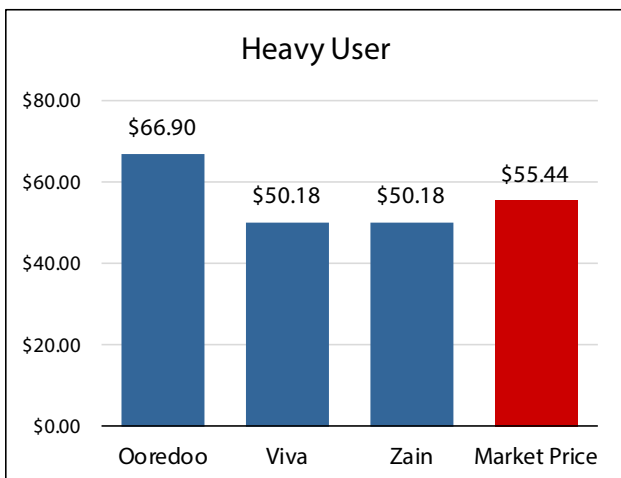
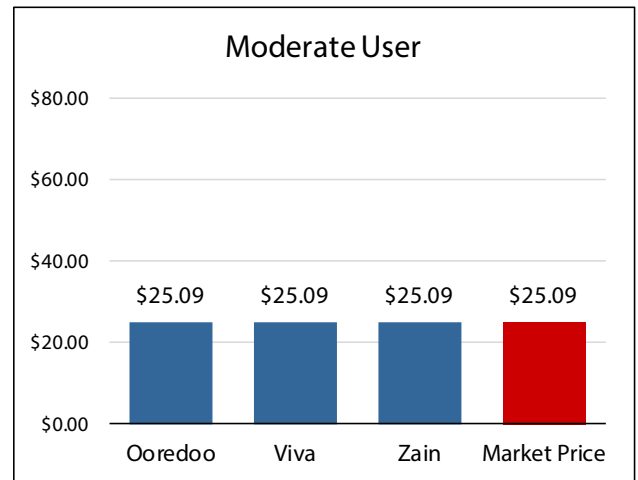
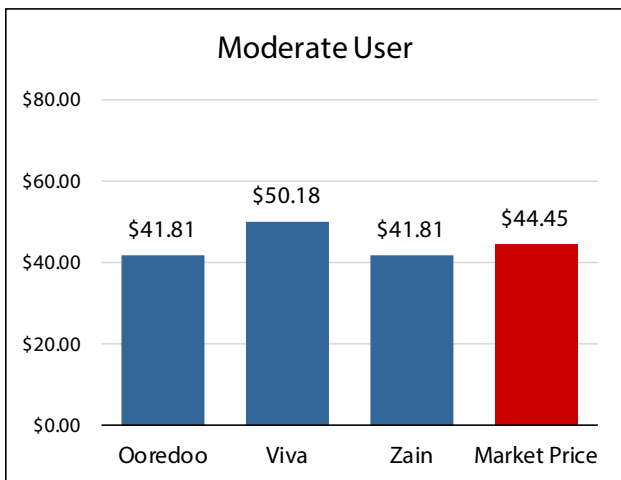
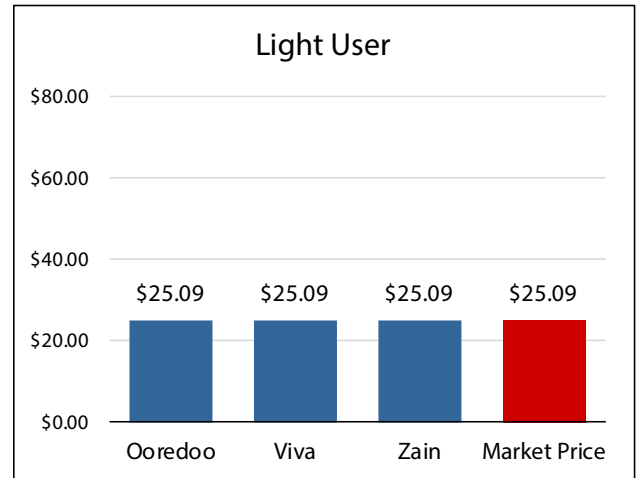


Kuwait

Postpaid Data Only

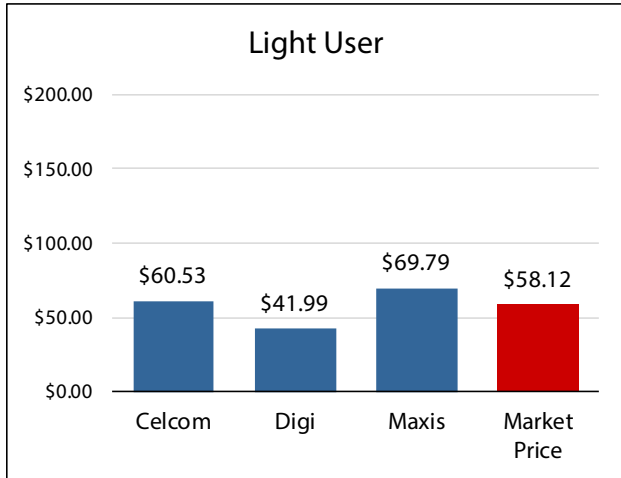


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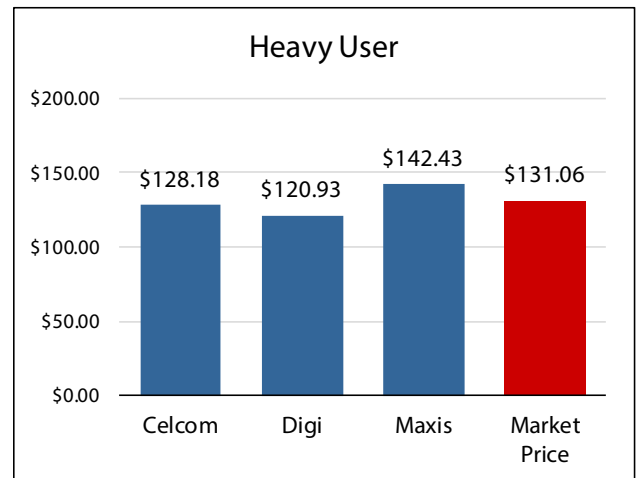
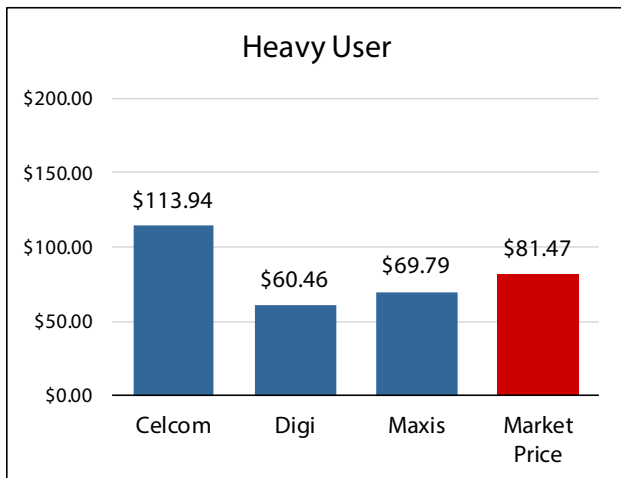
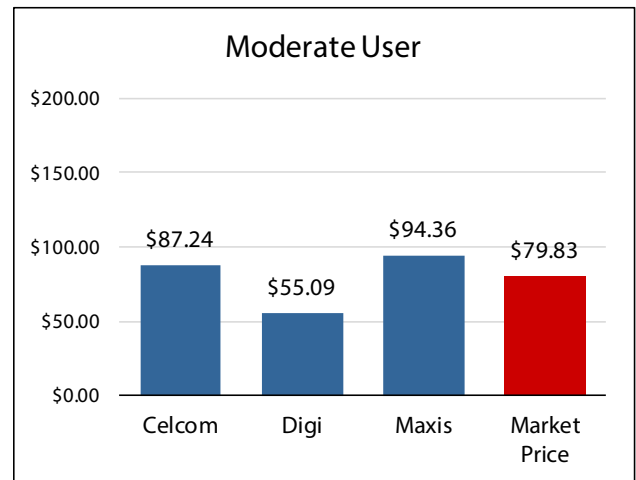
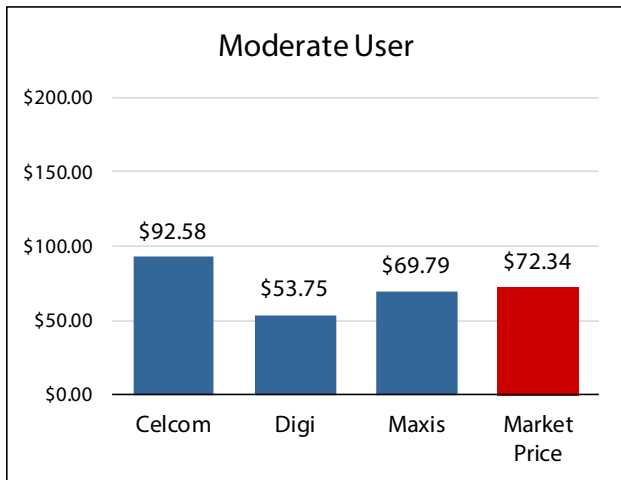
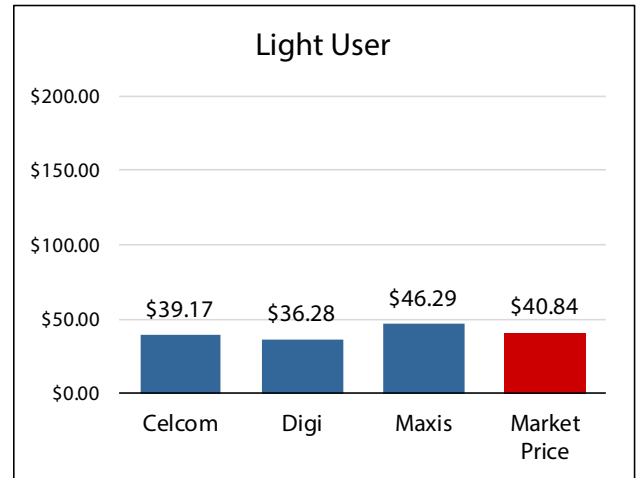


Malaysia

Postpaid Voice/SMS/Data

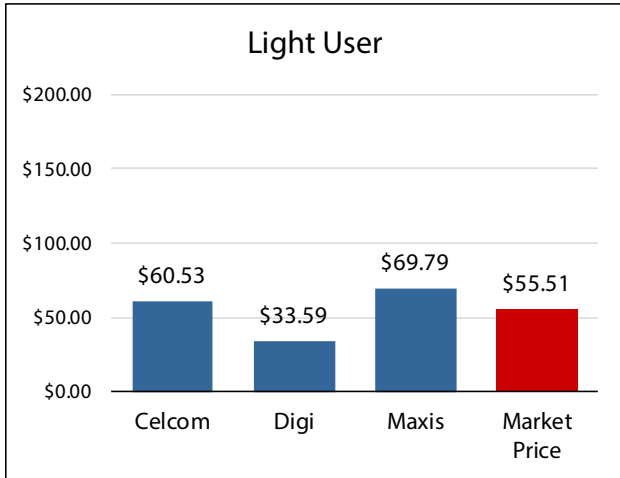


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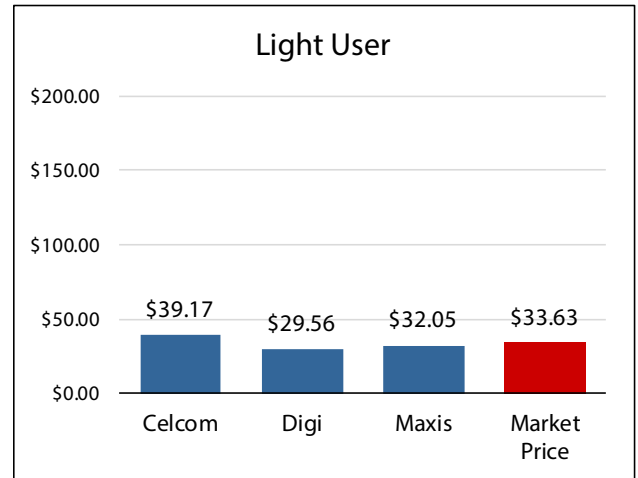


Malaysia

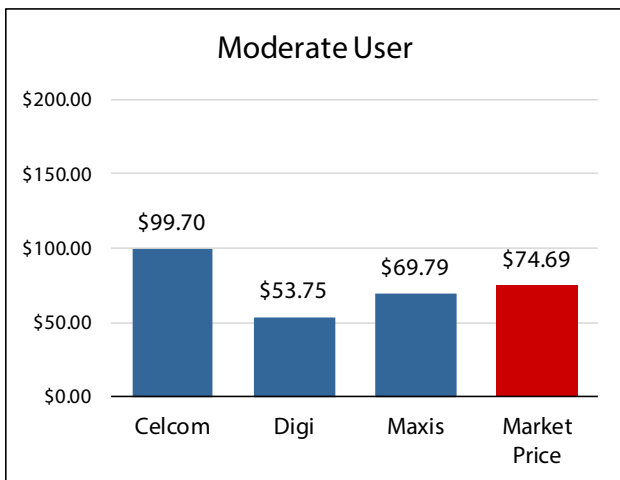
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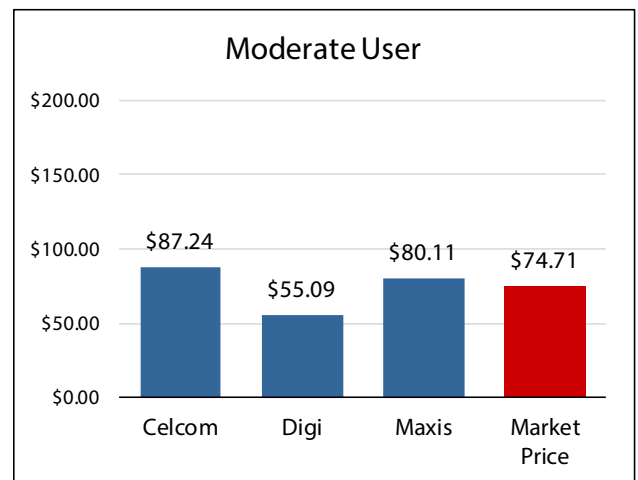
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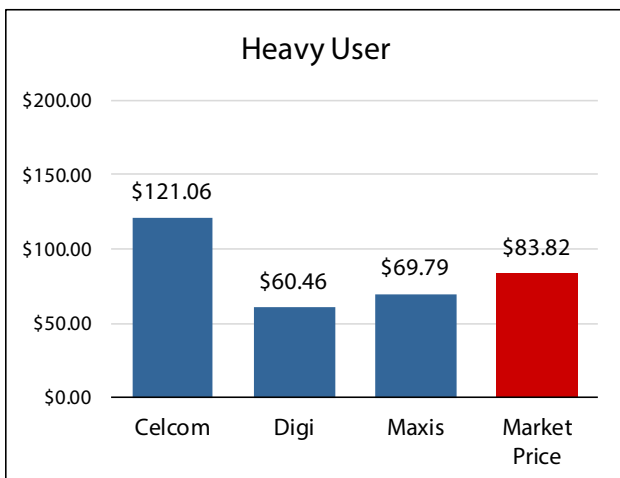
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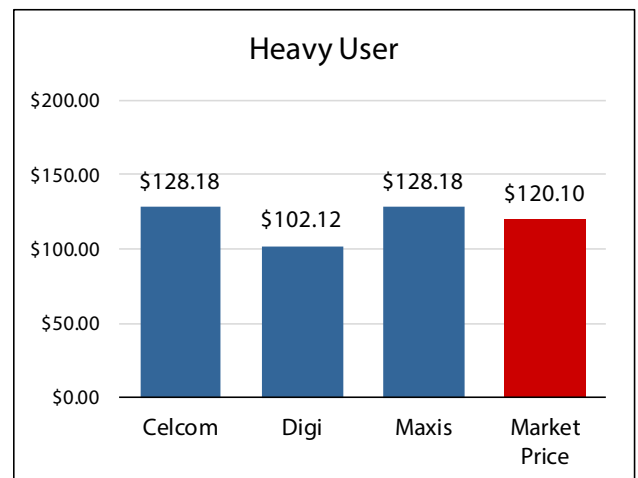
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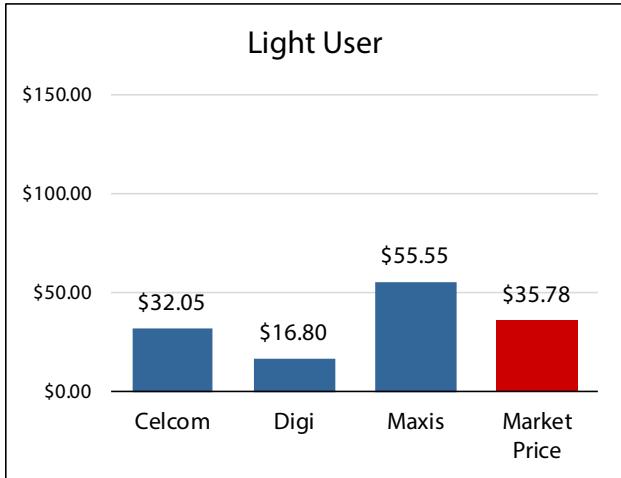


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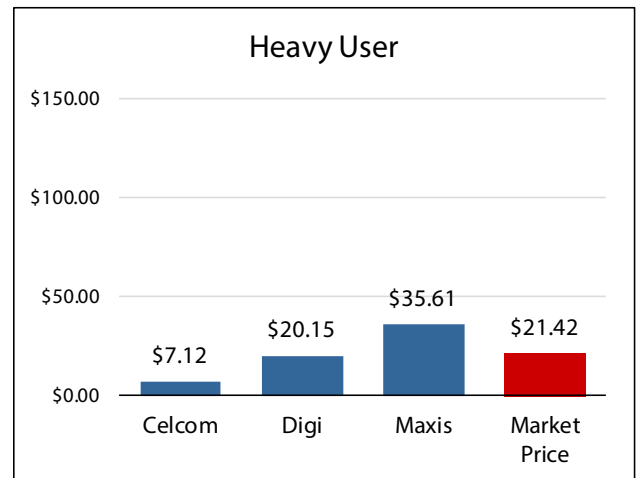
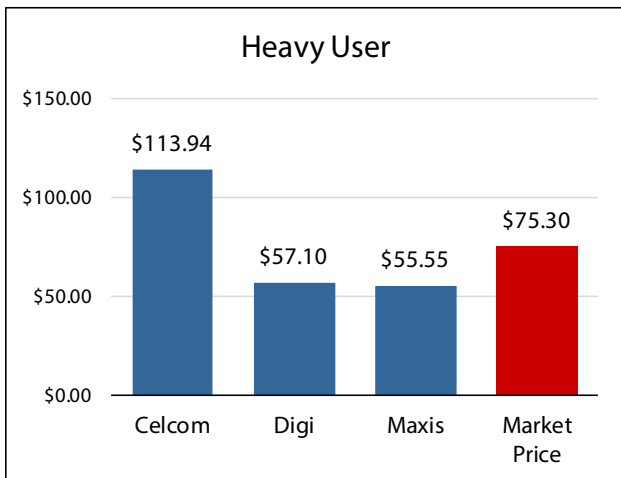
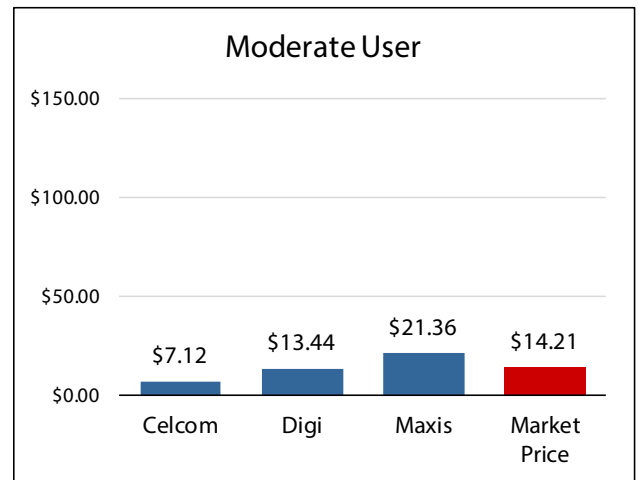
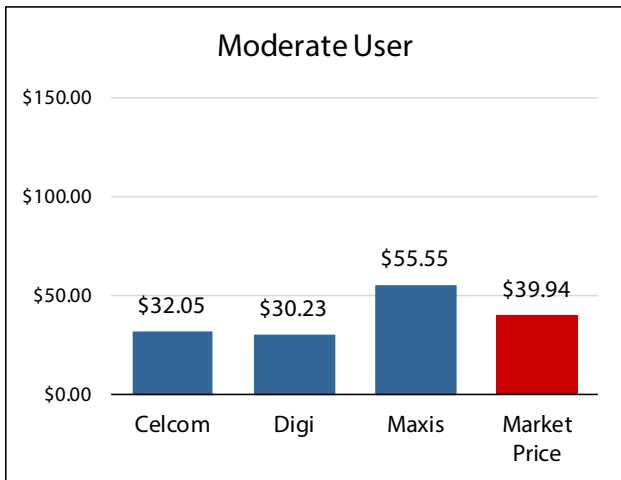
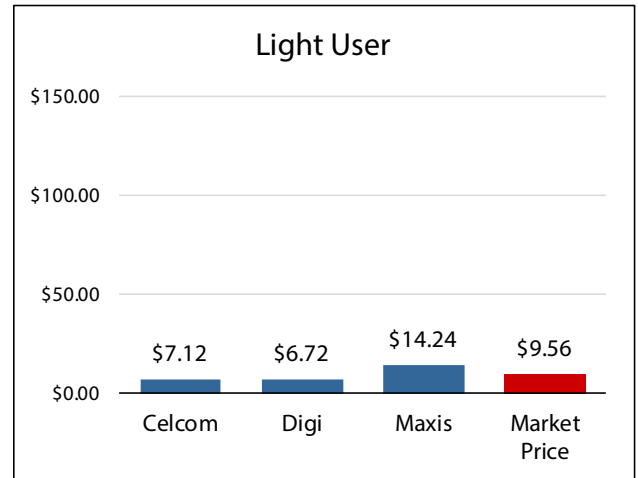


Malaysia

Postpaid Data Only

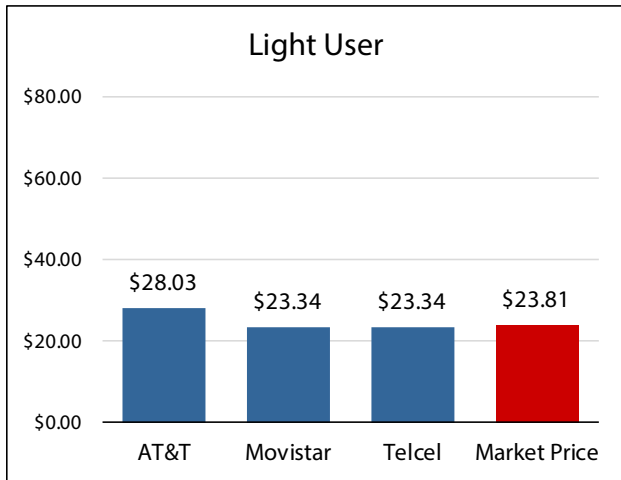


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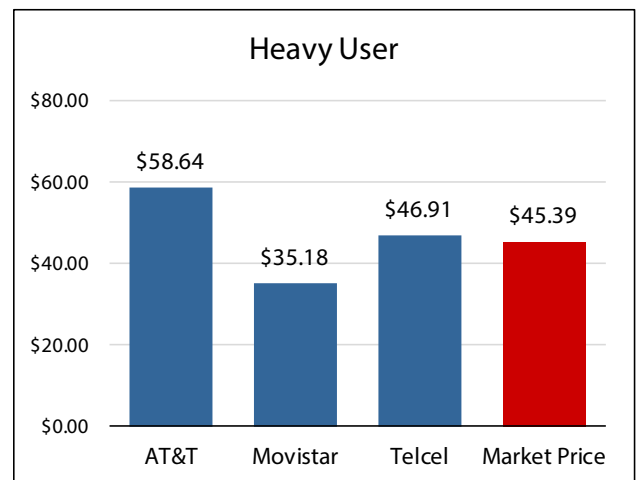
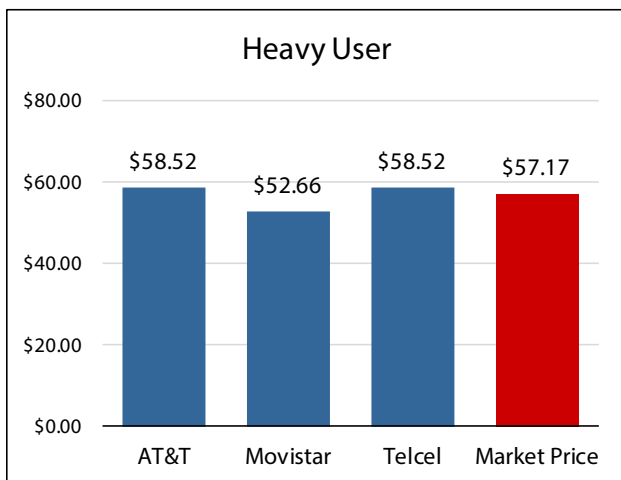
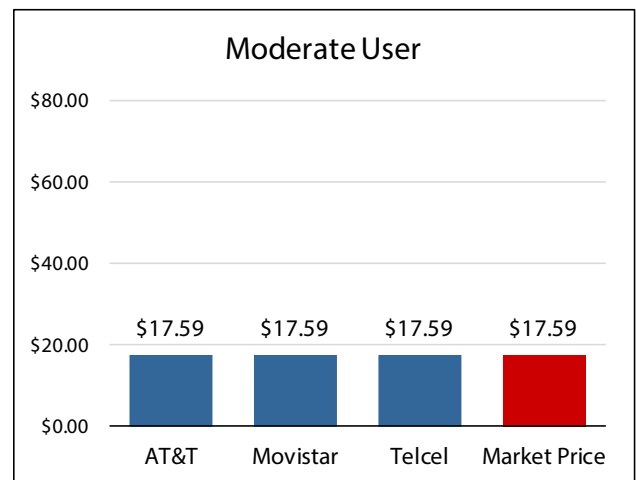
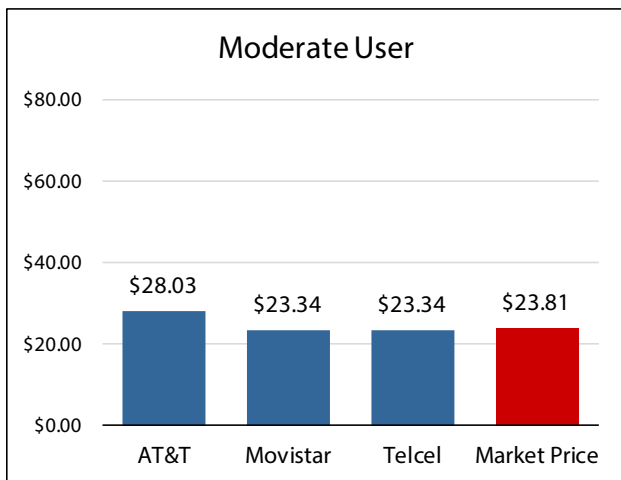
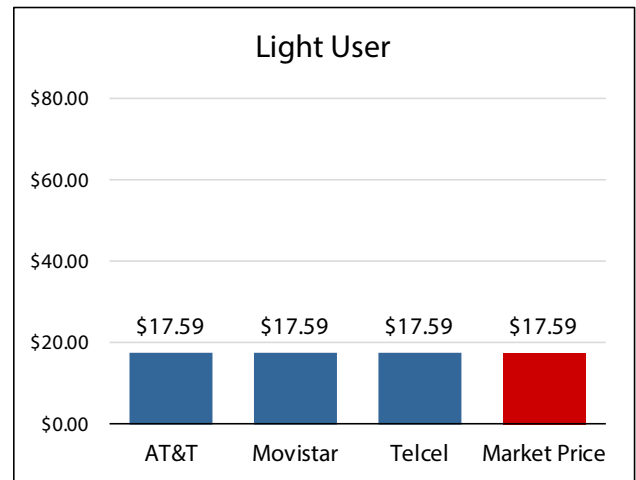


Mexico

Postpaid Voice/SMS/Data

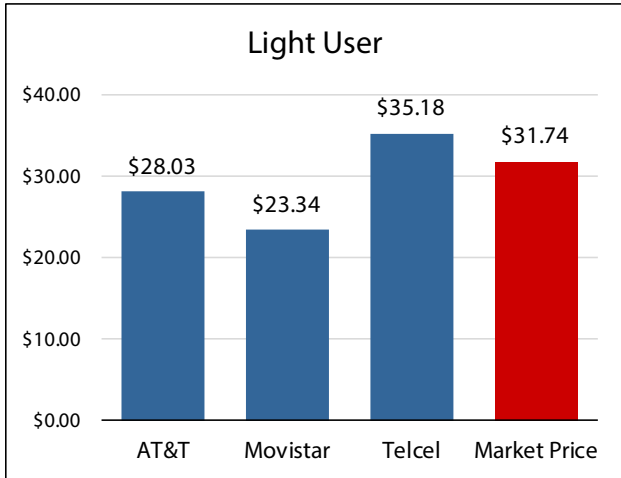


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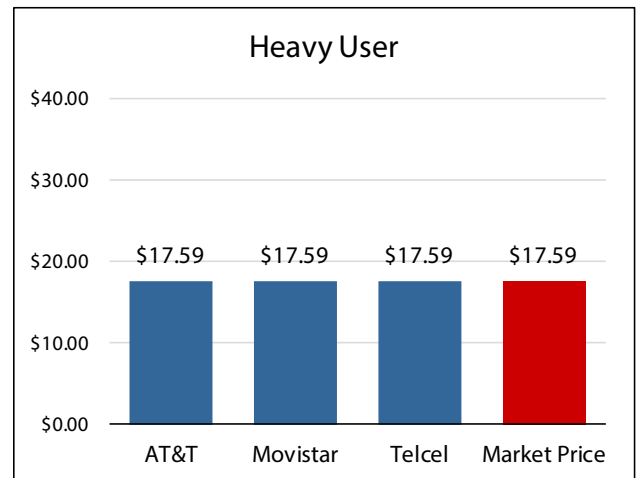
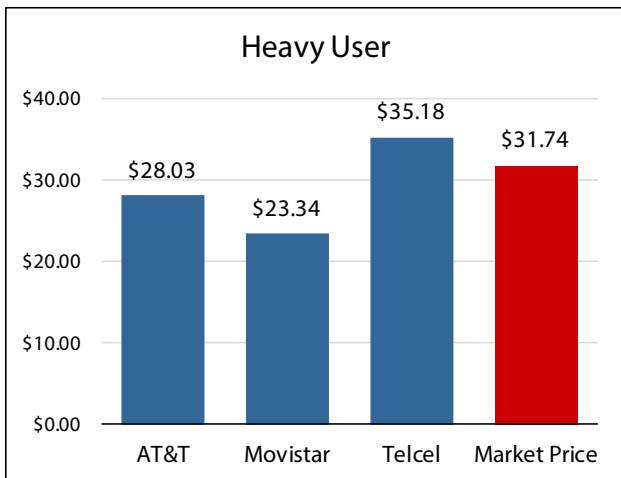
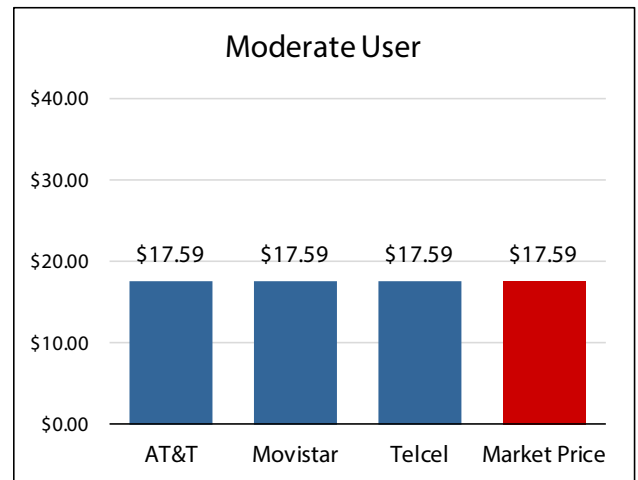
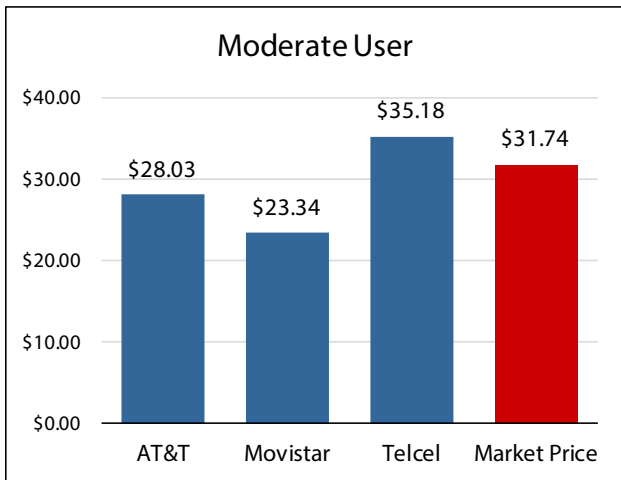
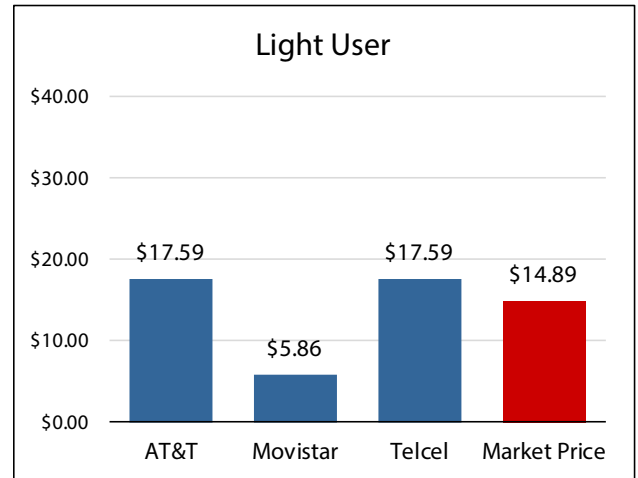


Mexico

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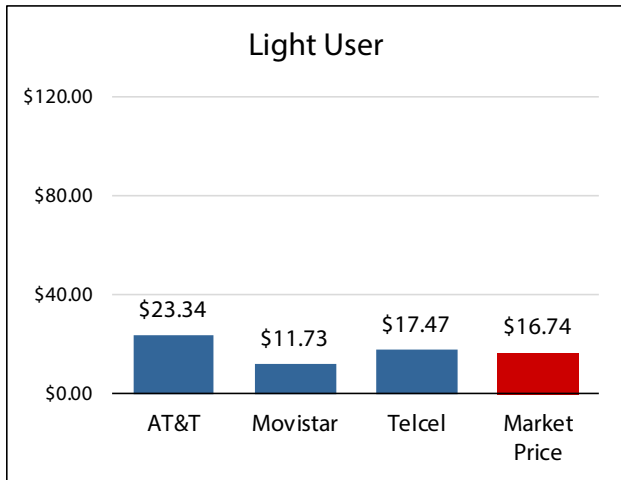


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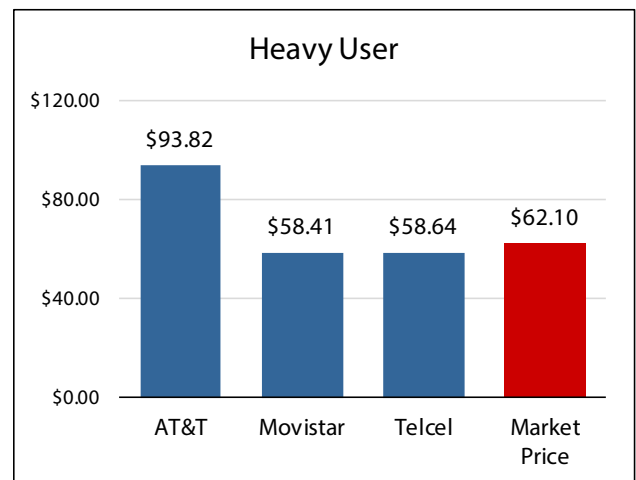
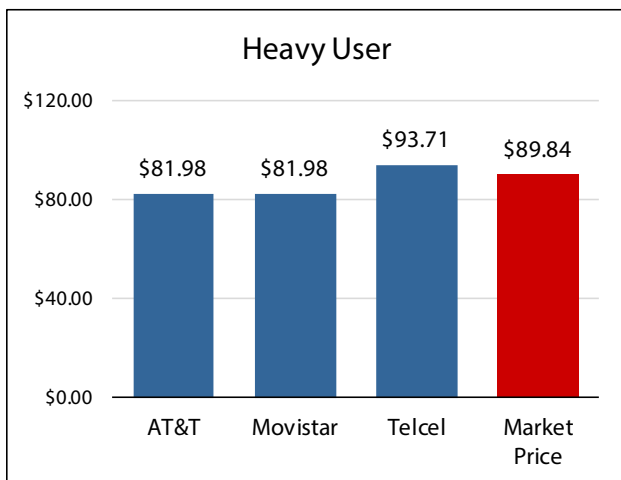
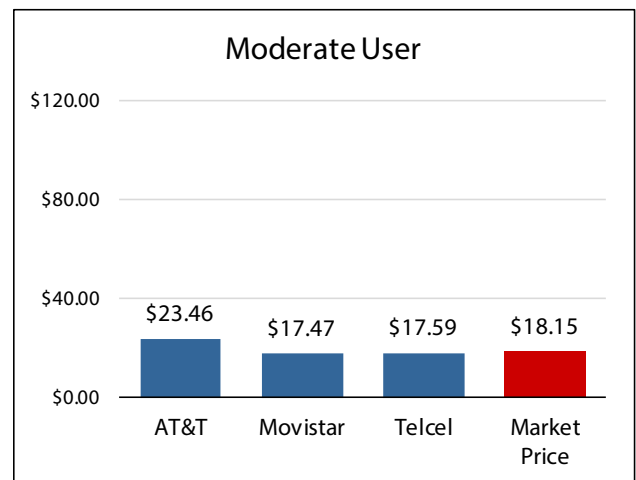
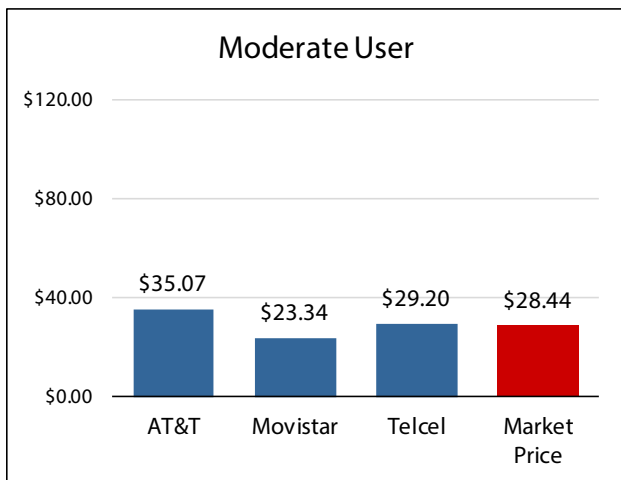
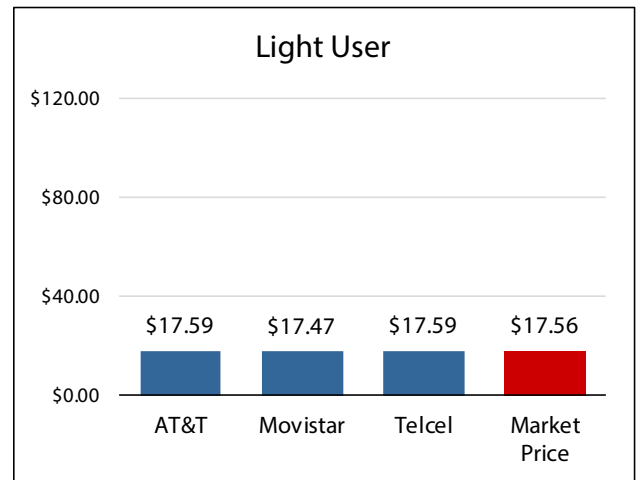


Mexico

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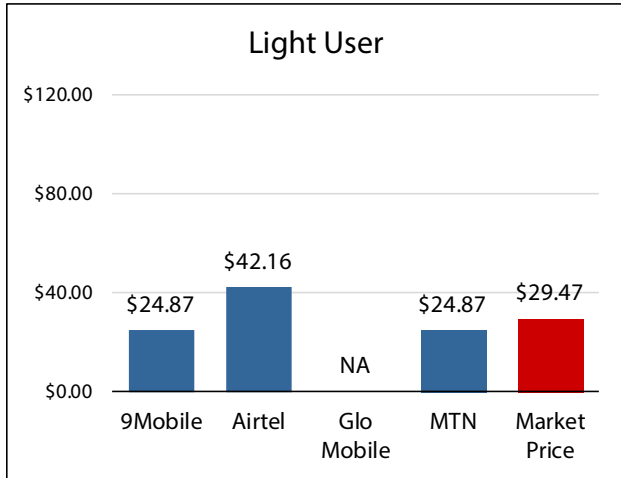


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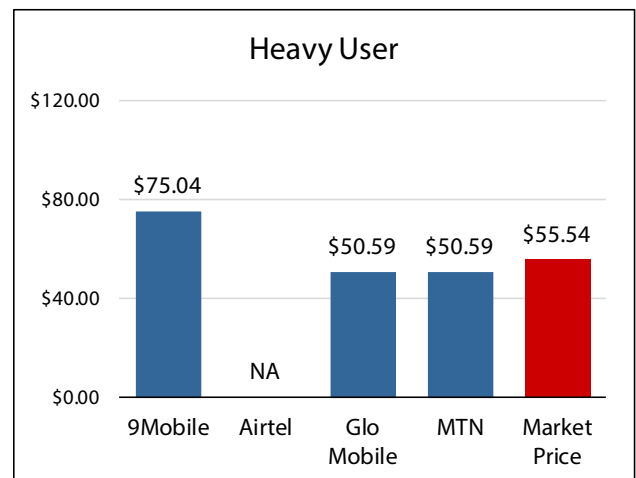
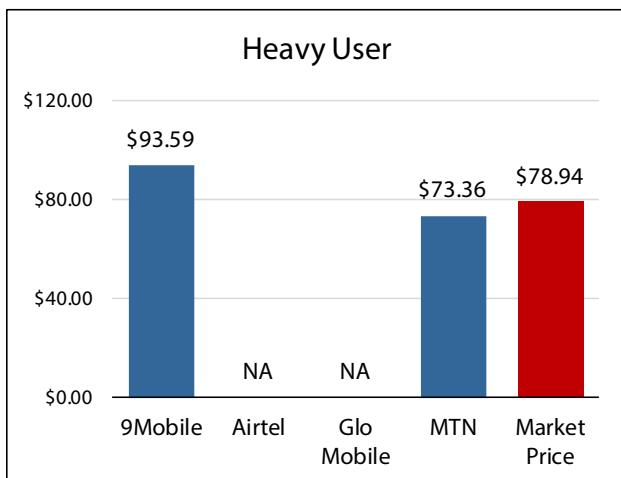
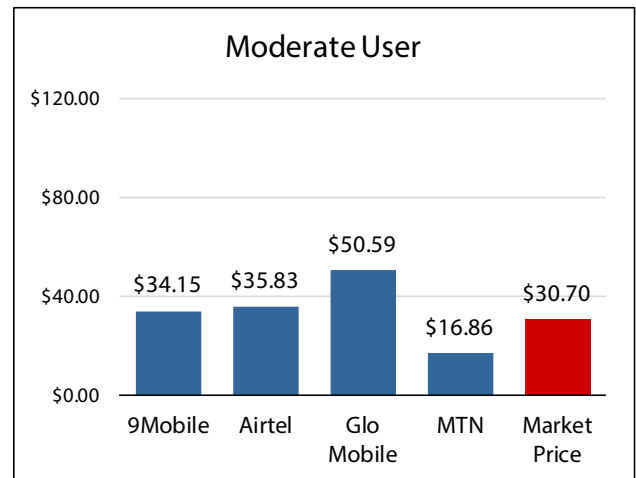
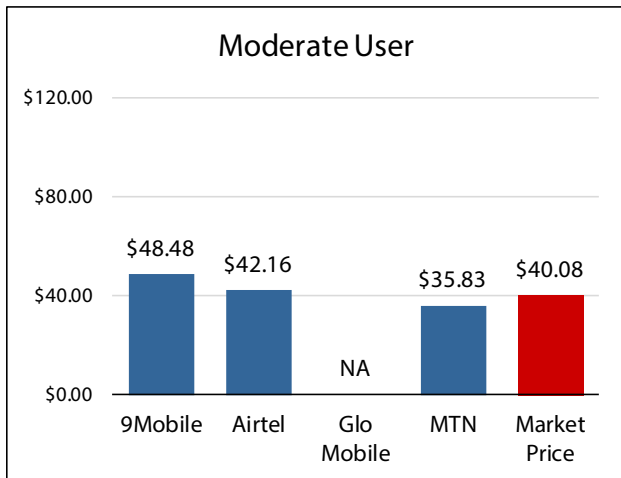
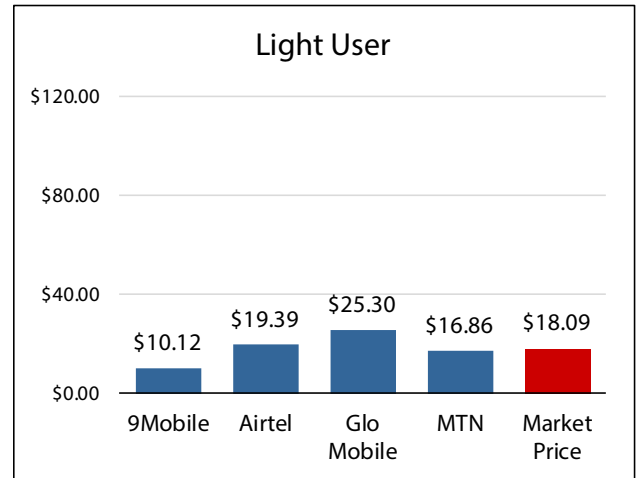


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Postpaid Voice/SMS/Data

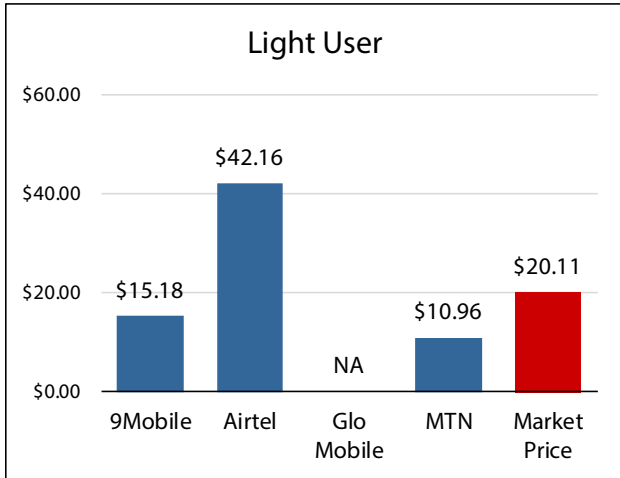


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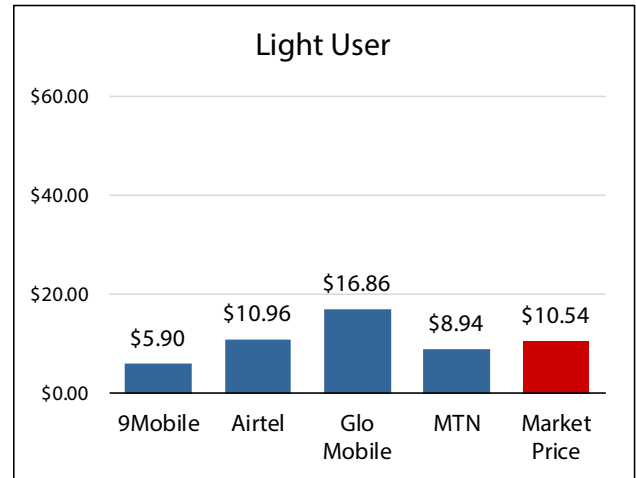


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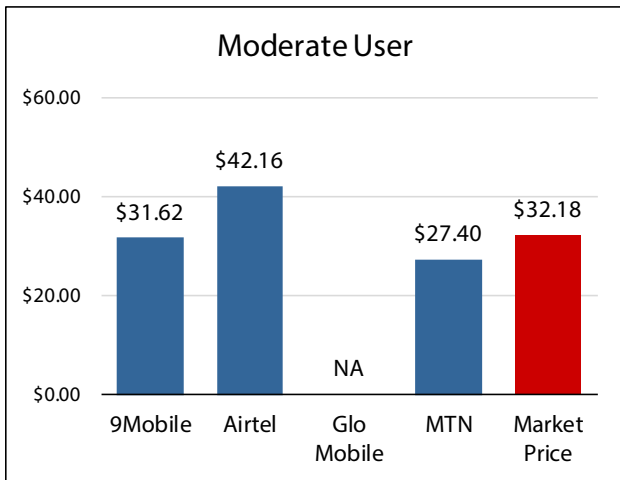
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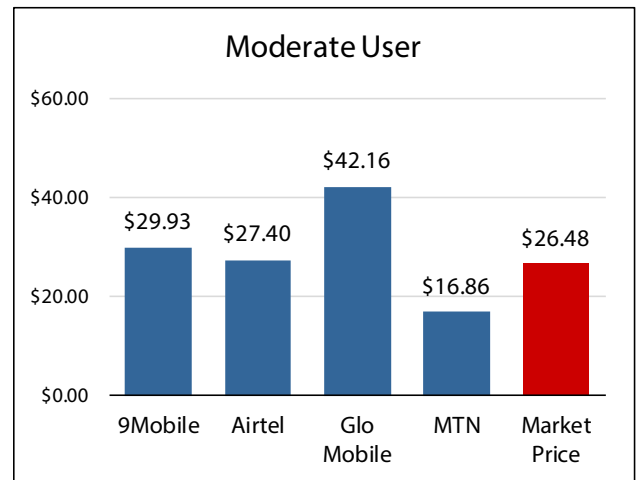
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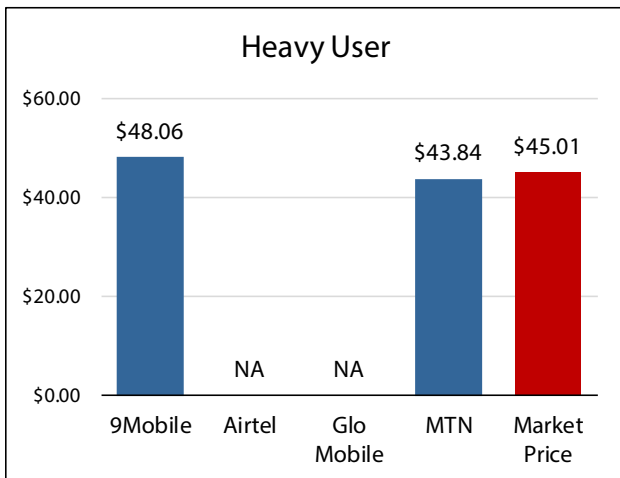
Moderate User



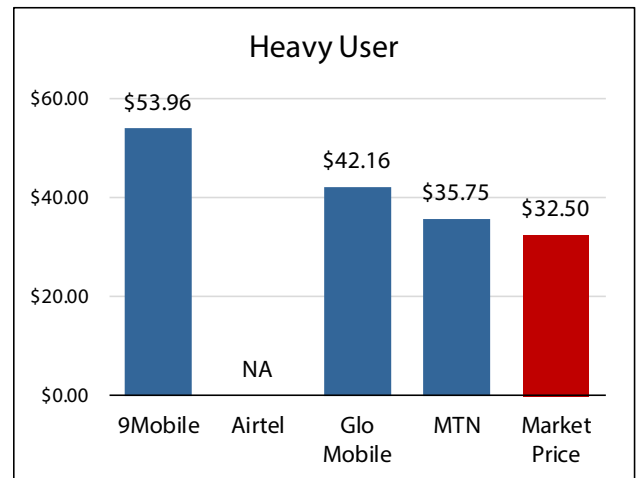
Moderate User



Heavy User

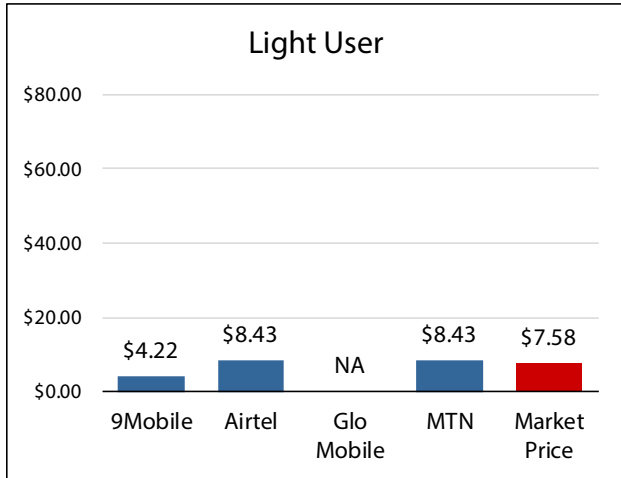


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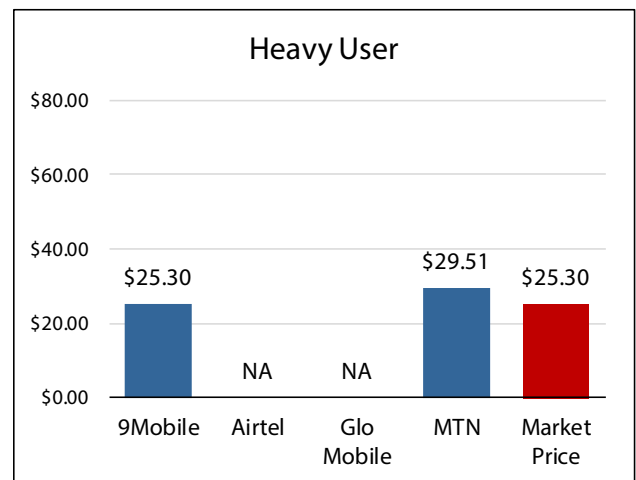
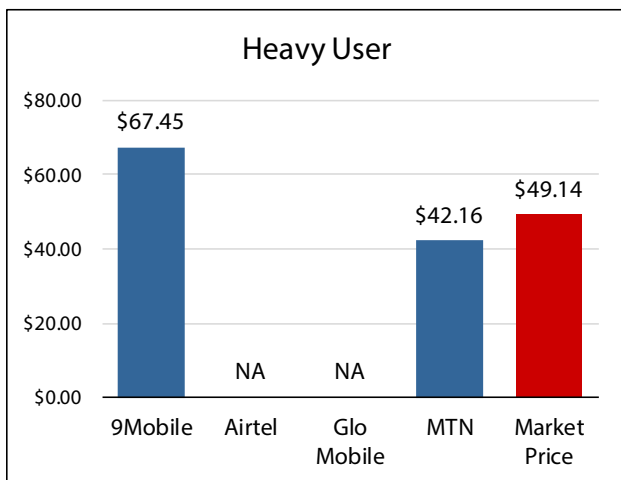
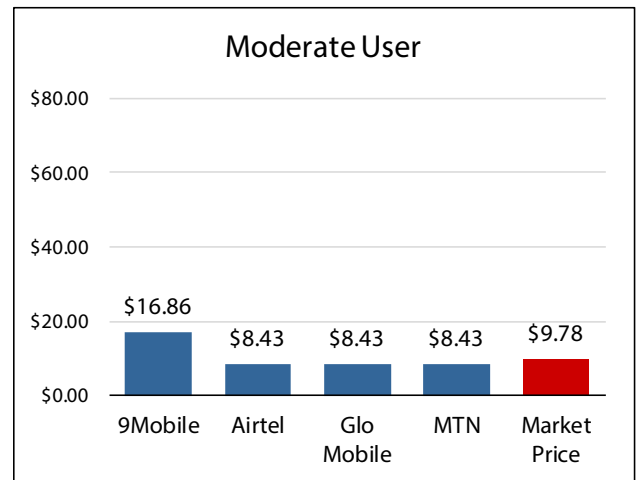
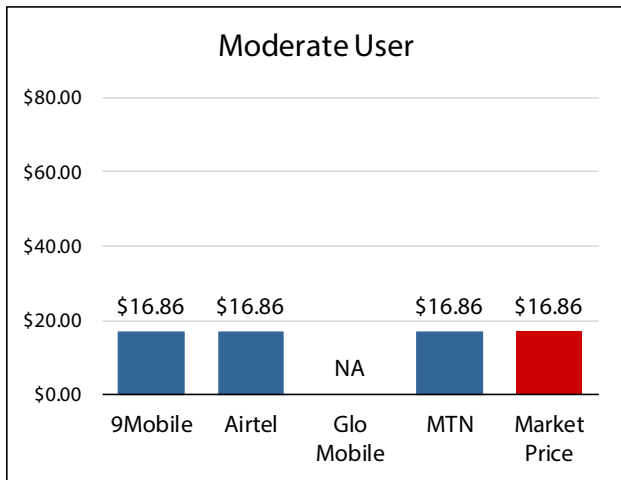
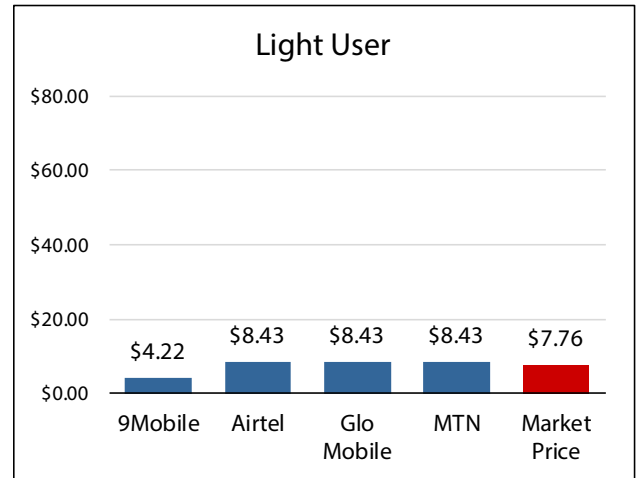


Nigeria

Postpaid Data Only

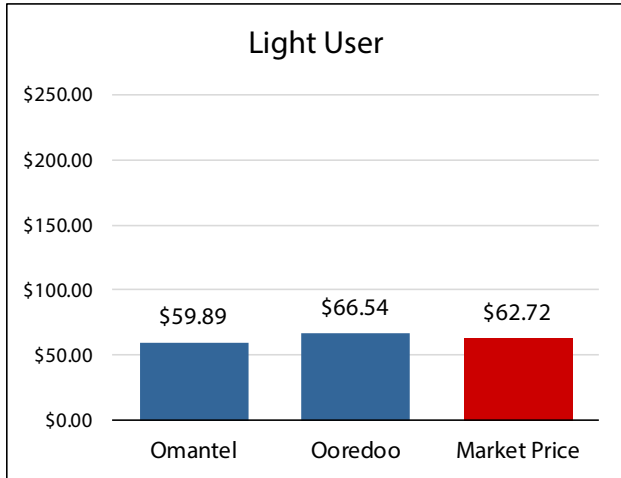


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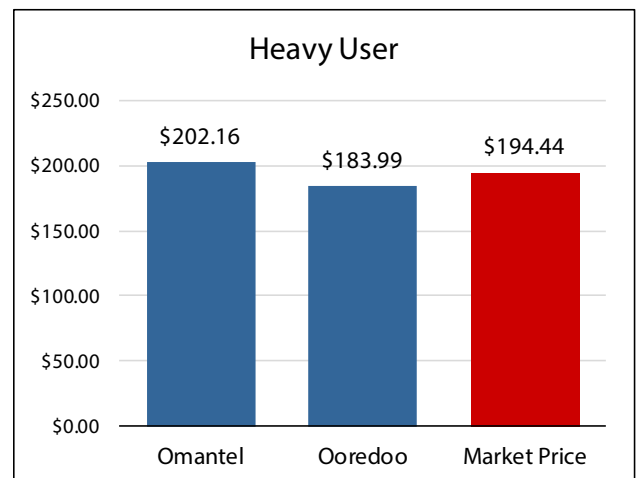
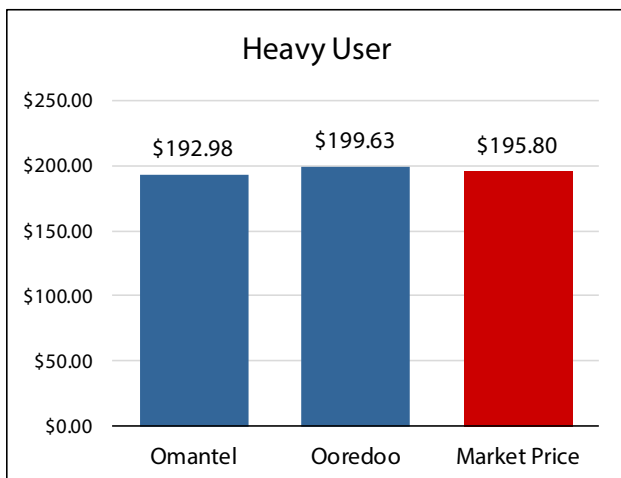
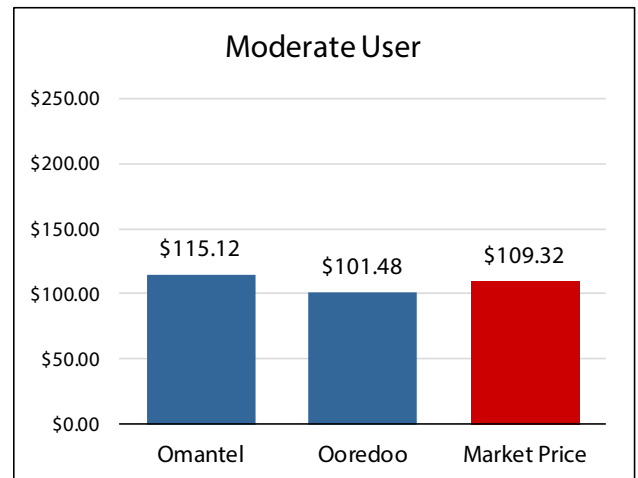
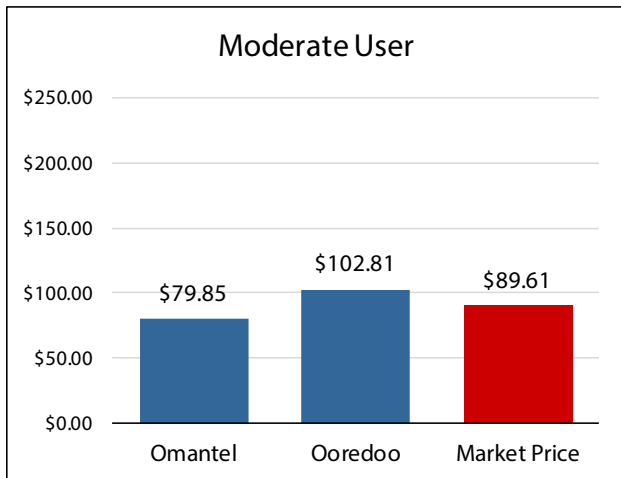
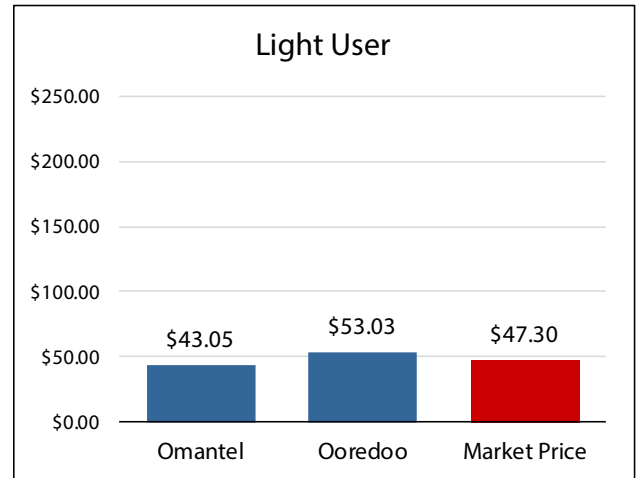


Oman

Postpaid Voice/SMS/Data

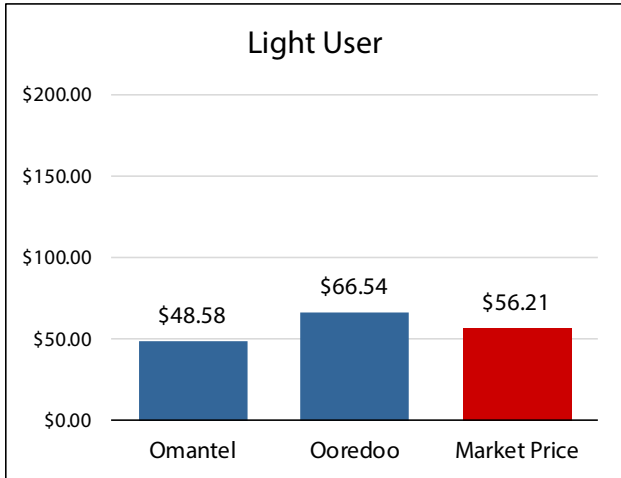


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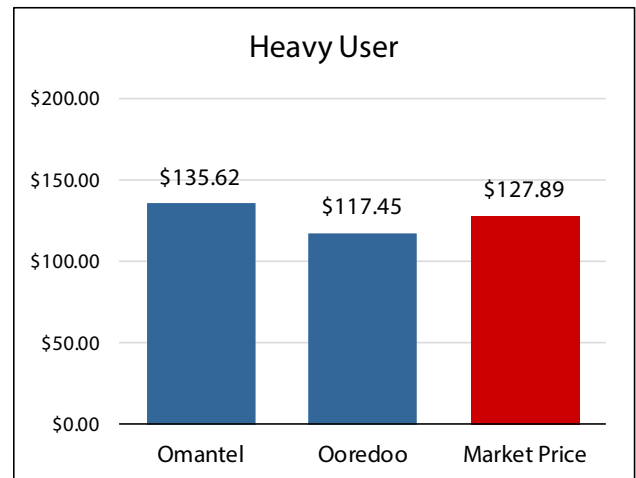
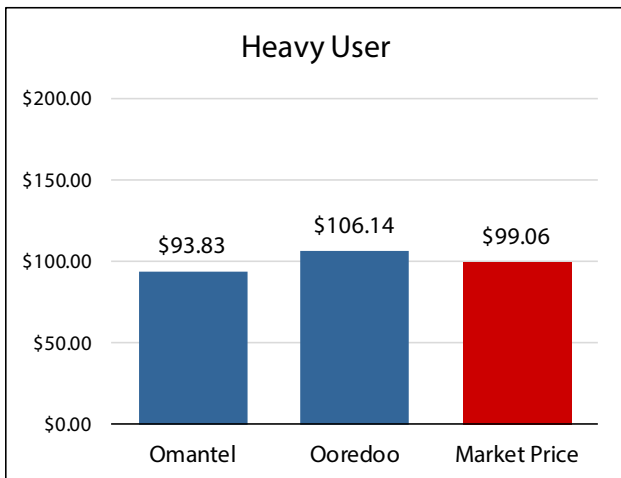
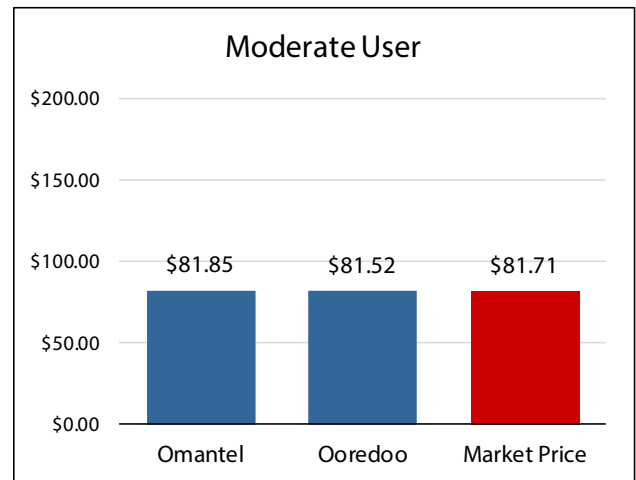
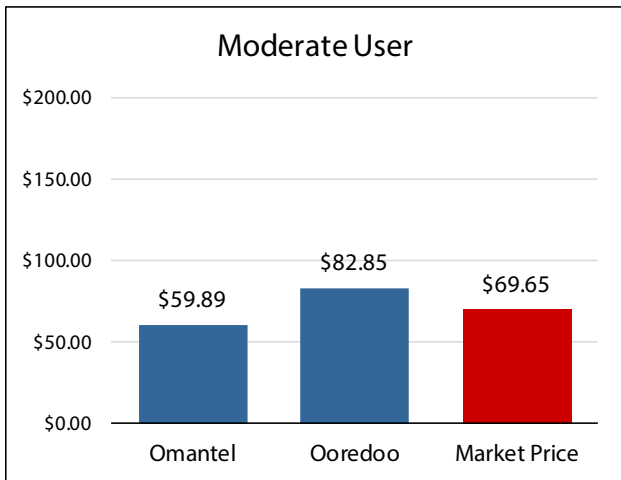
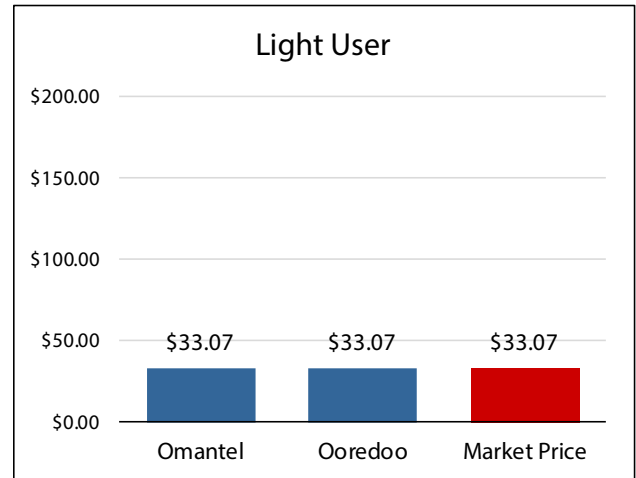


Oman

Postpaid Voice/SMS

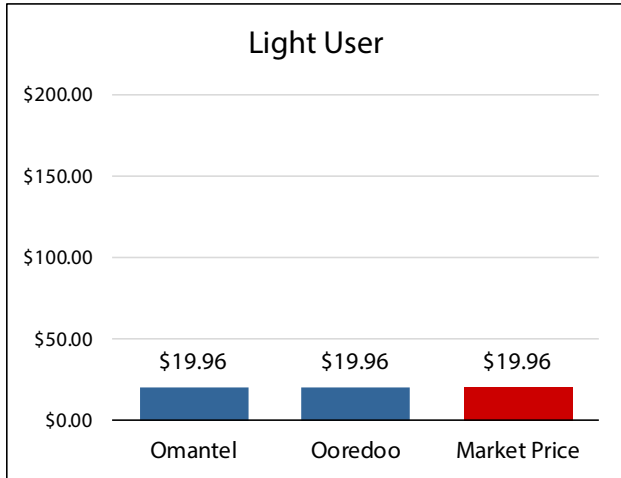


Prepaid Voice/SMS

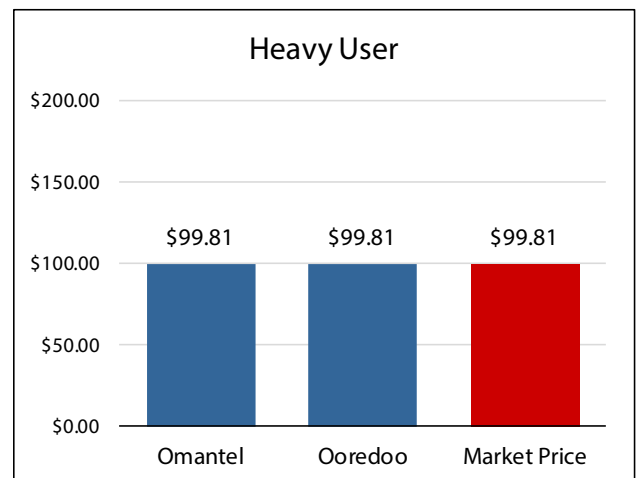
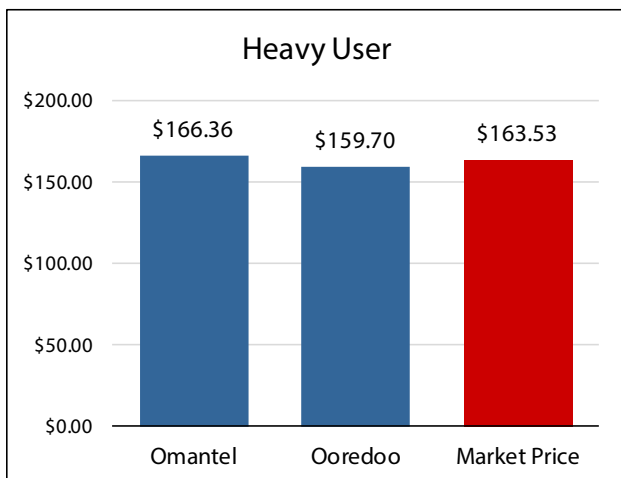
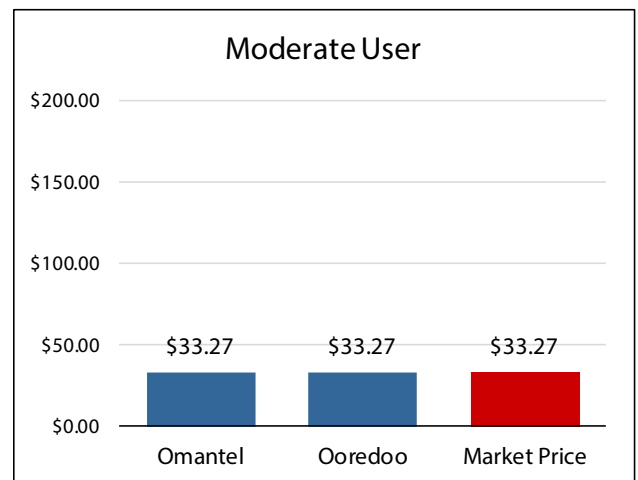
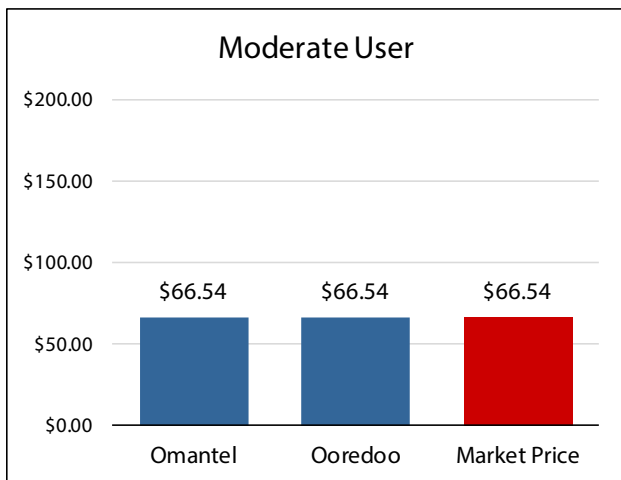
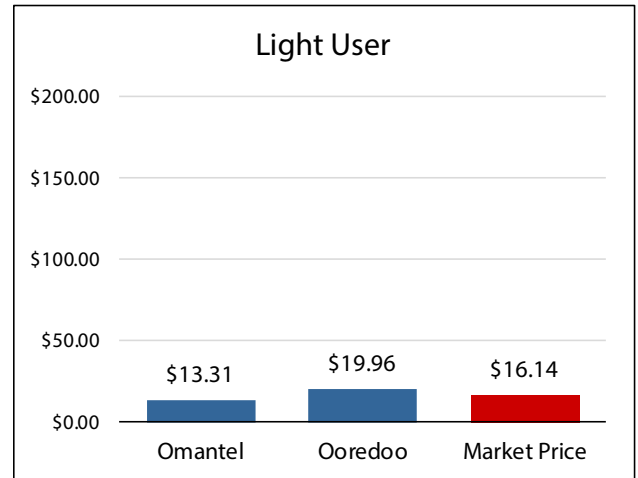


Oman

Postpaid Data Only

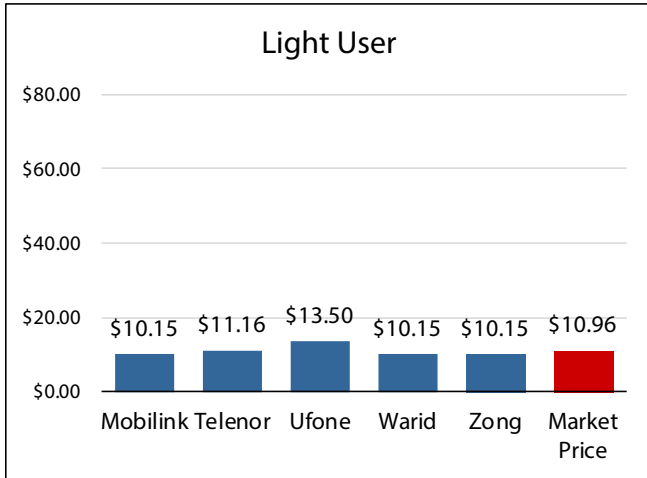


Prepaid Data Only

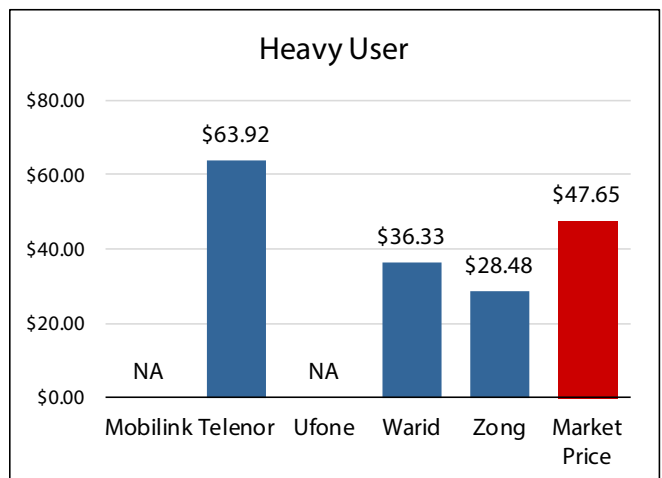
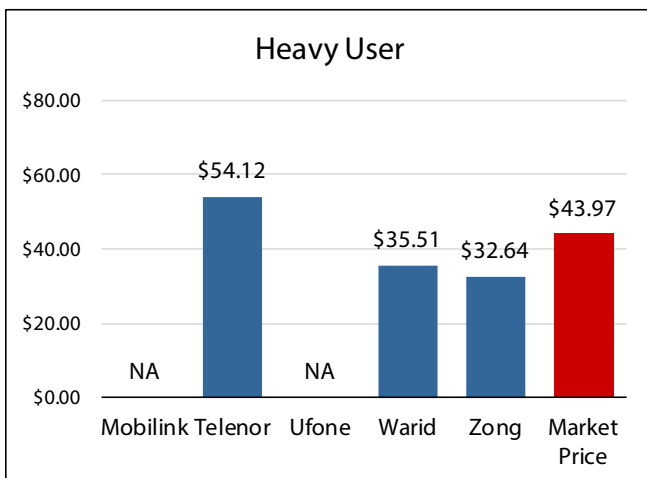
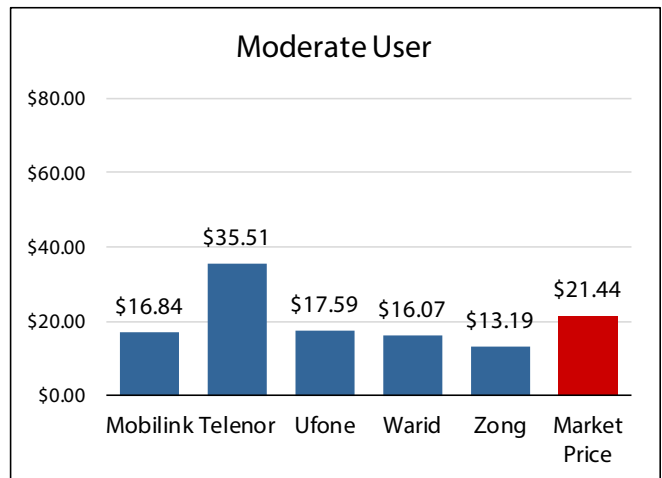
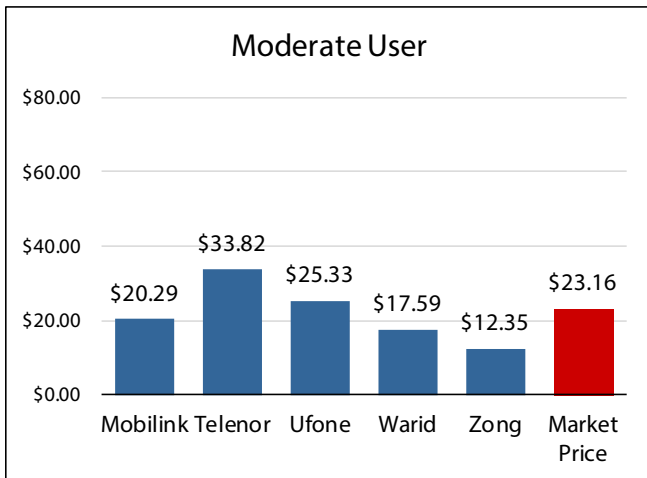
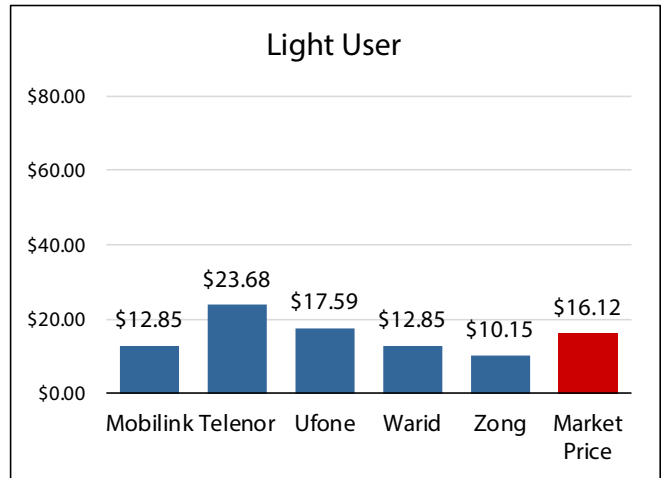


Pakistan

Postpaid Voice/SMS/Data

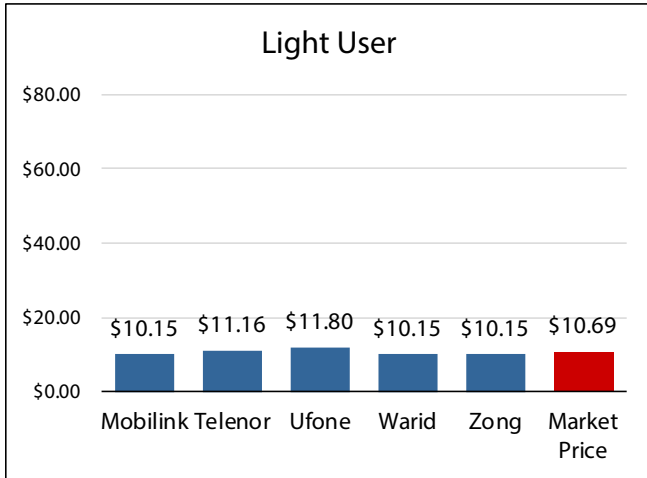


Prepaid Voice/SMS/Data

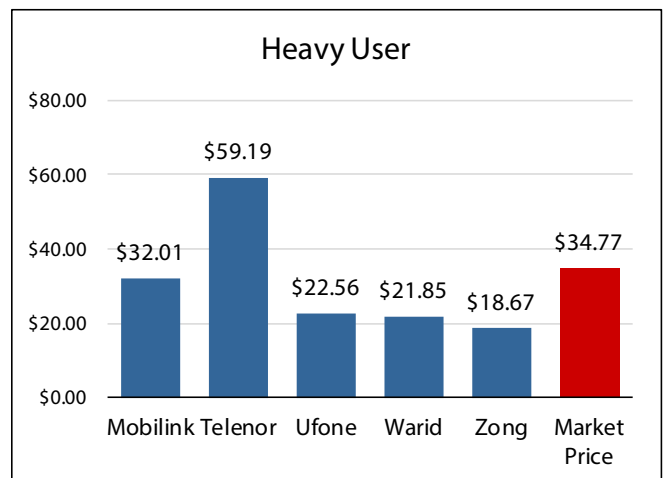
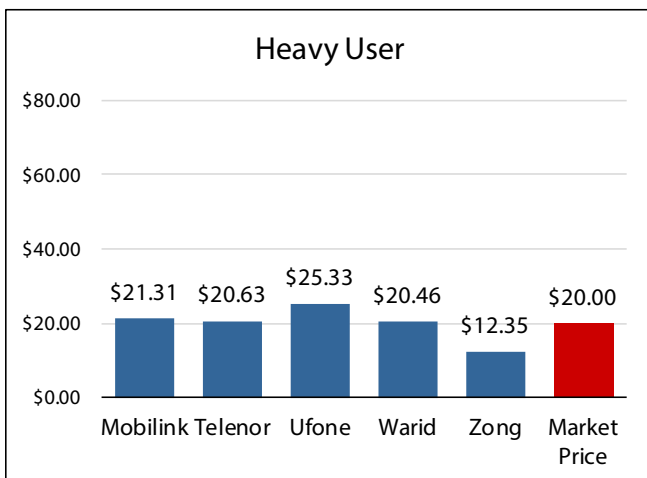
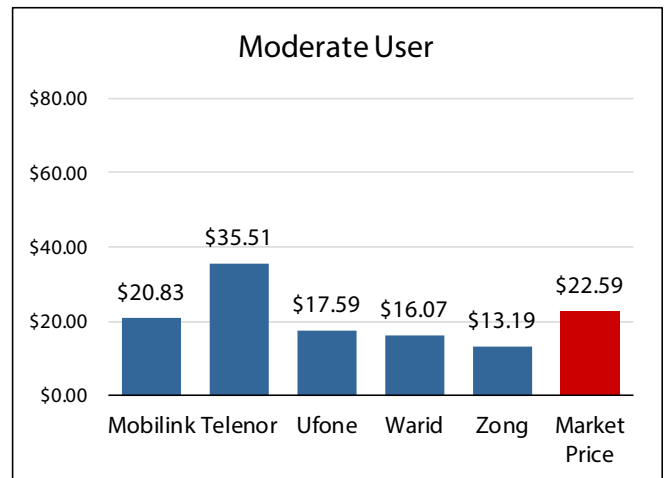
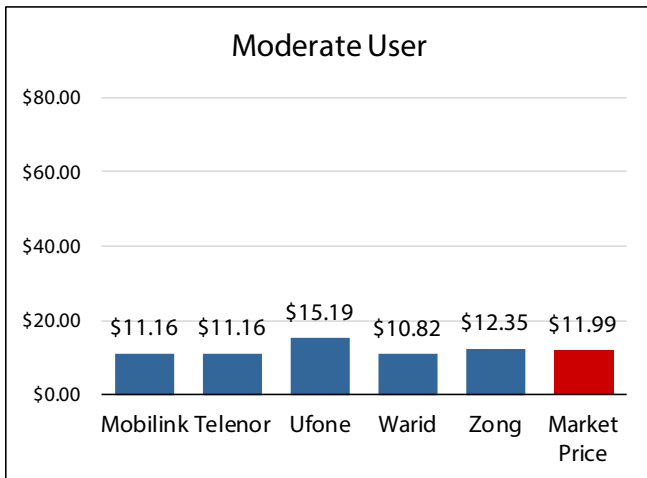
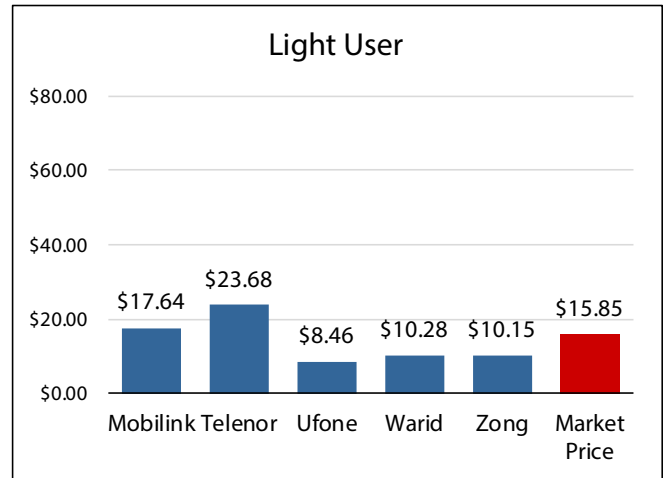


Pakistan

Postpaid Voice/SMS

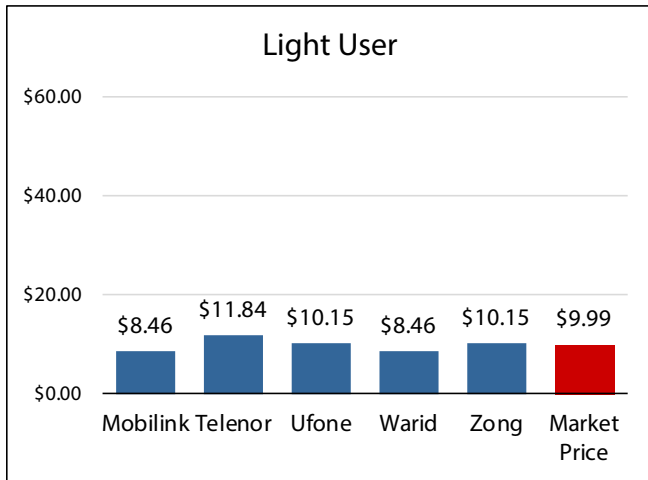


Prepaid Voice/SMS

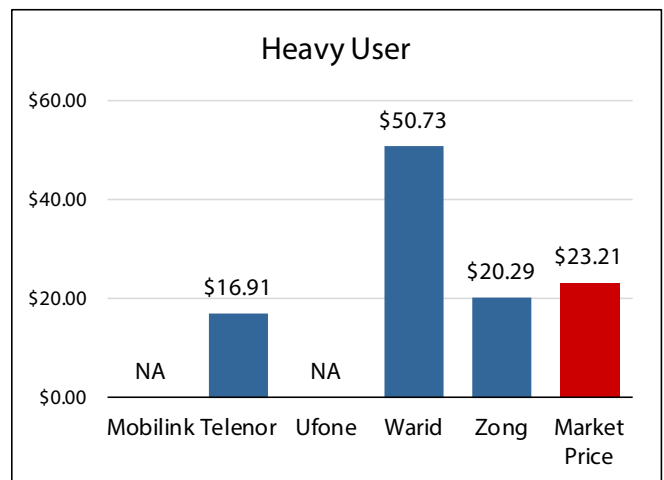
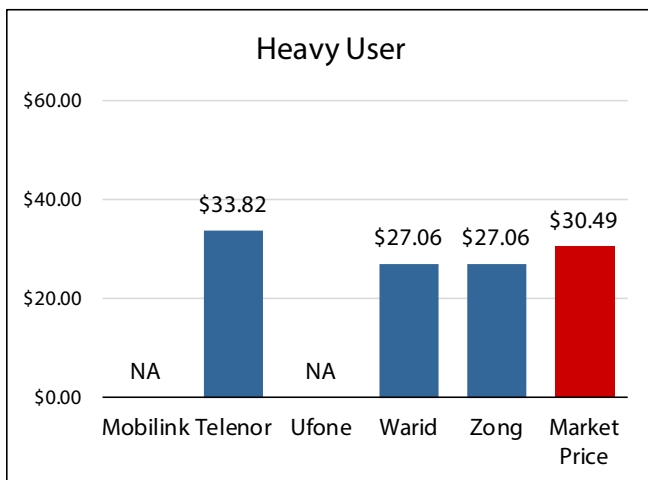
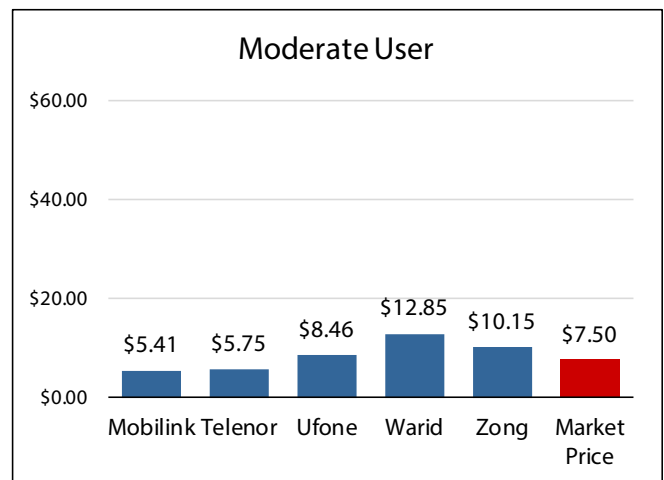
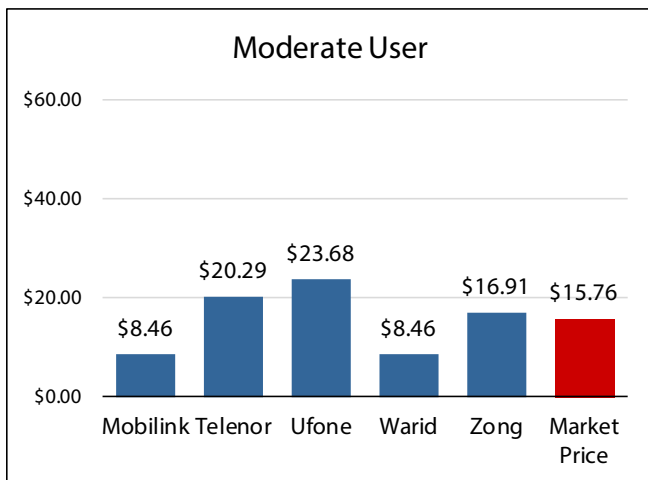
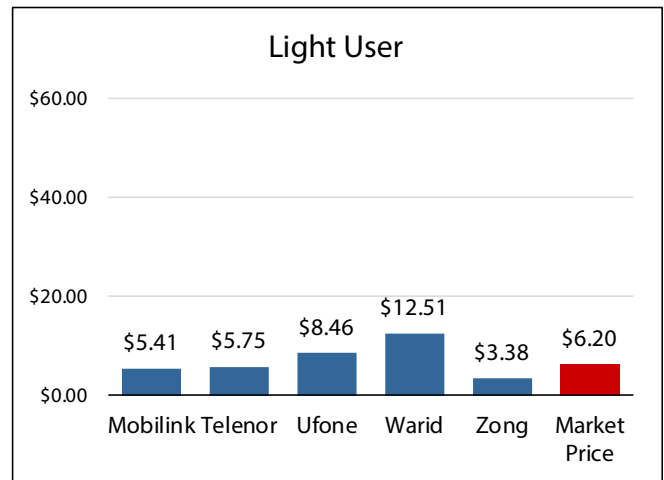


Pakistan

Postpaid Data Only

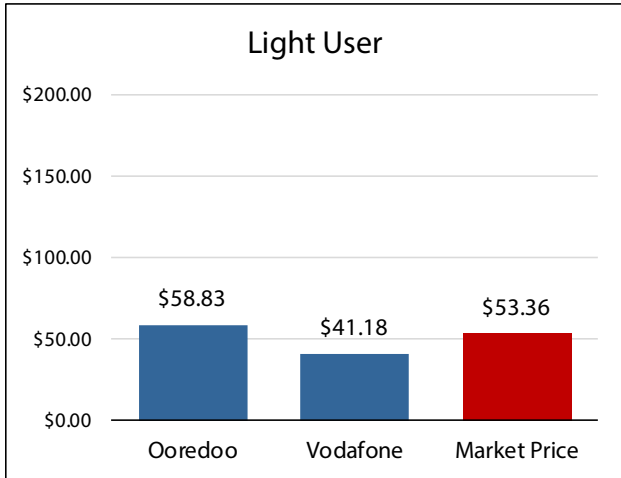


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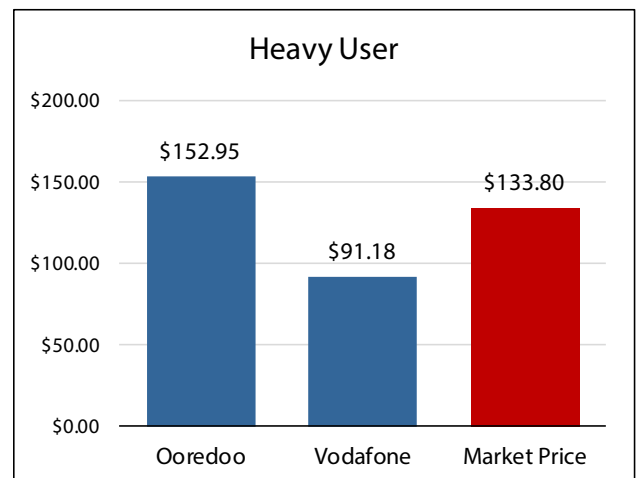
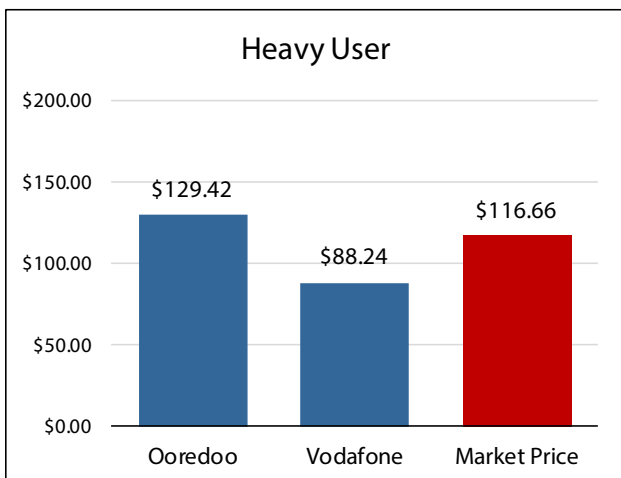
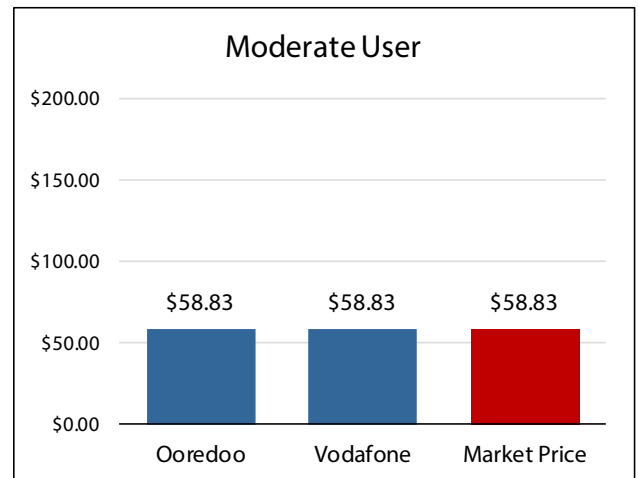
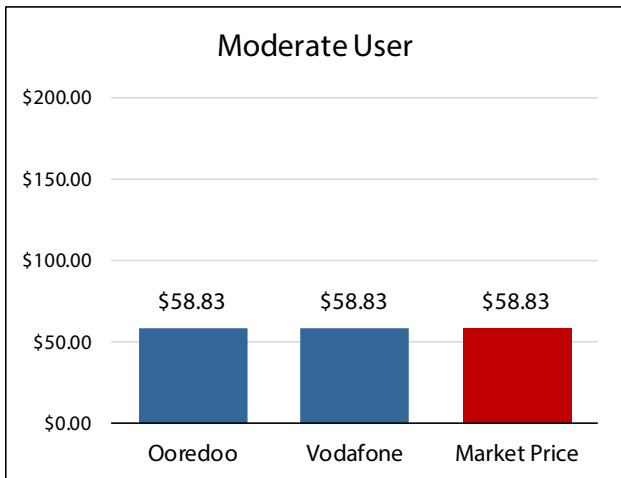
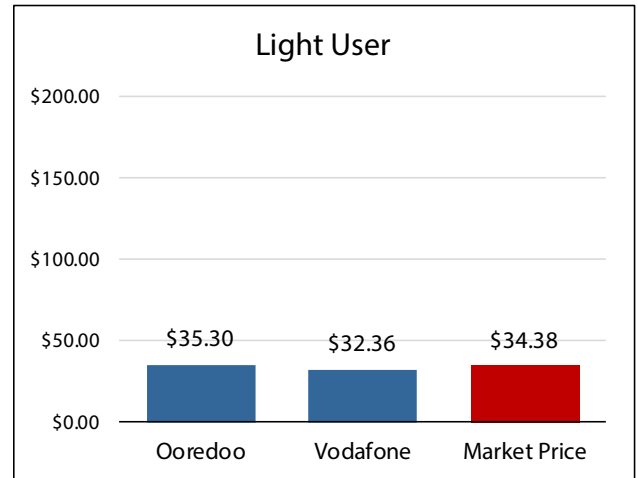


Qatar

Postpaid Voice/SMS/Data

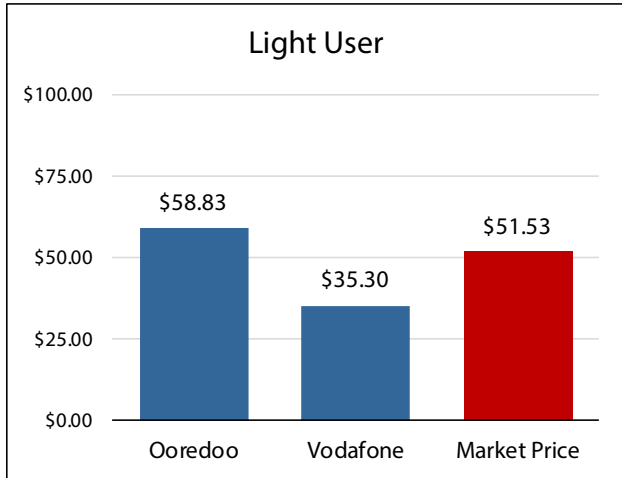


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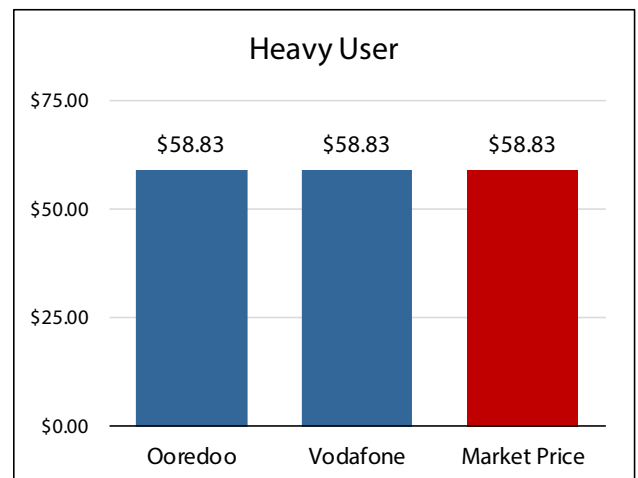
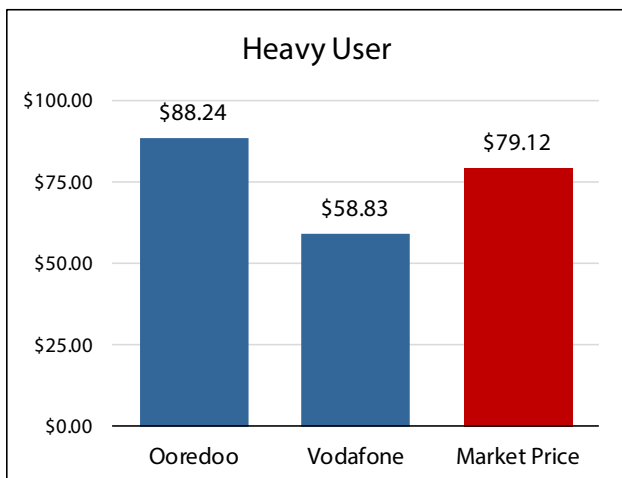
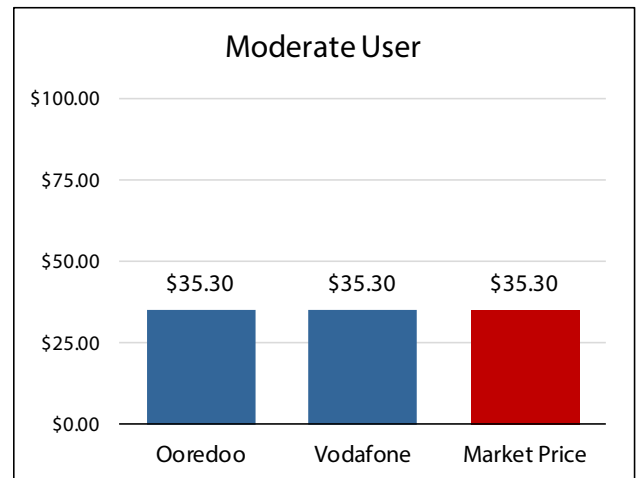
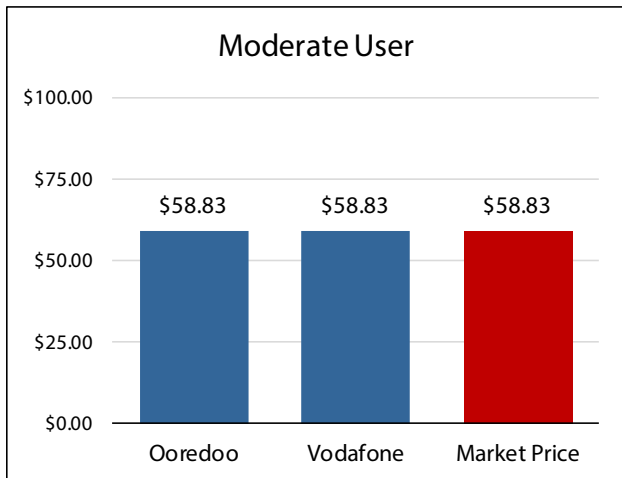
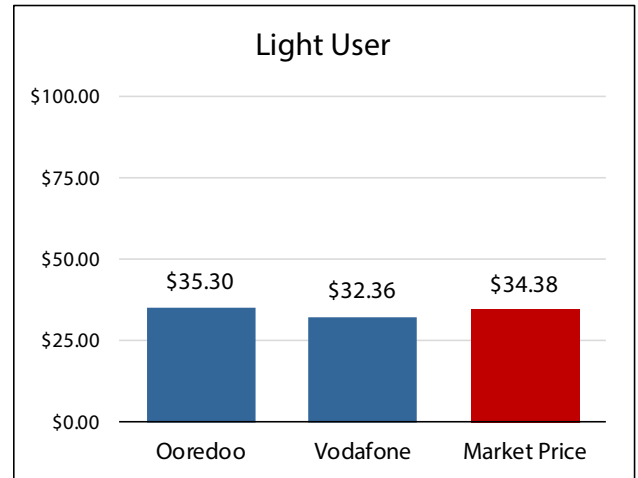


Qatar

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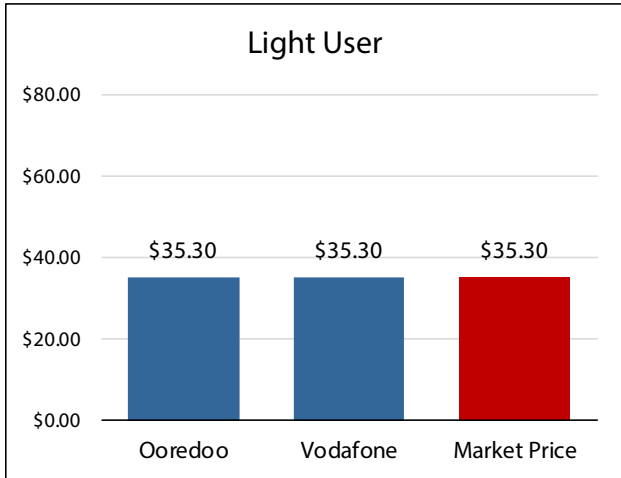


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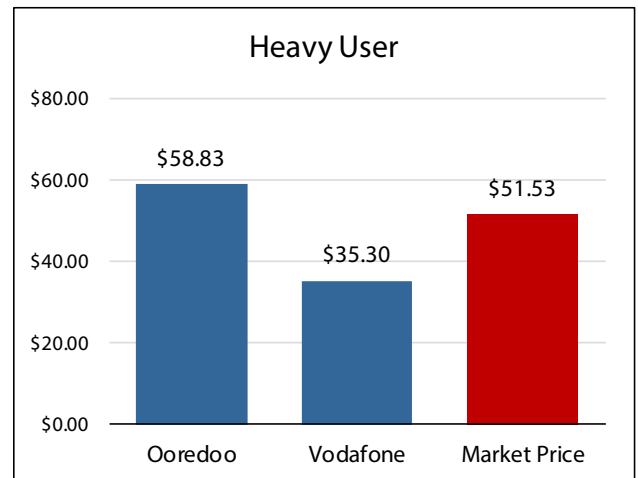
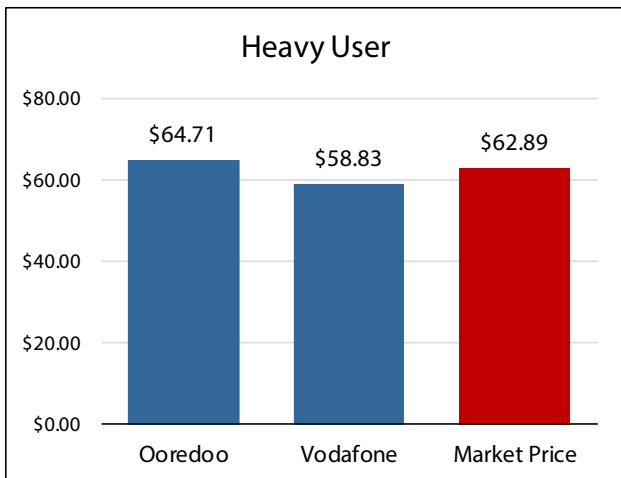
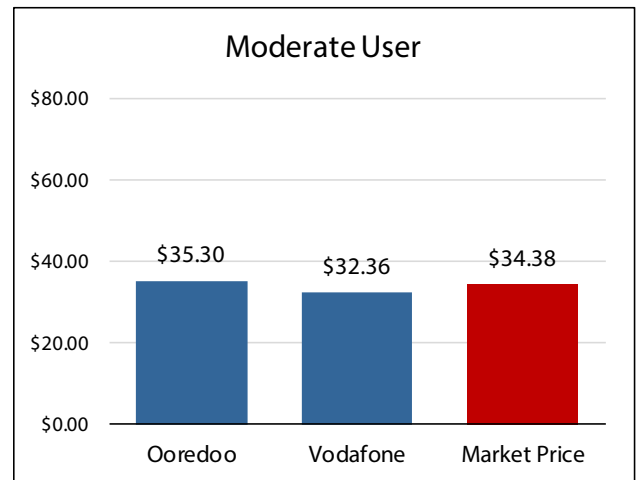
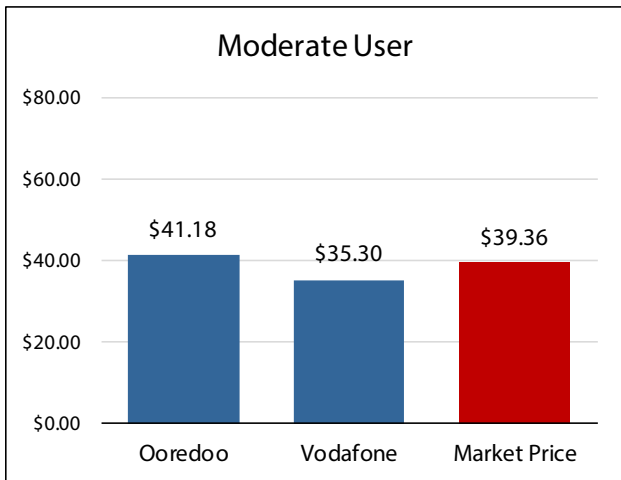
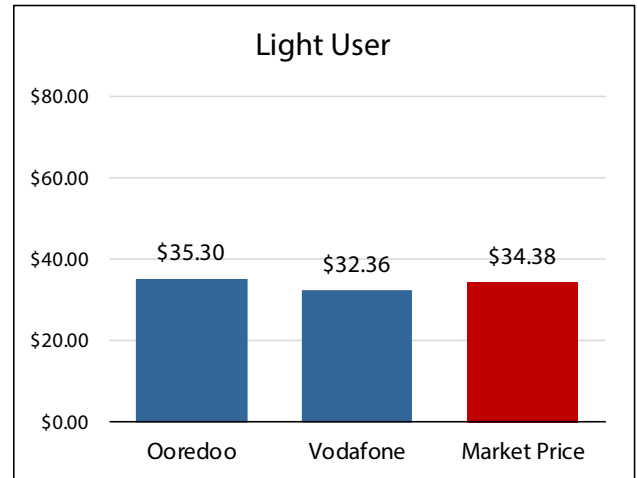


Qatar

Postpaid Data Only

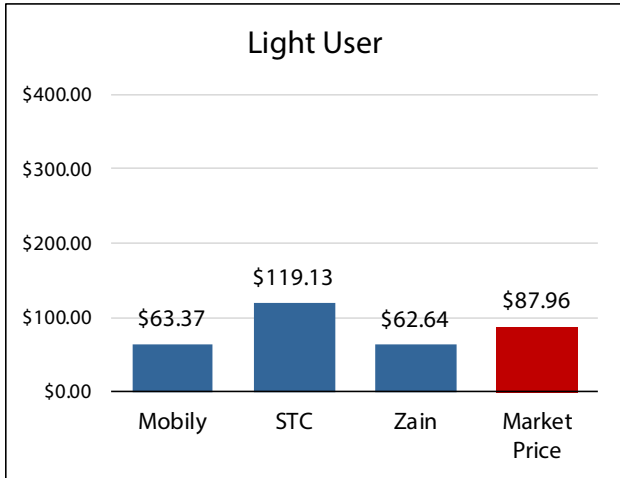


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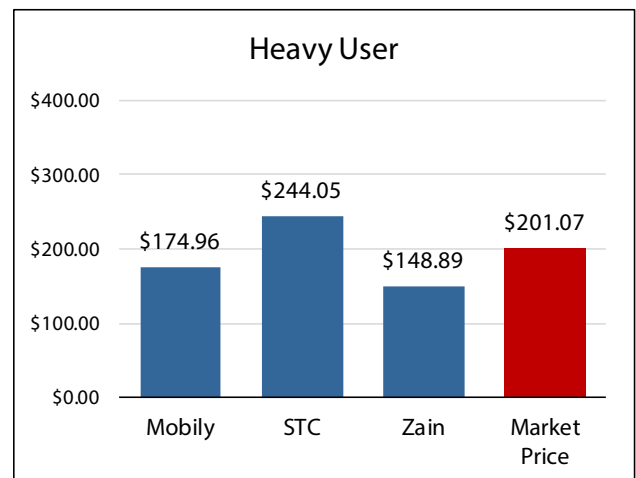
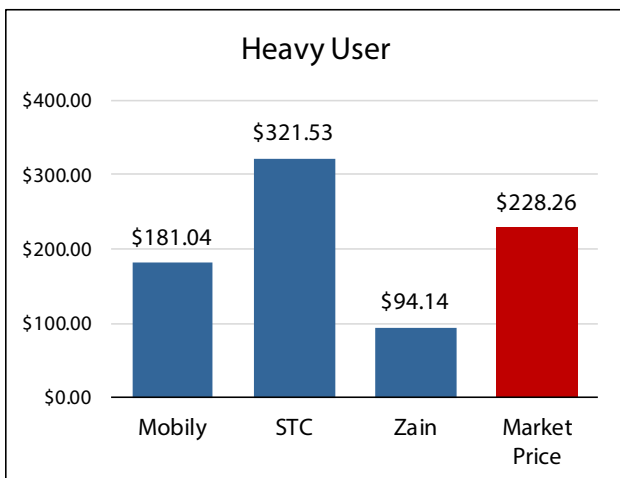
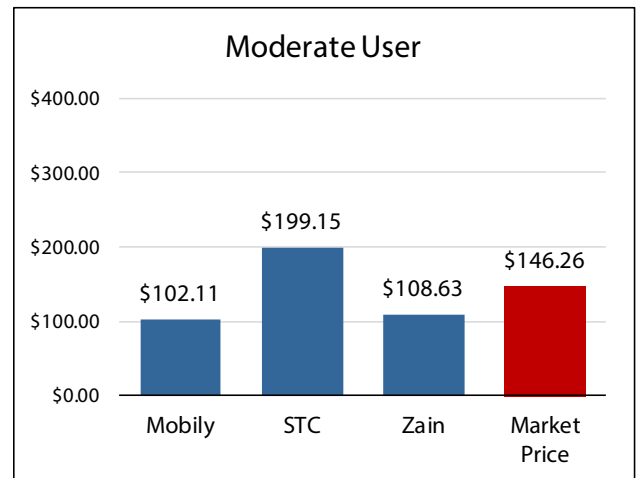
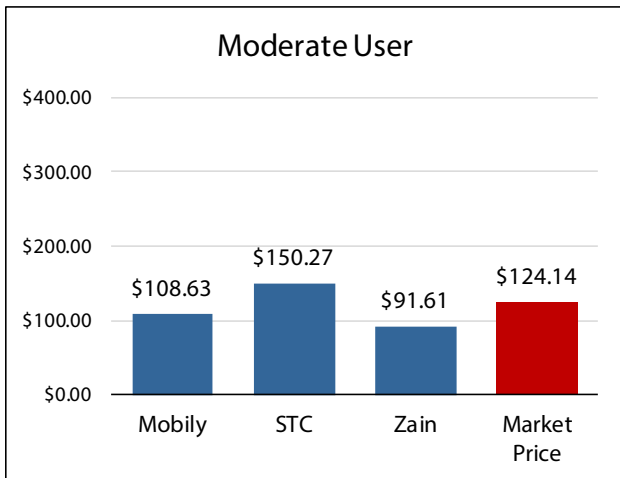
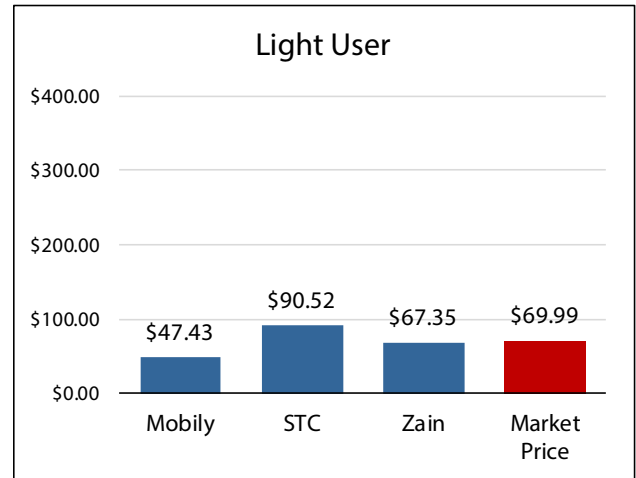


Saudi Arabia

Postpaid Voice/SMS/Data

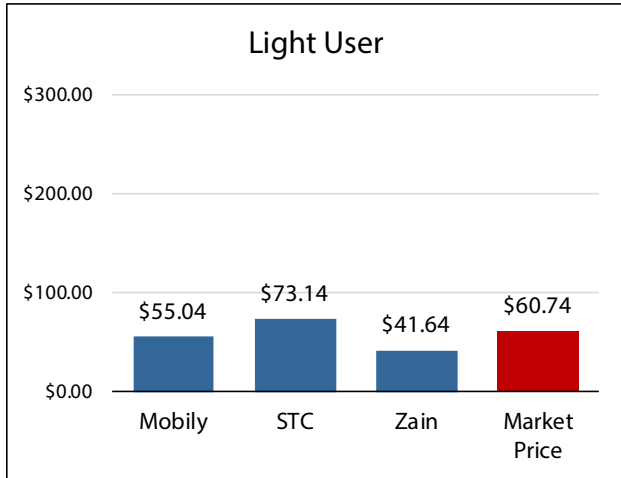


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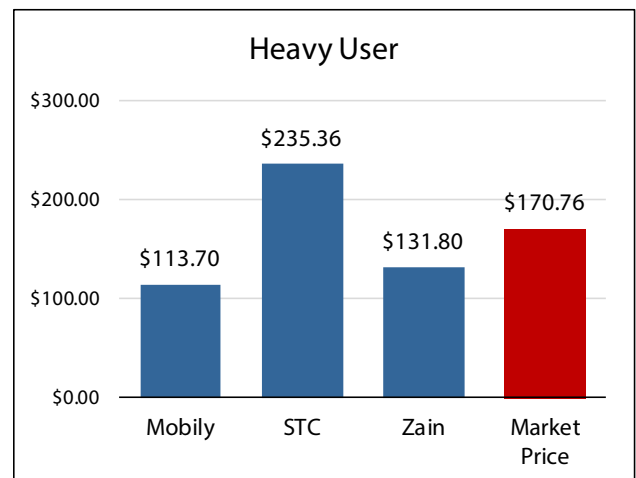
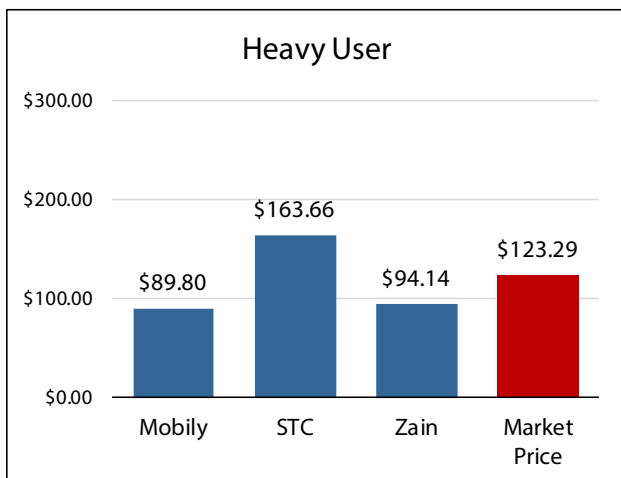
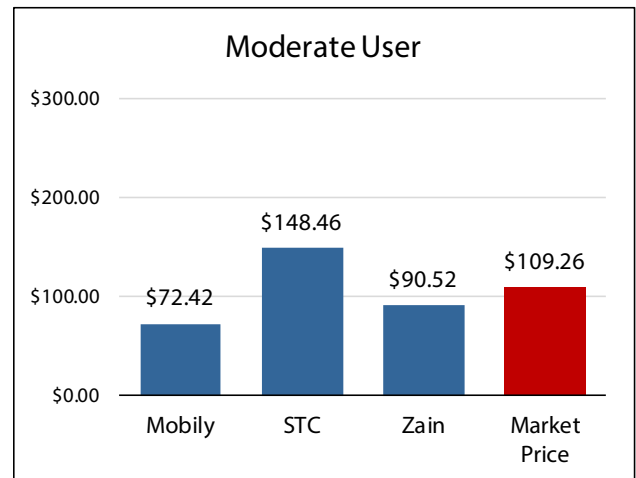
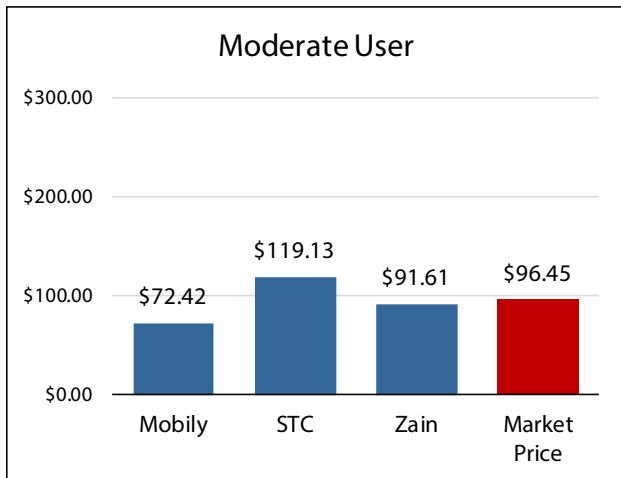
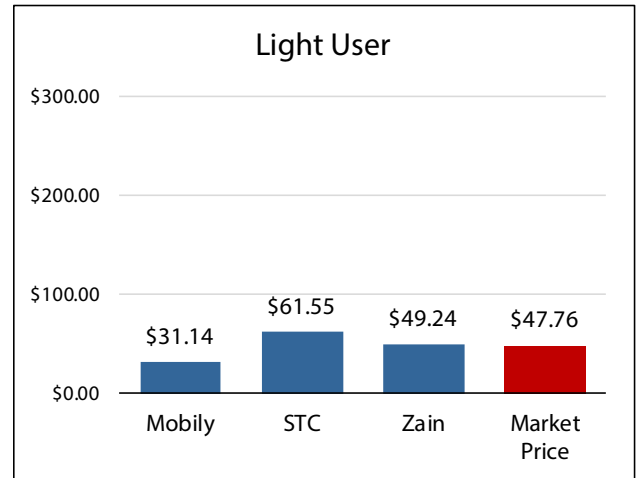


Saudi Arabia

Postpaid Voice/SMS

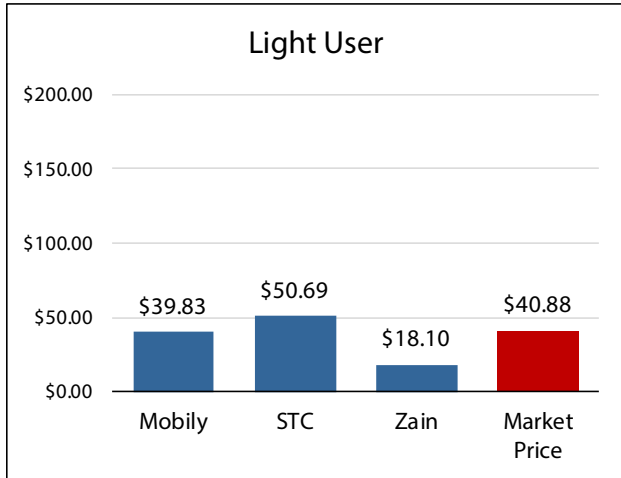


Prepaid Voice/SMS

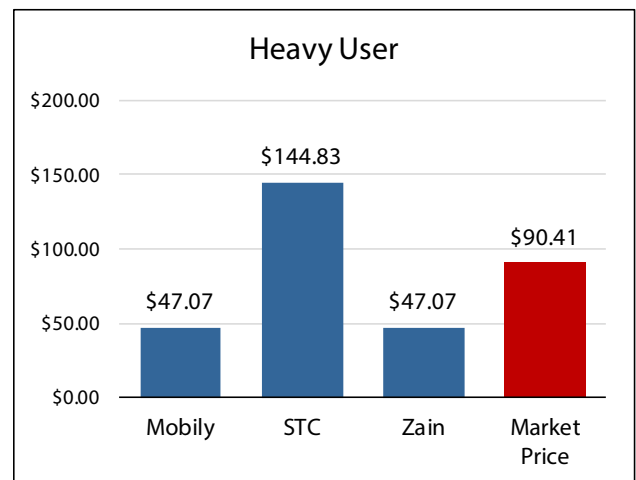
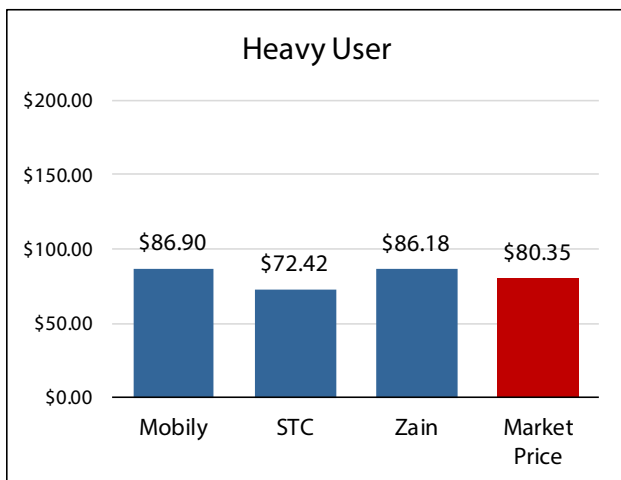
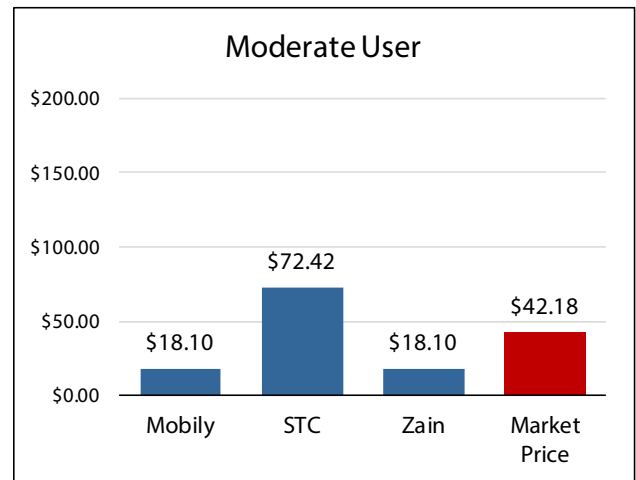
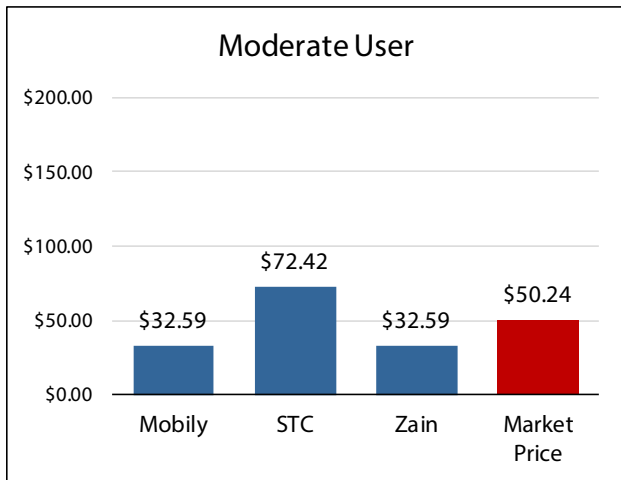
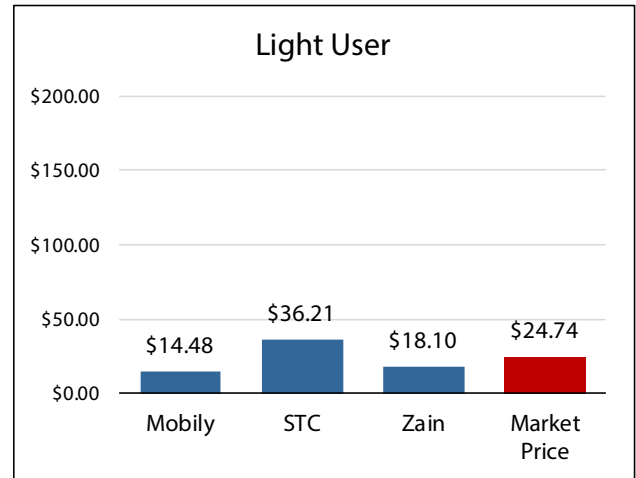


Saudi Arabia

Postpaid Data Only

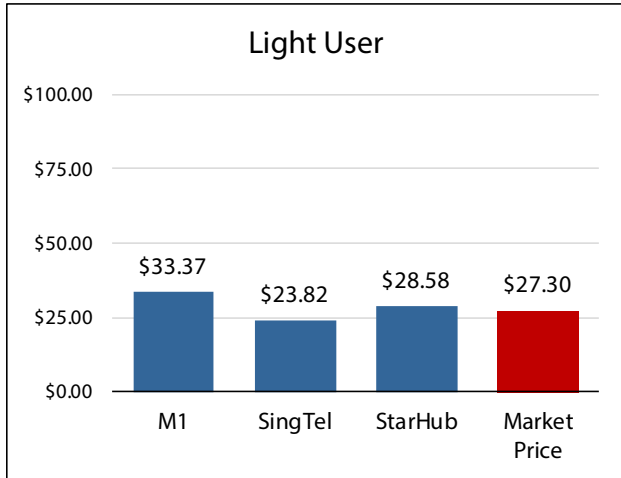


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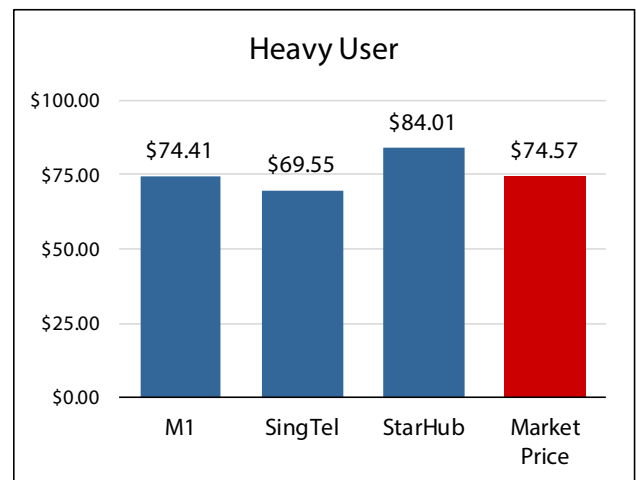
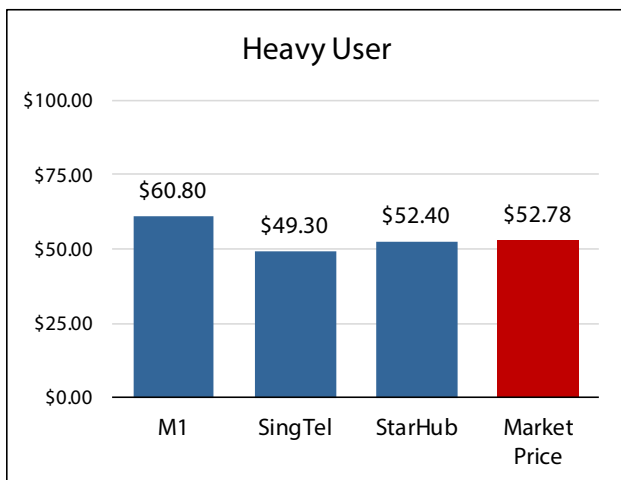
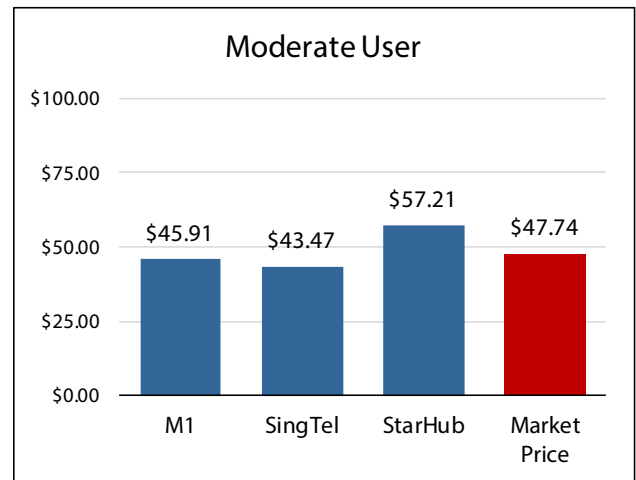
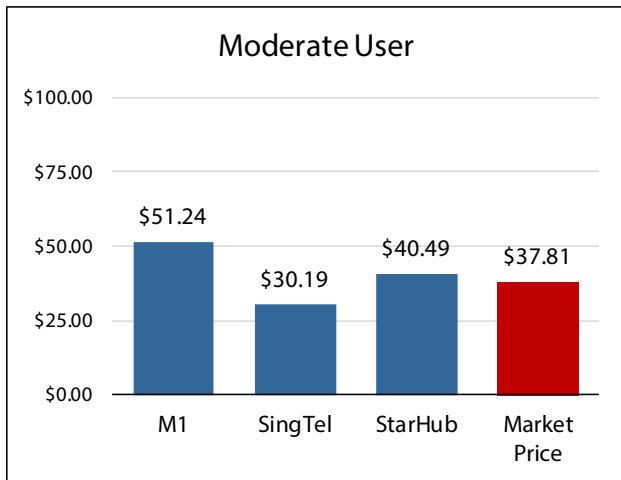
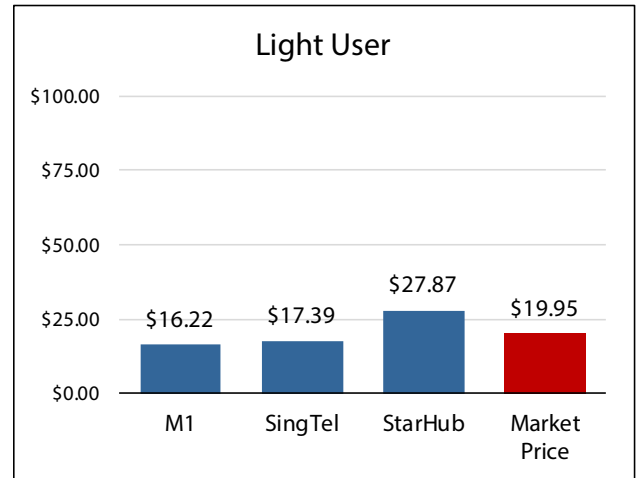


Singapore

Postpaid Voice/SMS/Data

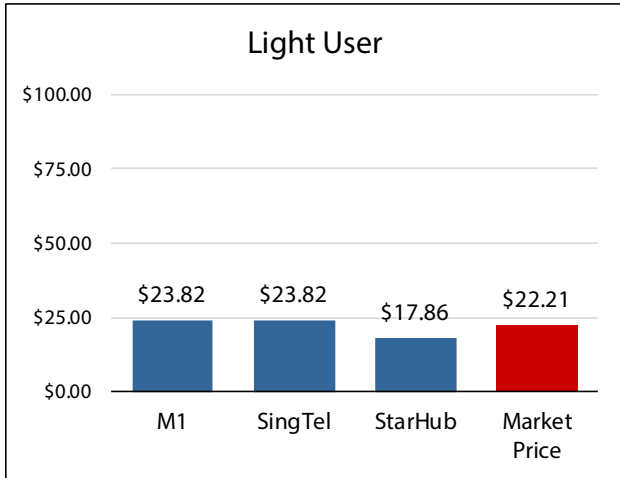


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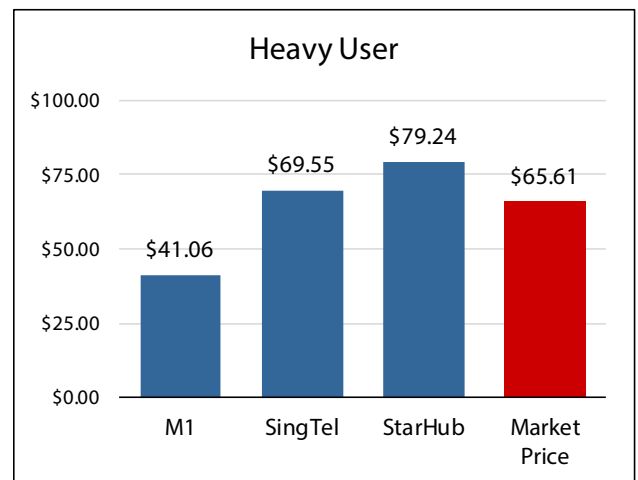
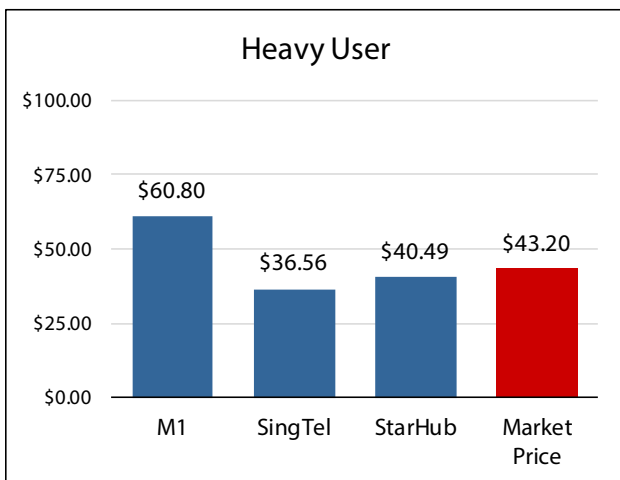
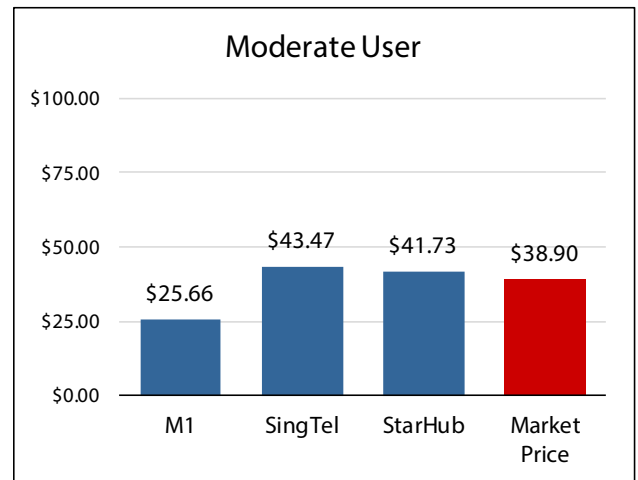
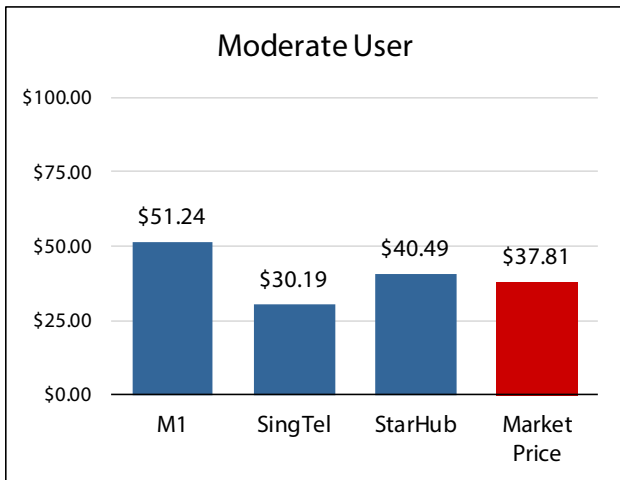
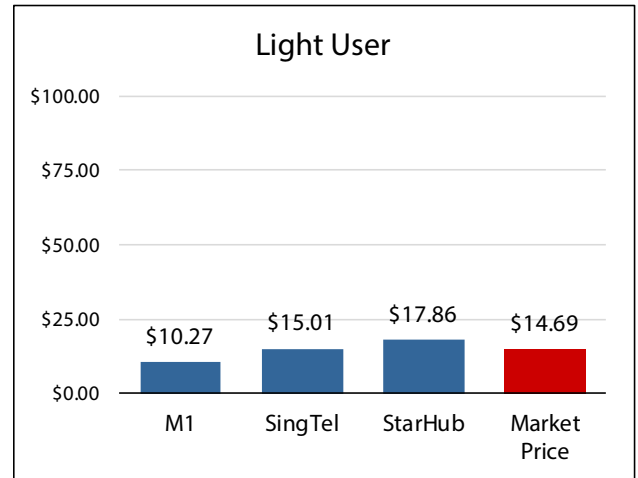


Singapore

Postpaid Voice/SMS

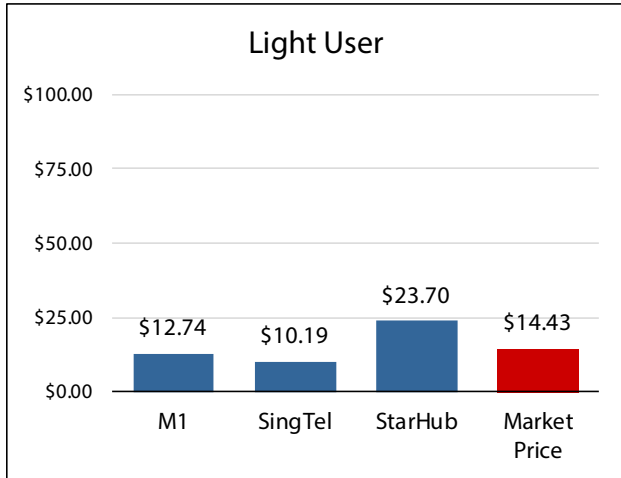


Prepaid Voice/SMS

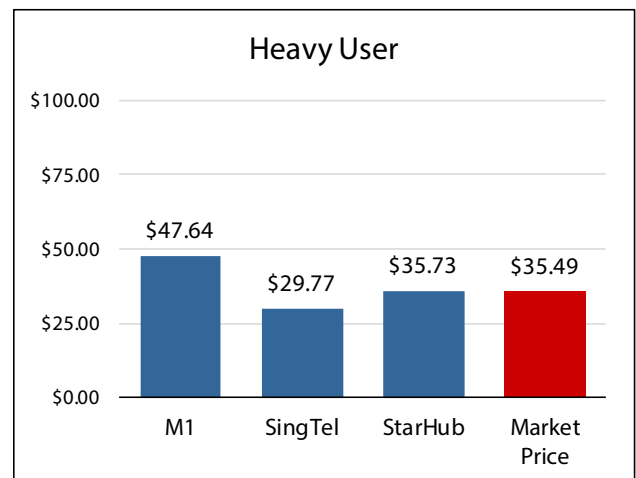
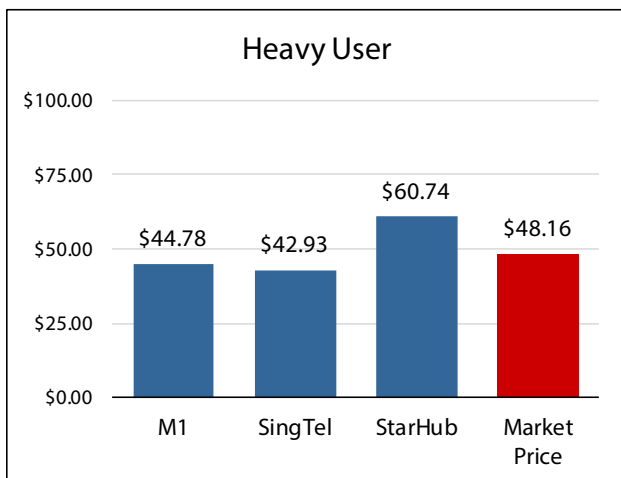
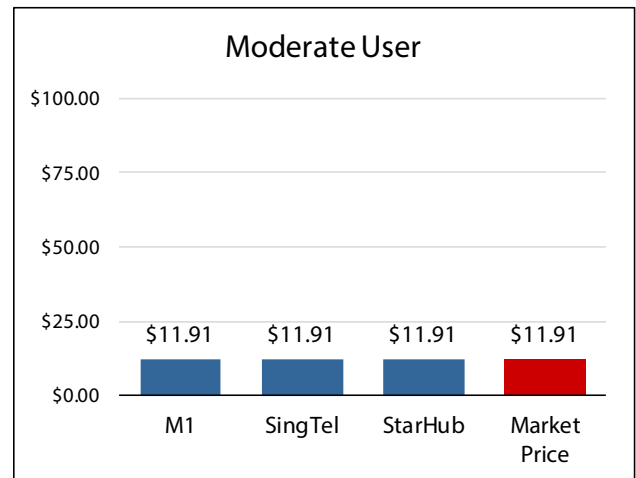
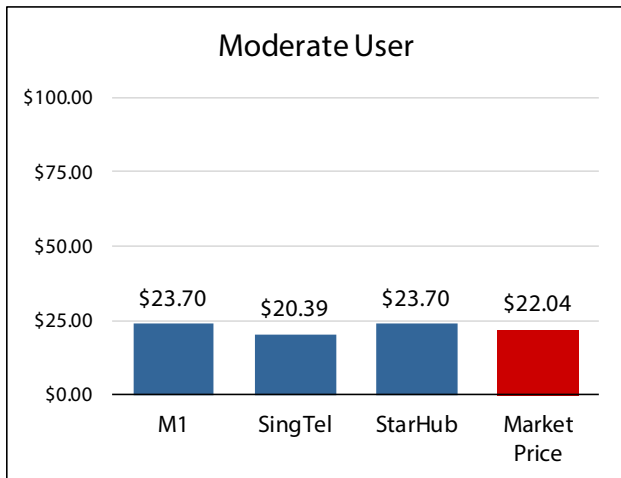
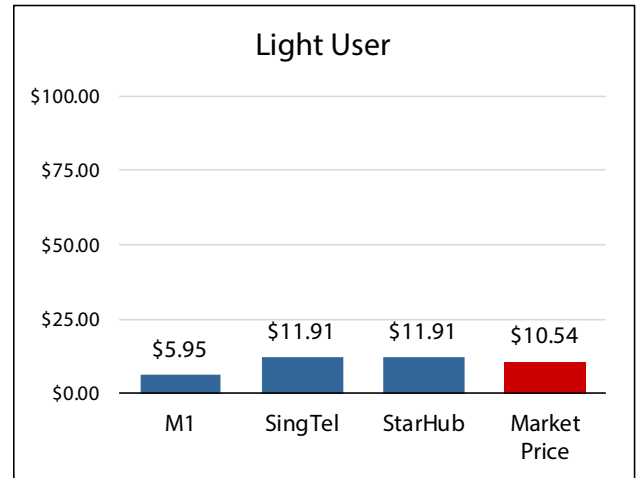


Singapore

Postpaid Data Only

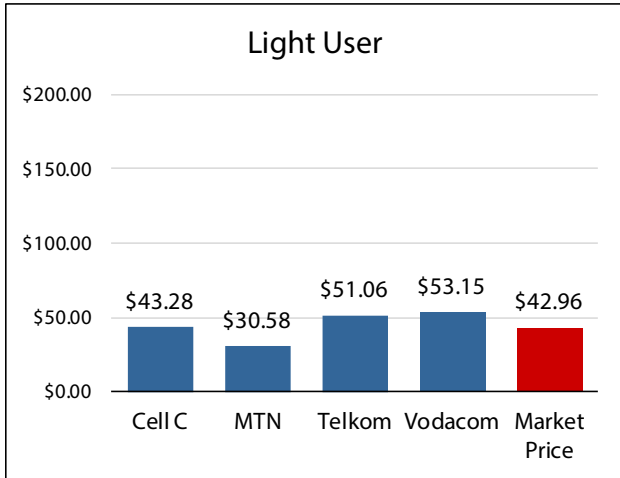


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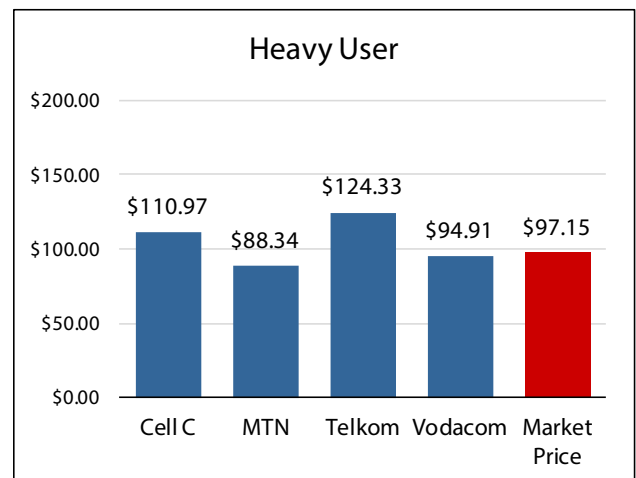
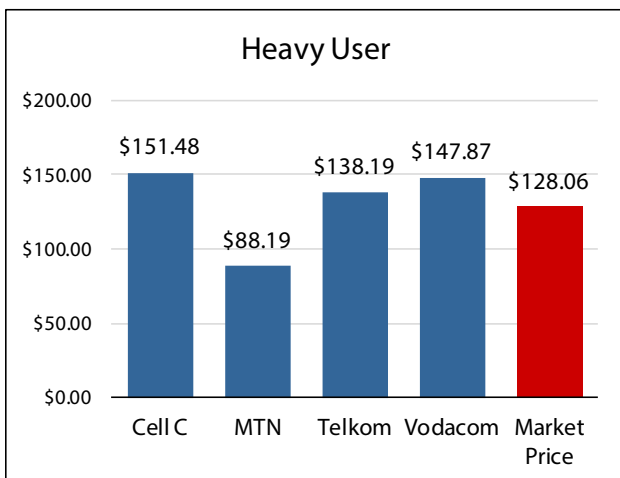
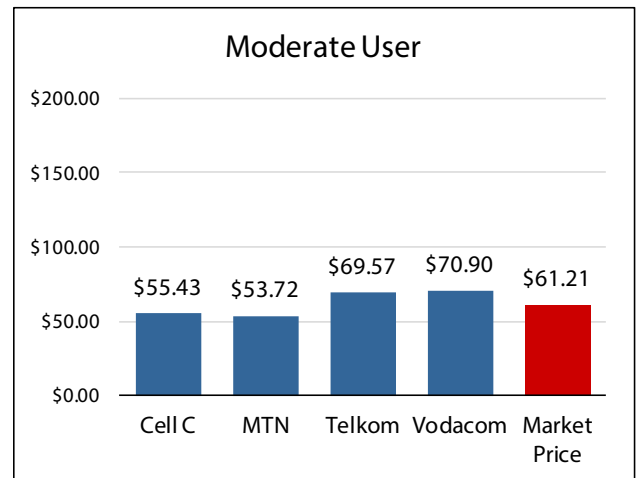
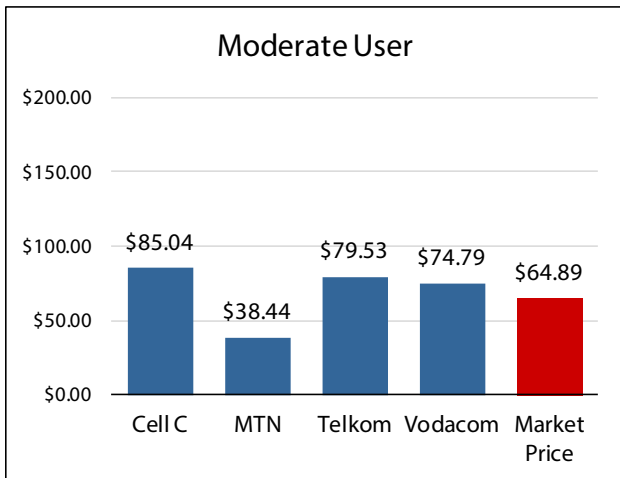
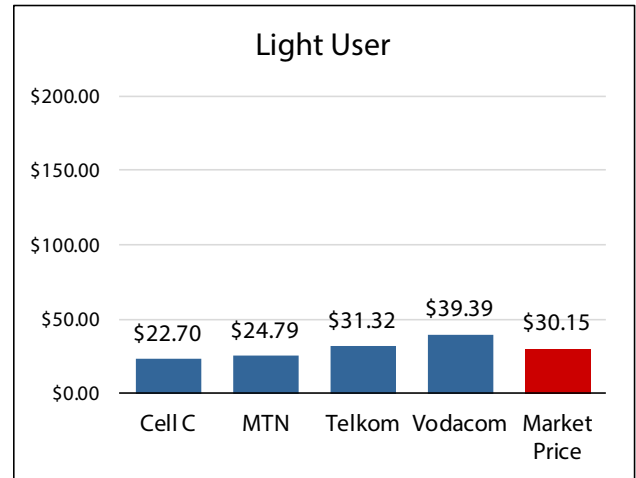


South Africa

Postpaid Voice/SMS/Data

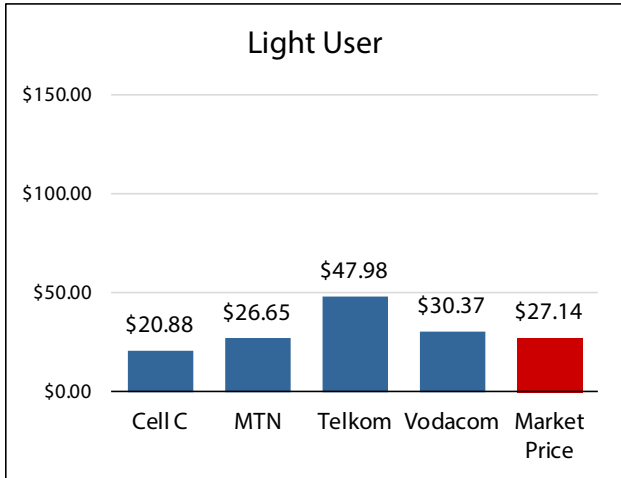


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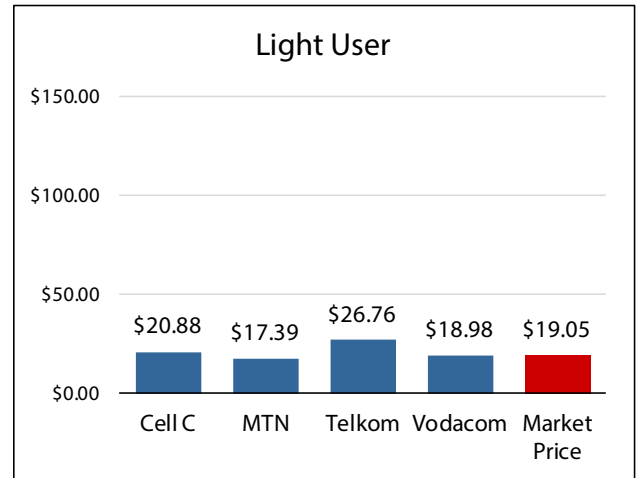


South Africa

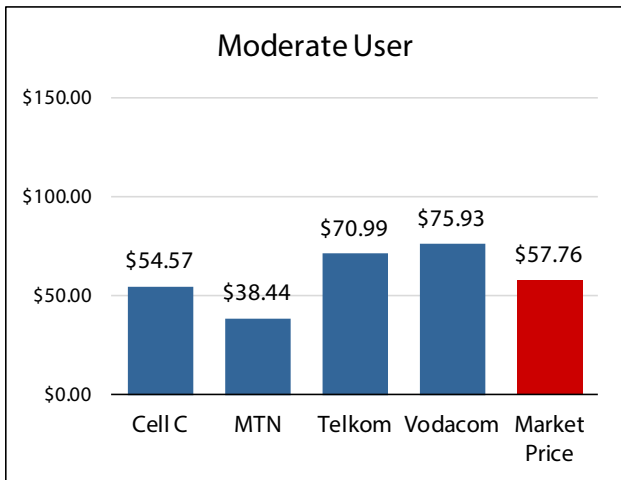
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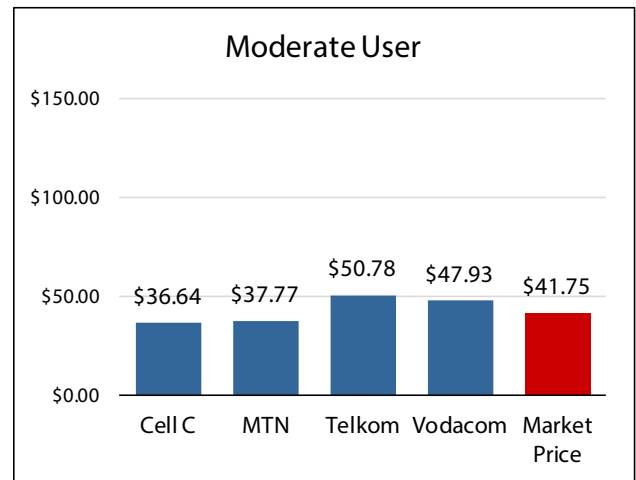
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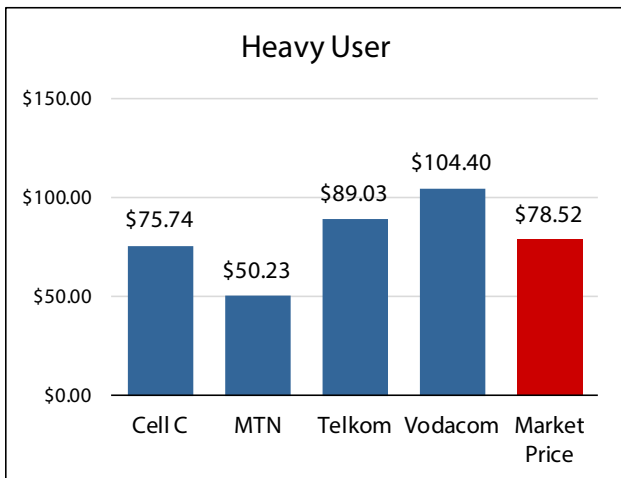
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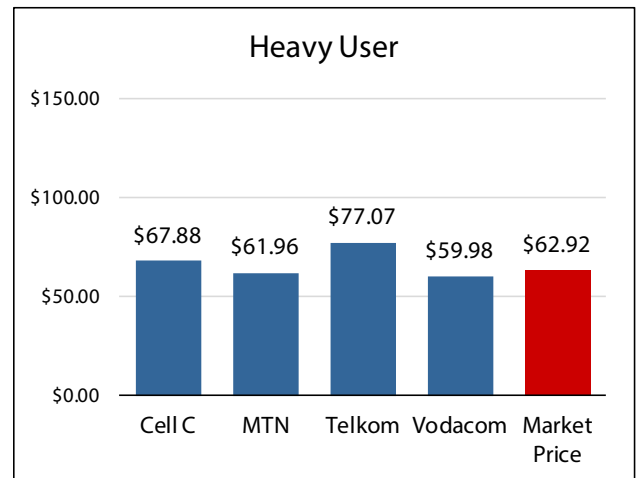
Moderate User



Heavy User

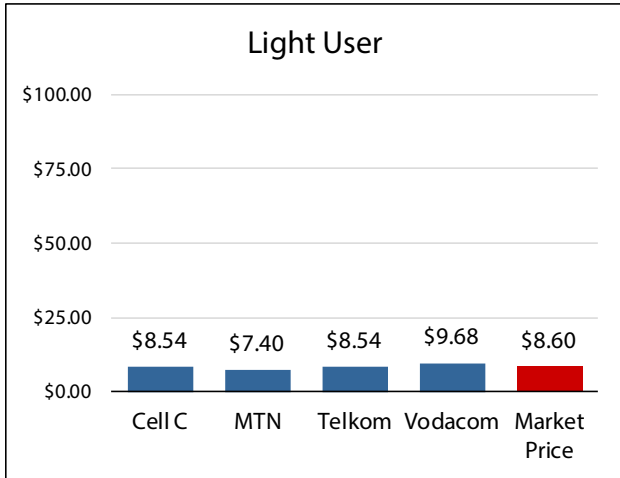


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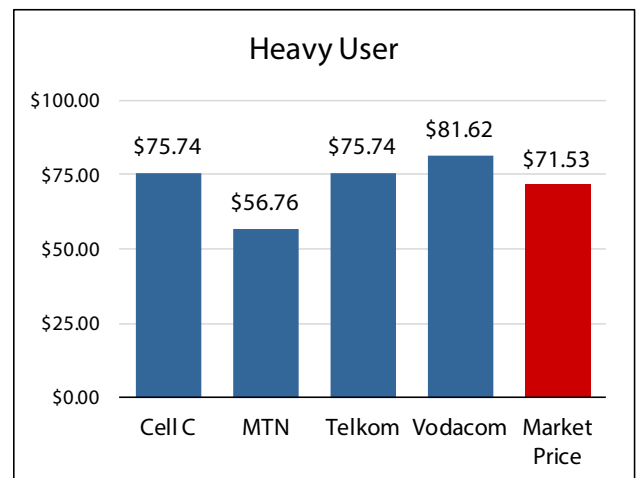
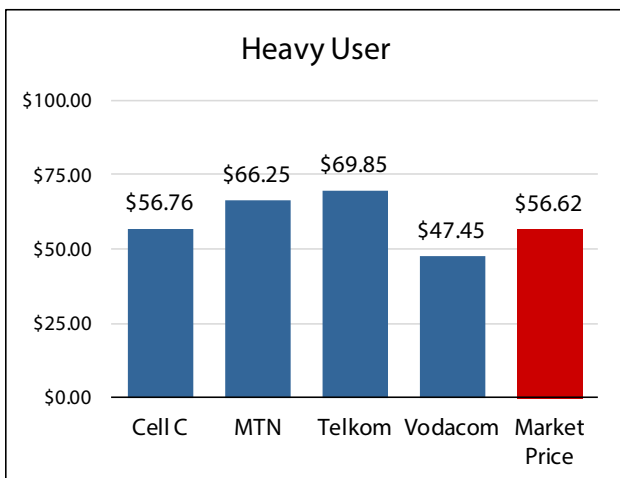
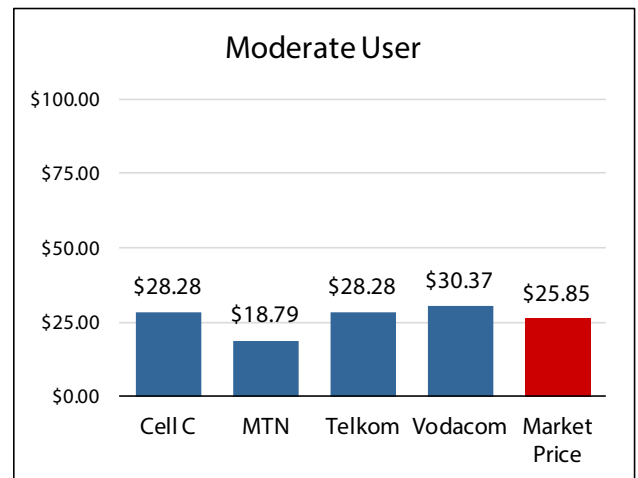
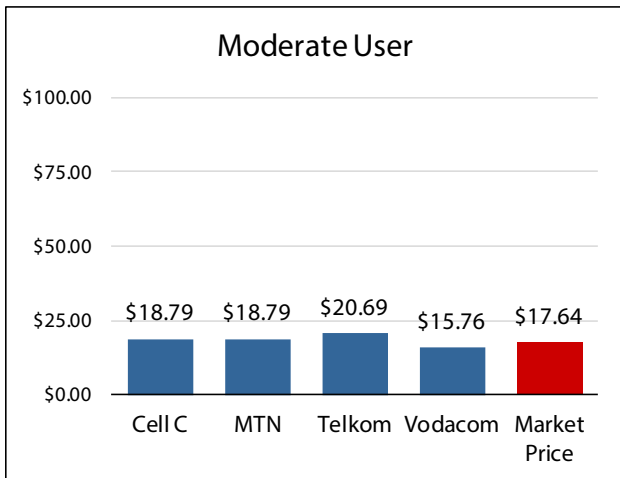
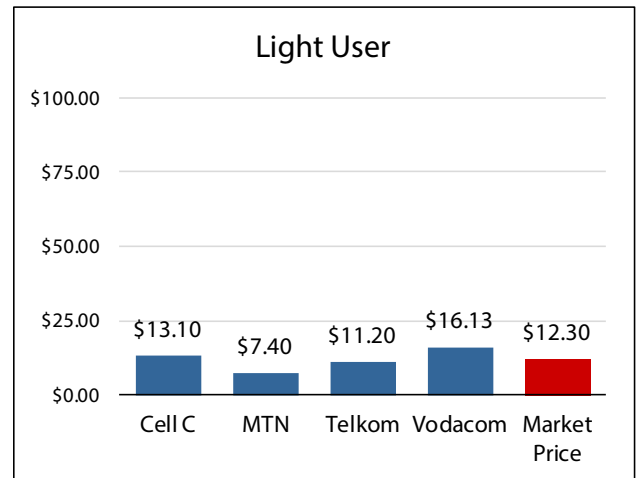


South Africa

Postpaid Data Only

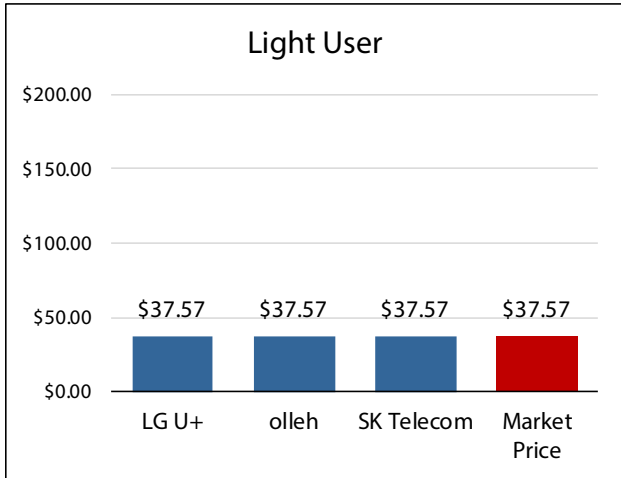


Prepaid Data Only

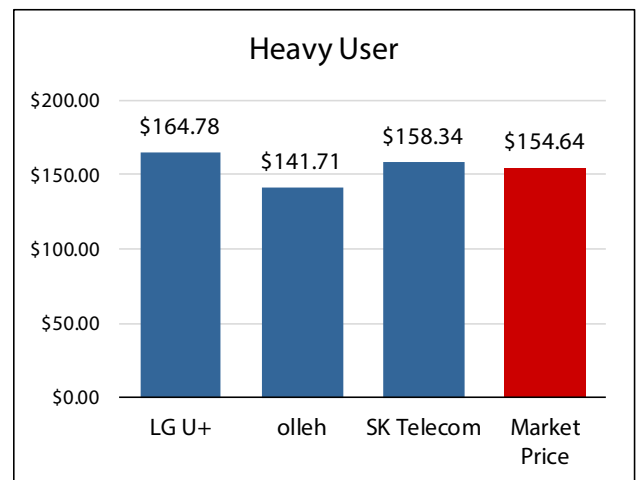
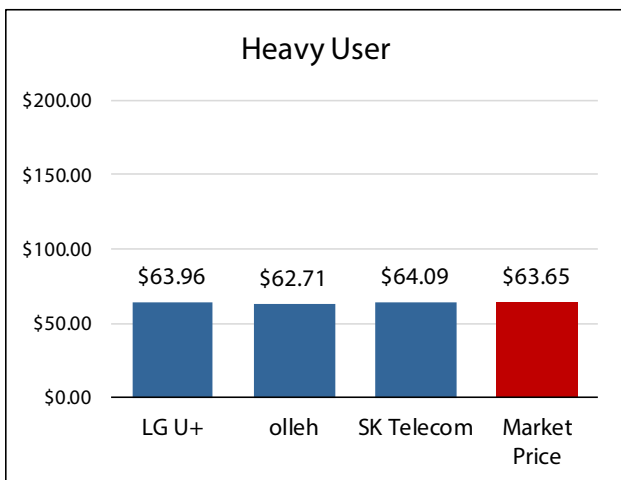
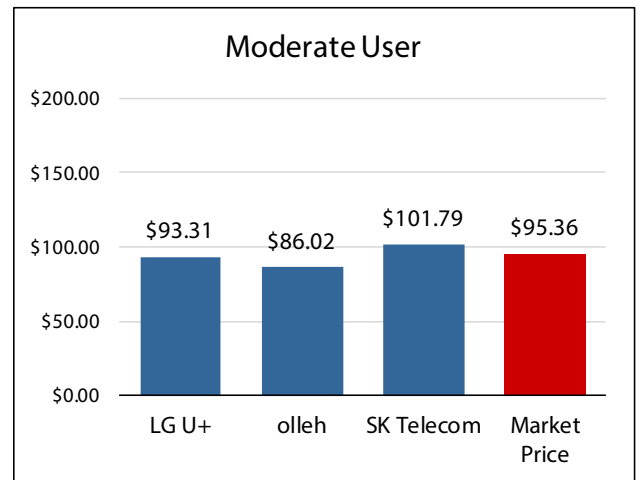
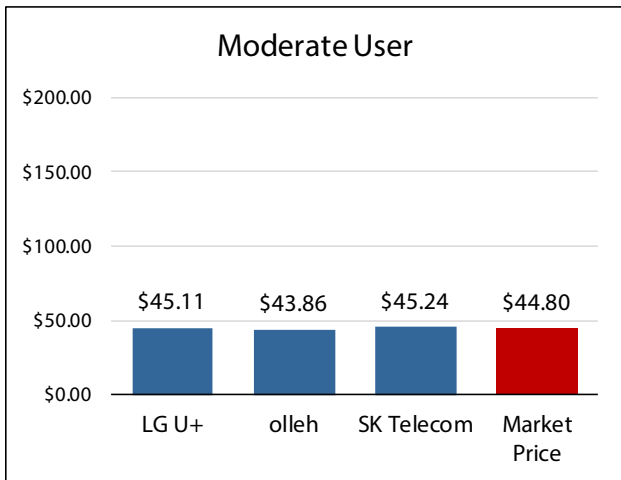
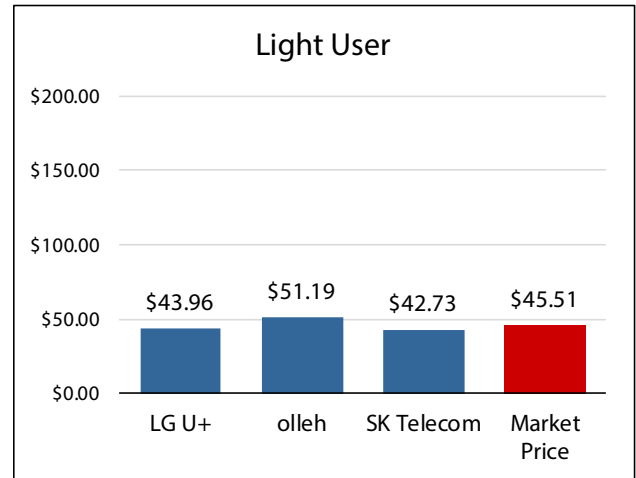


South Korea

Postpaid Voice/SMS/Data

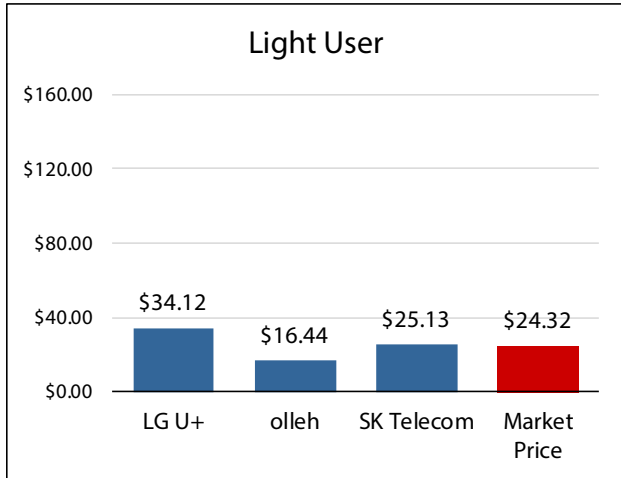


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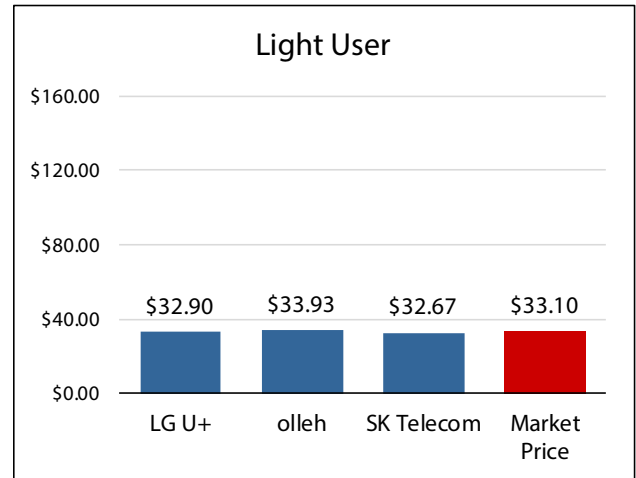


South Korea

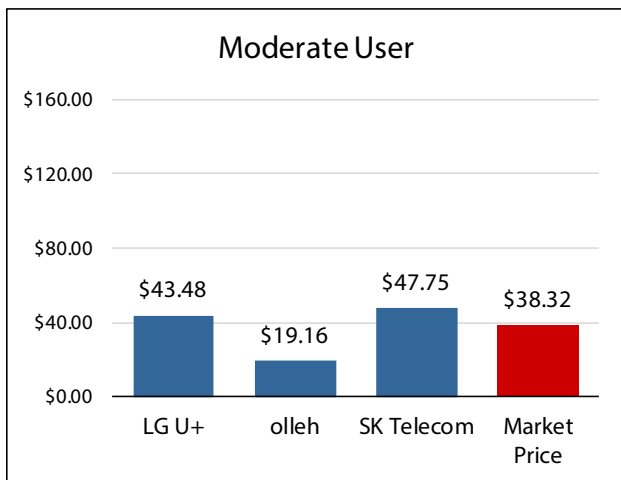
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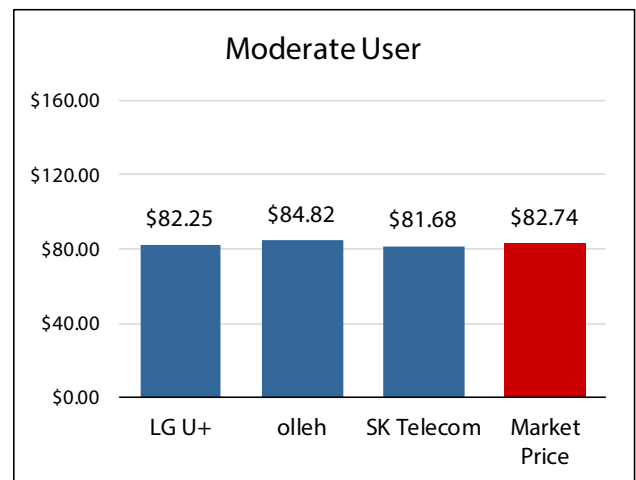
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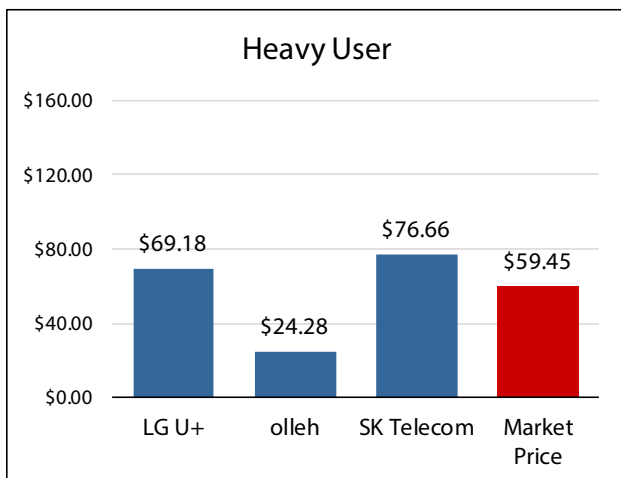
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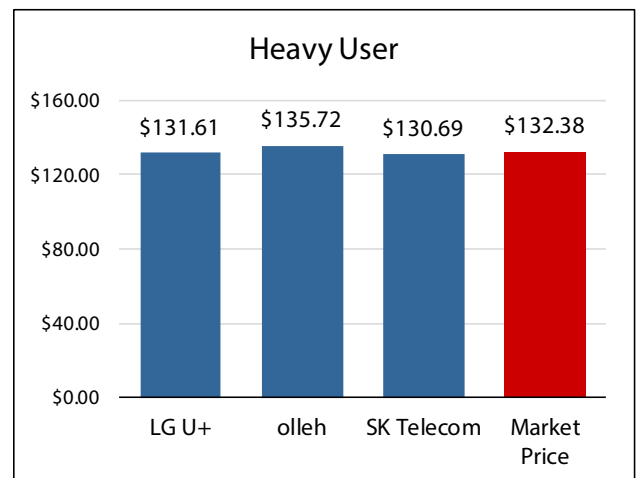
Moderate User



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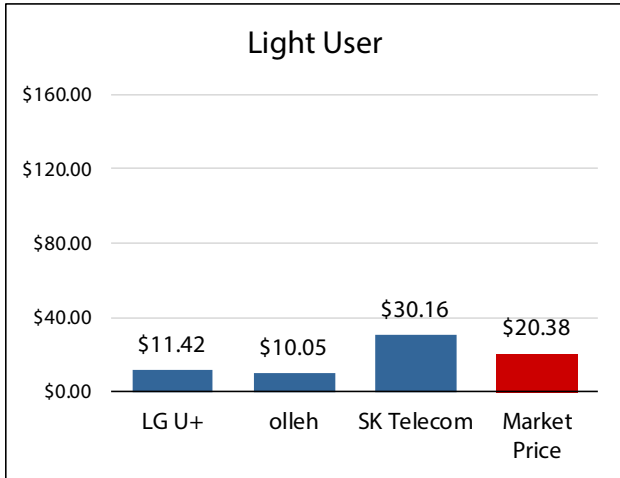


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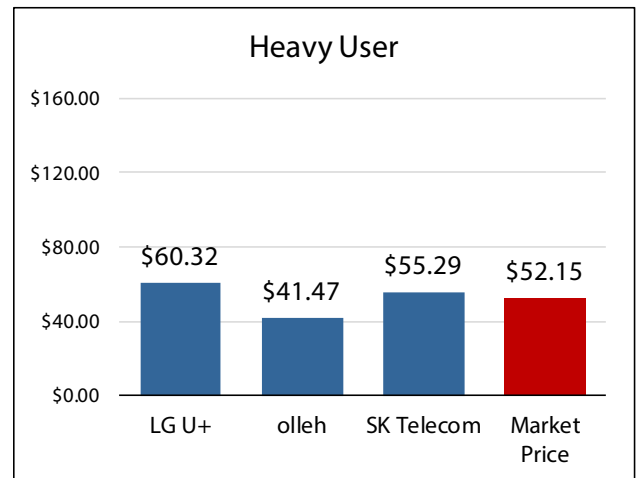
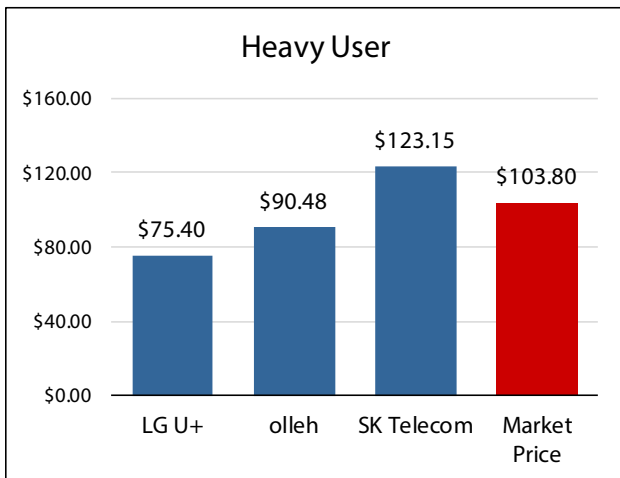
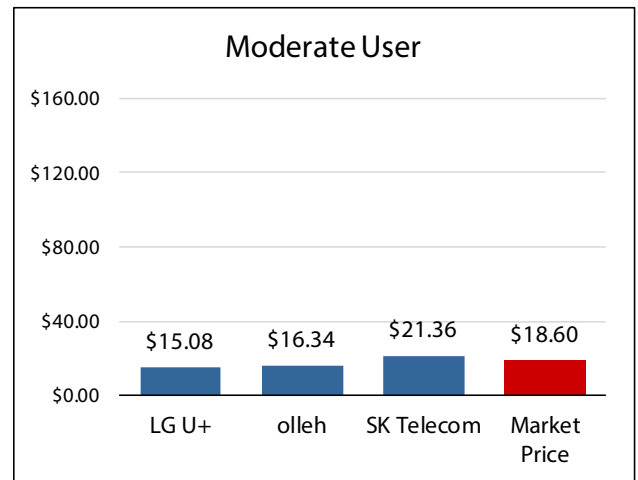
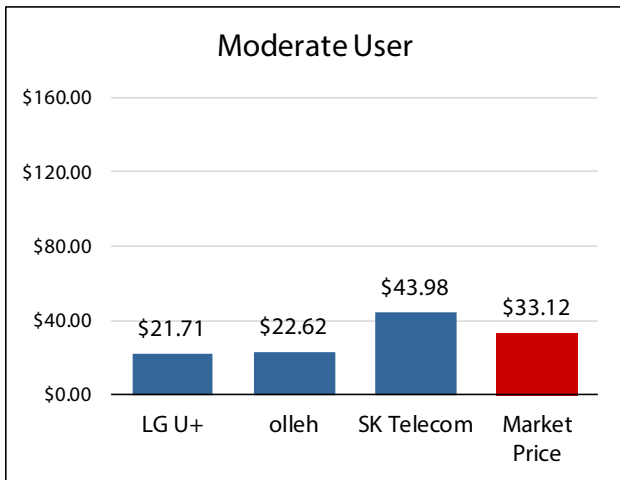
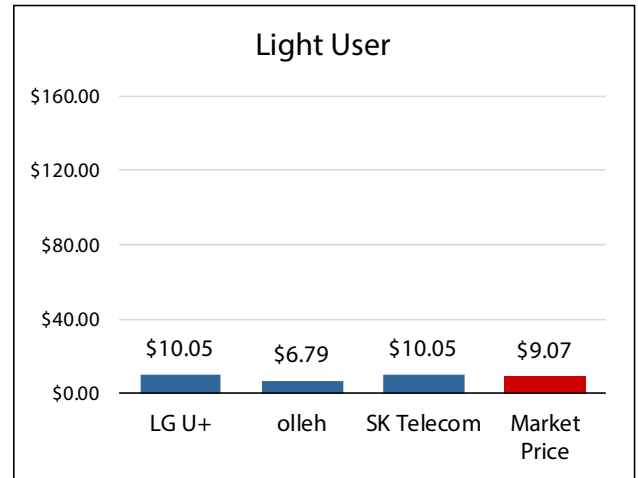


South Korea

Postpaid Data Only

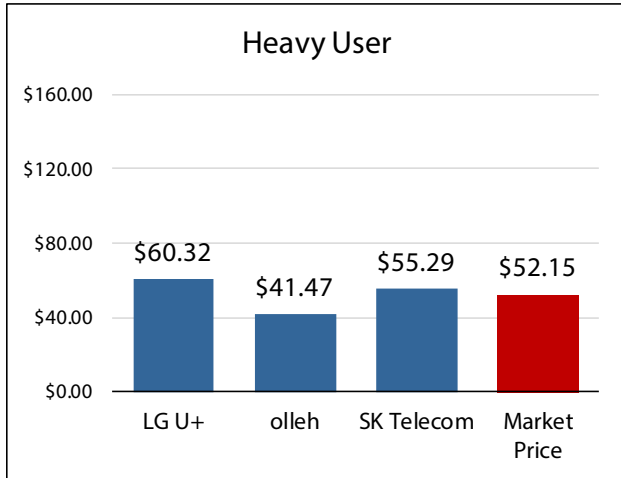


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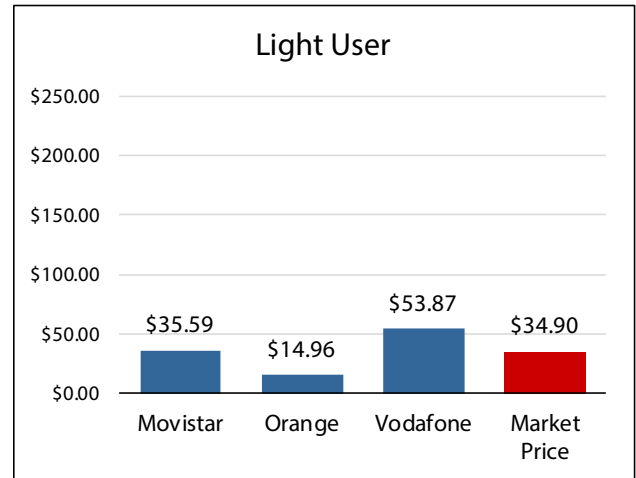


Spain

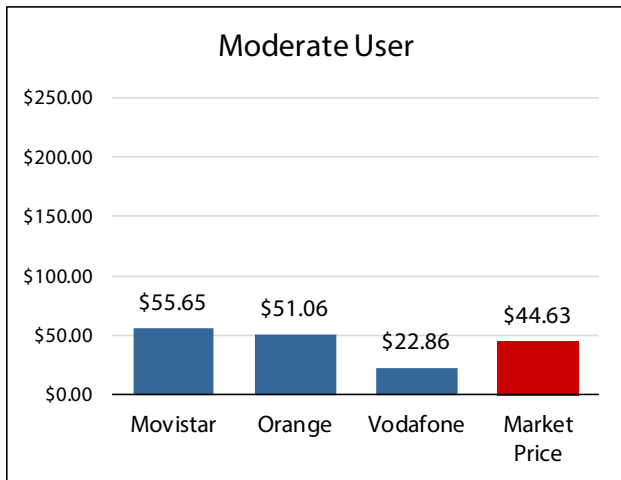
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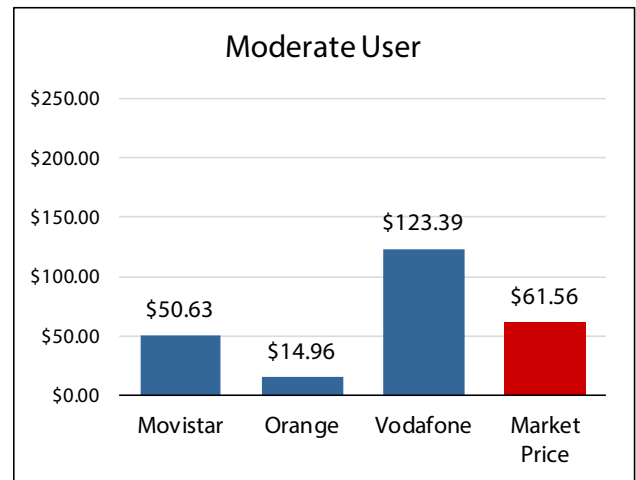
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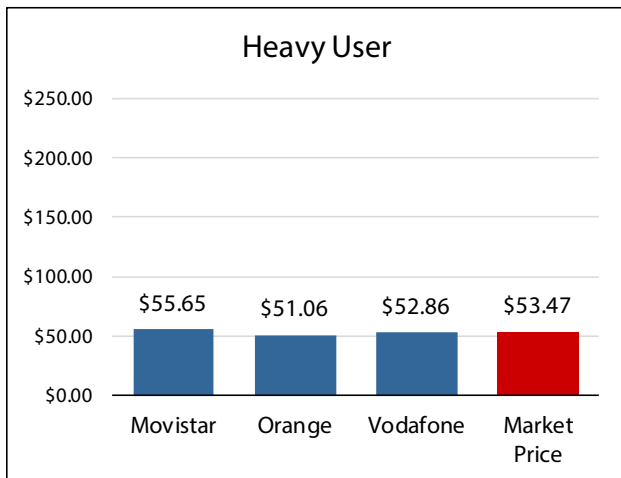
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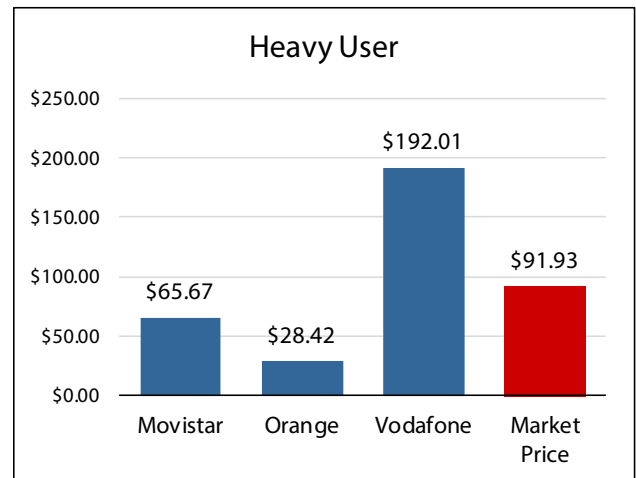
Moderate User



Heavy User

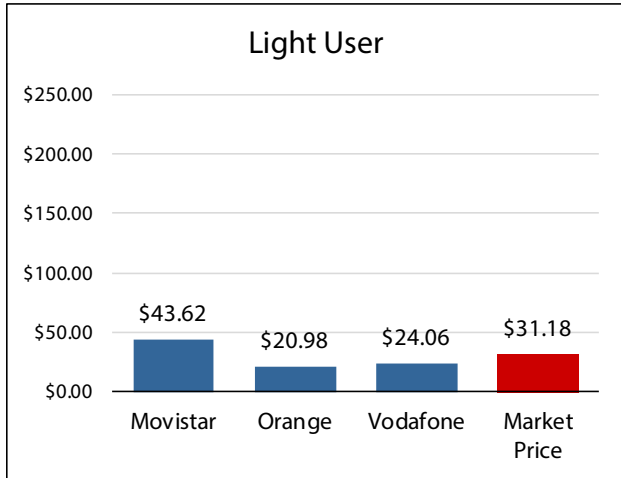


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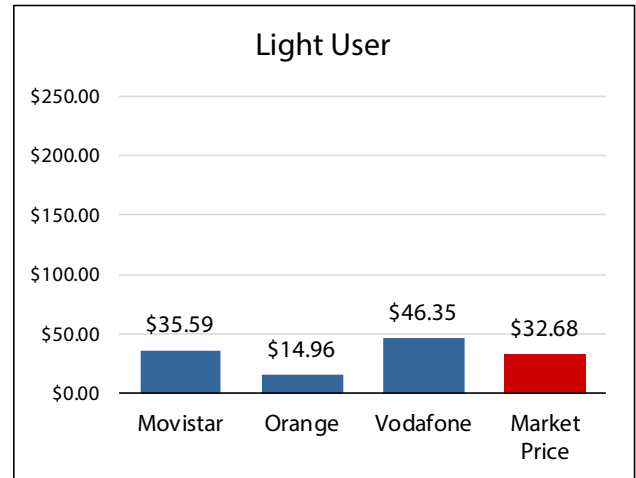


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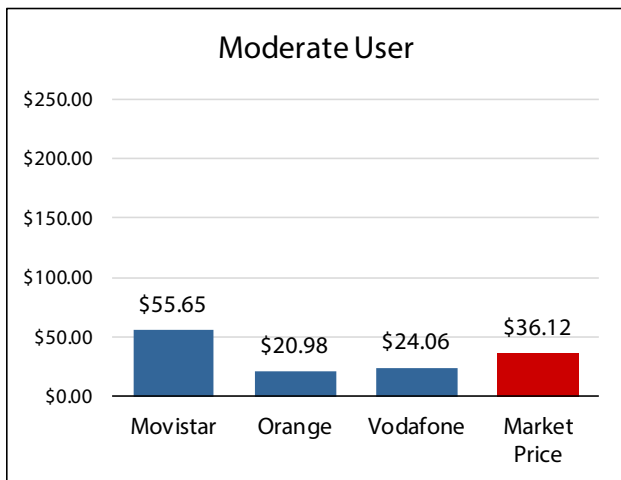
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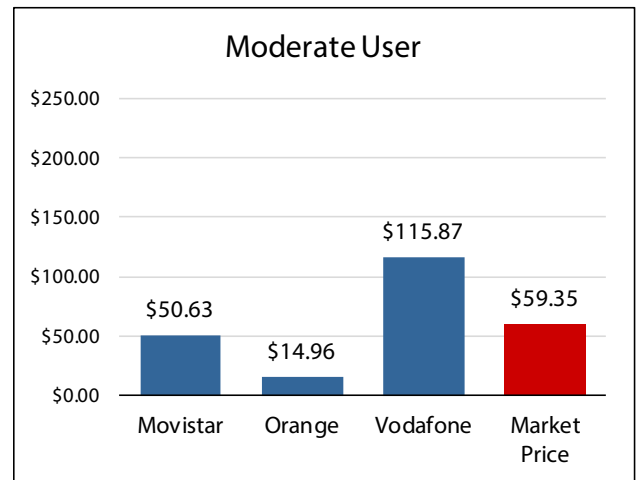
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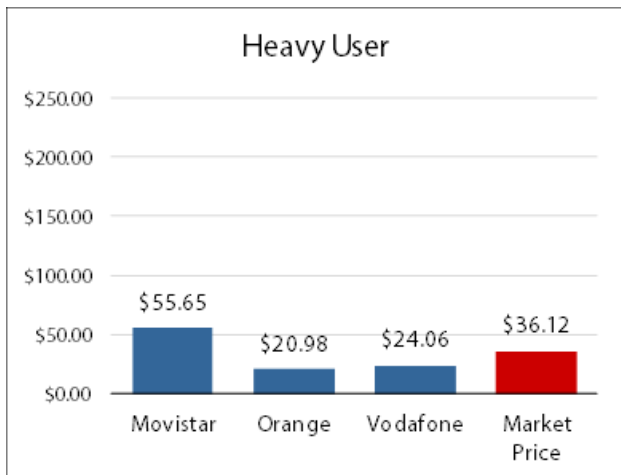
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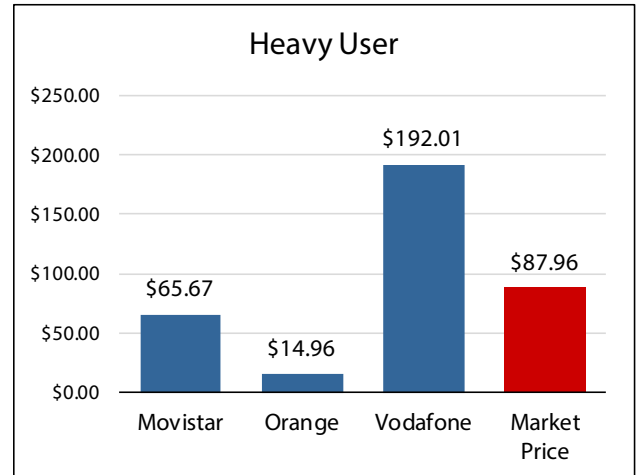
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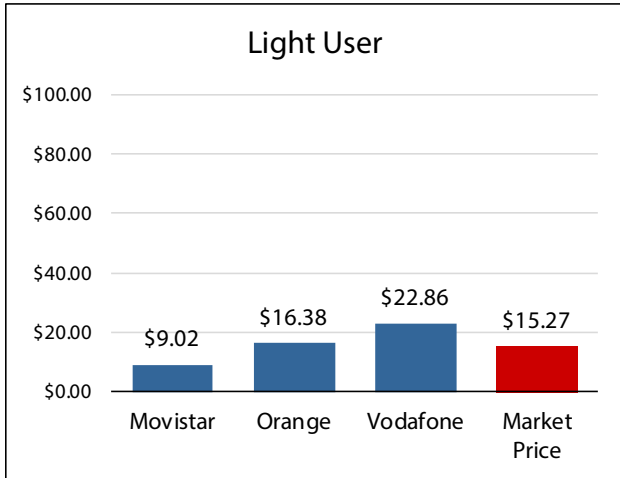


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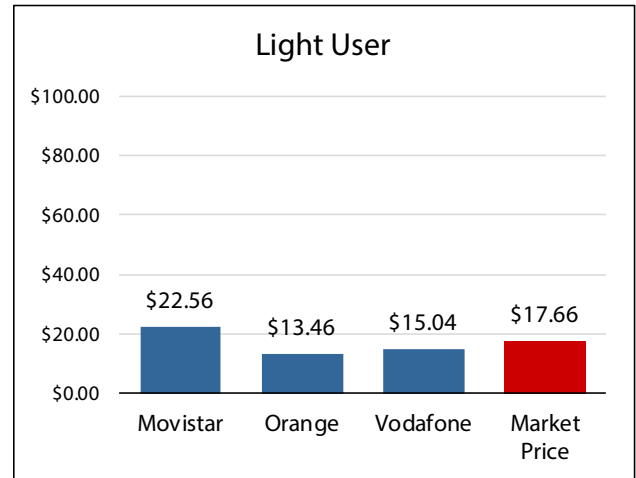


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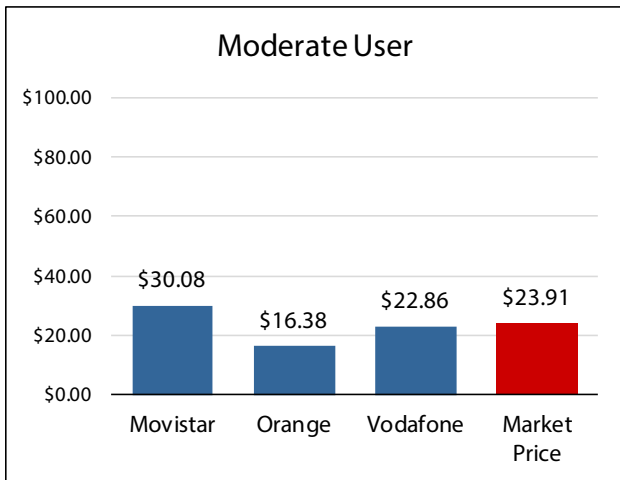
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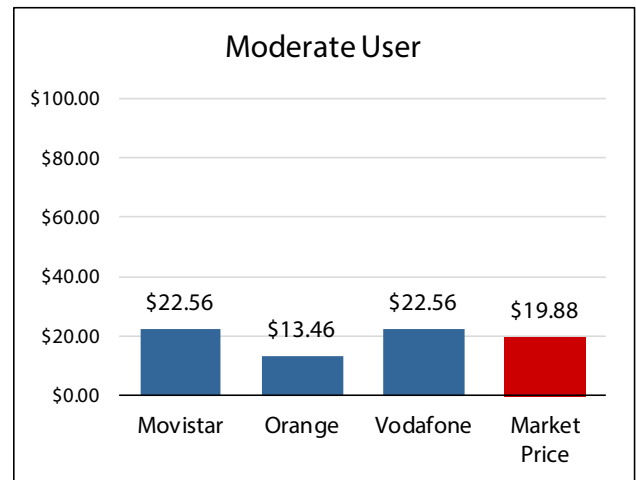
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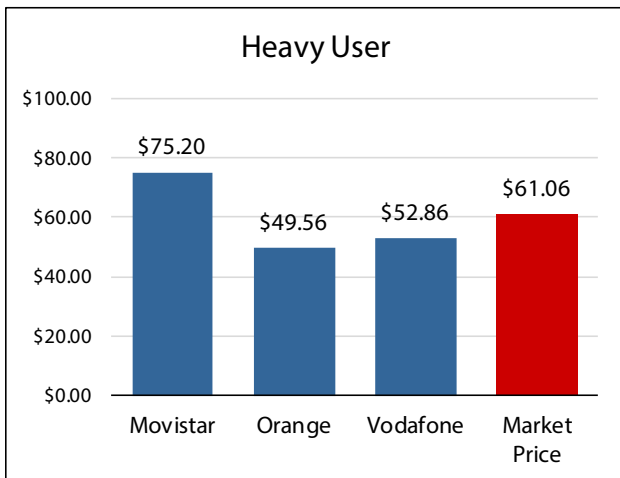
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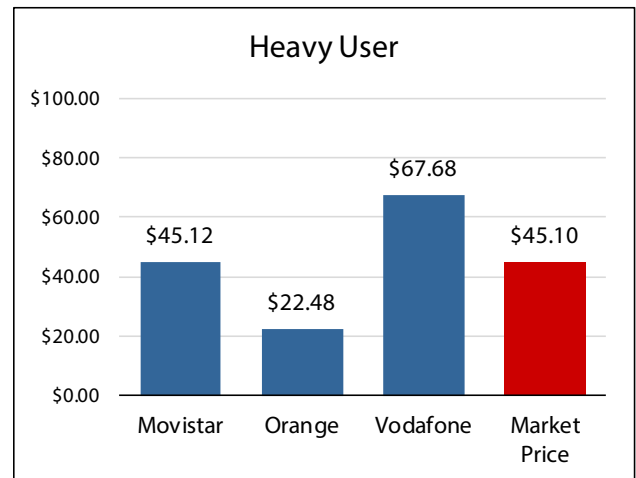
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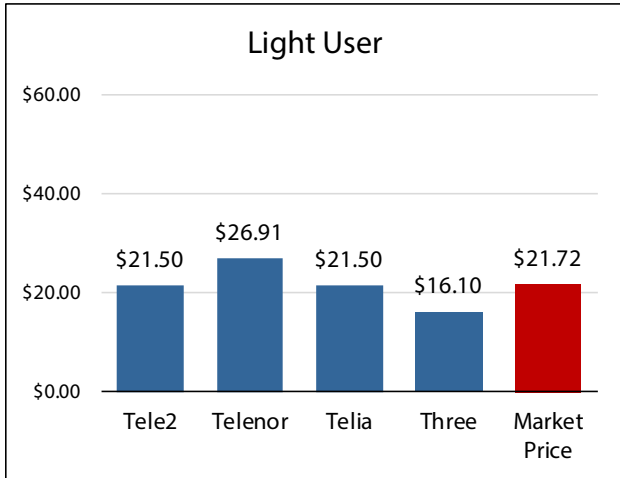


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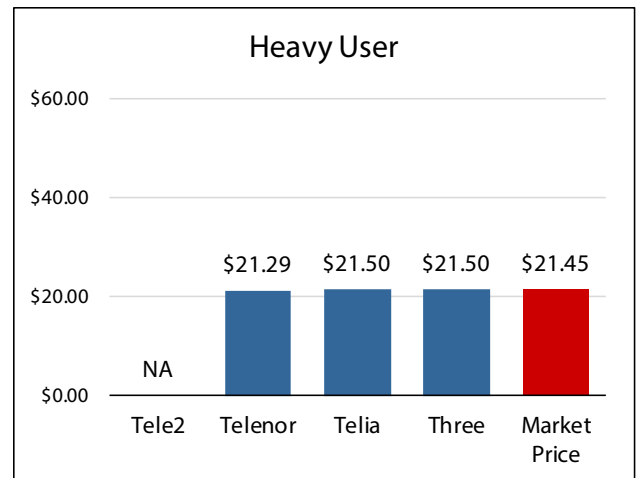
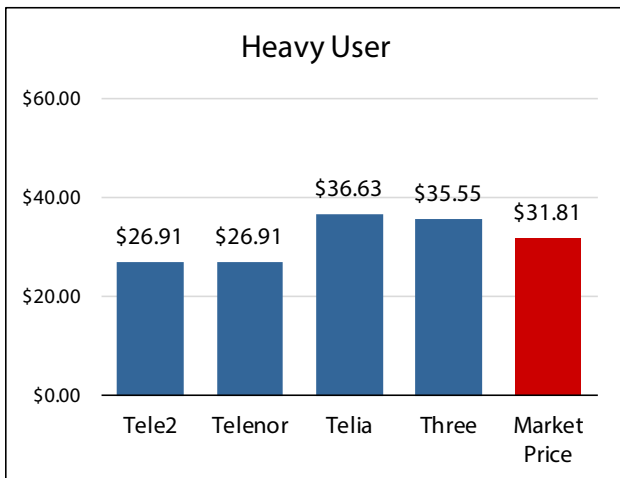
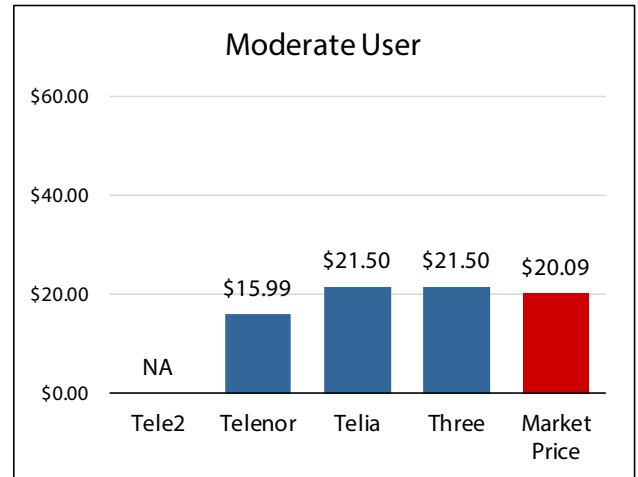
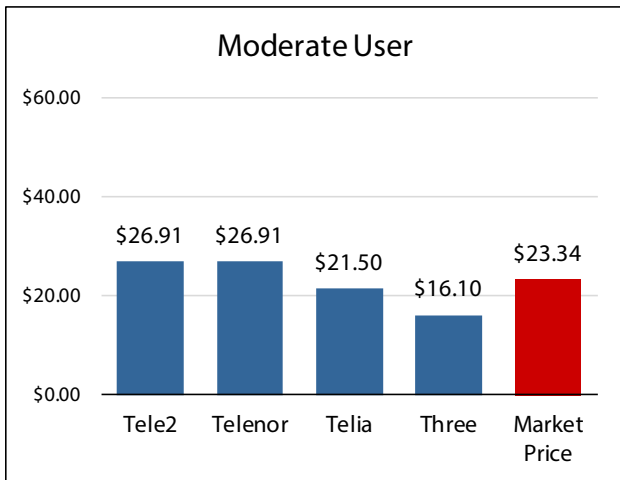
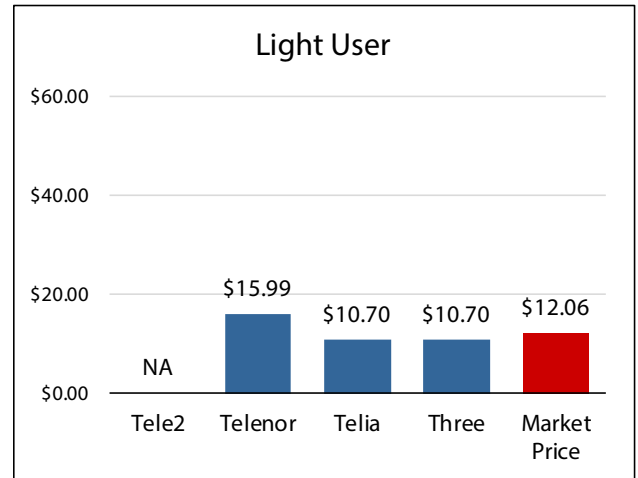


Sweden

Postpaid Voice/SMS/Data

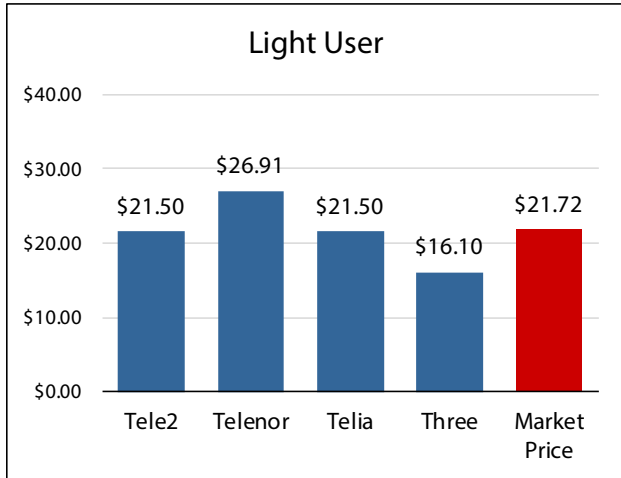


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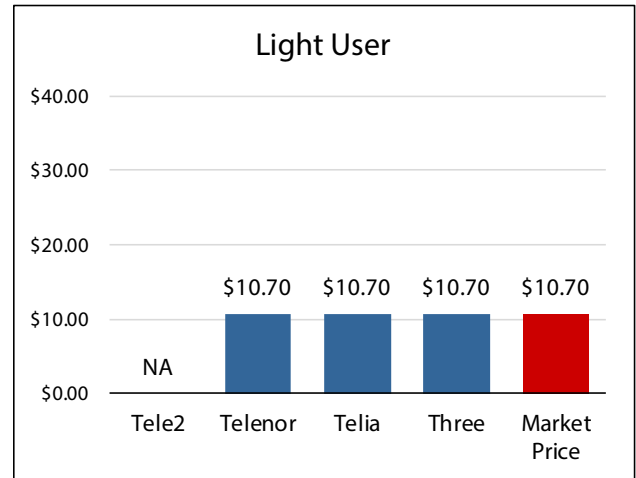


Sweden

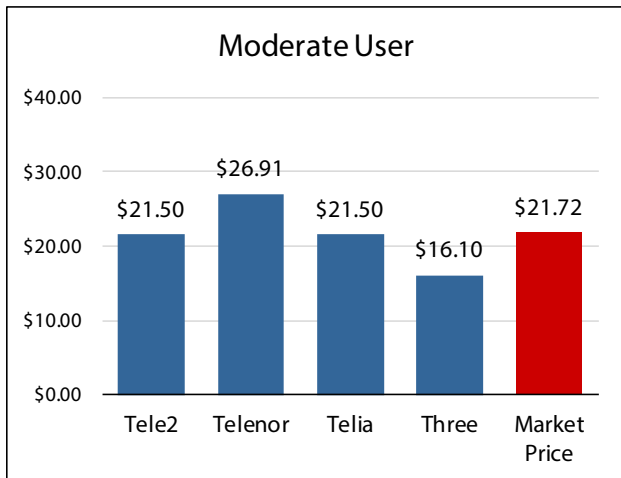
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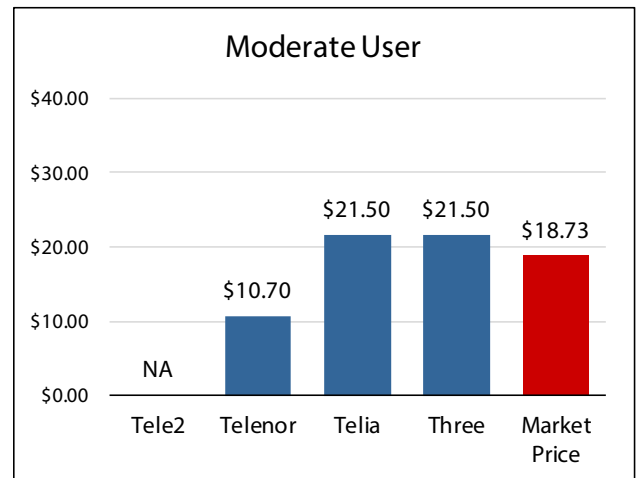
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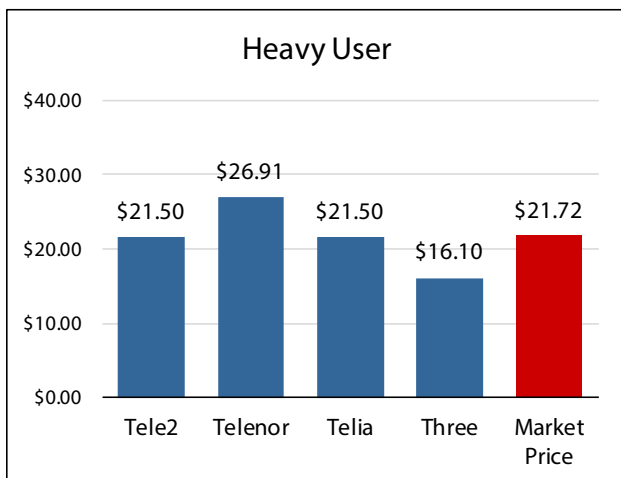
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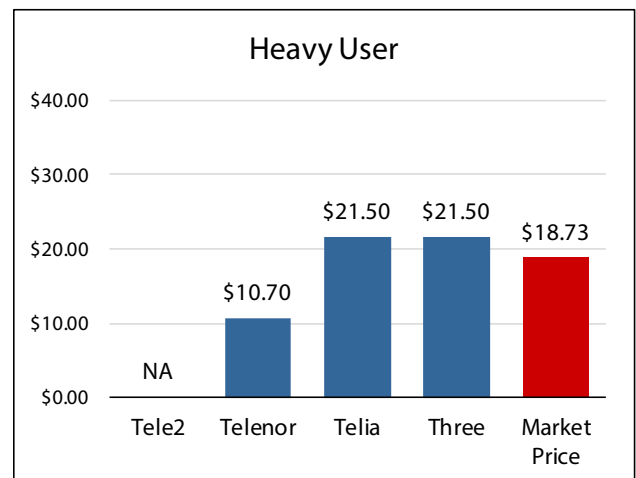
Moderate User



Heavy User

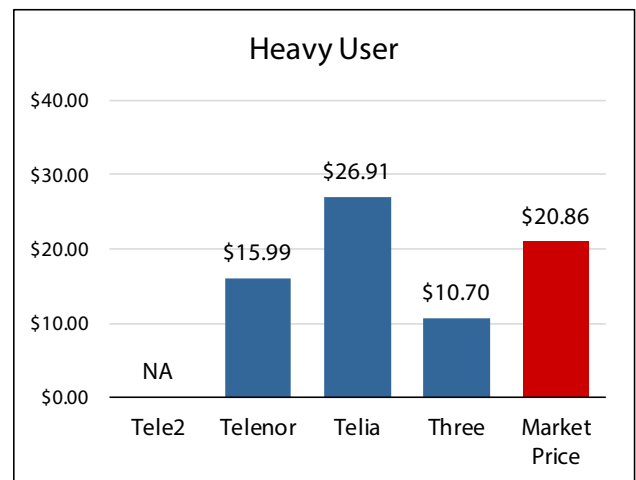
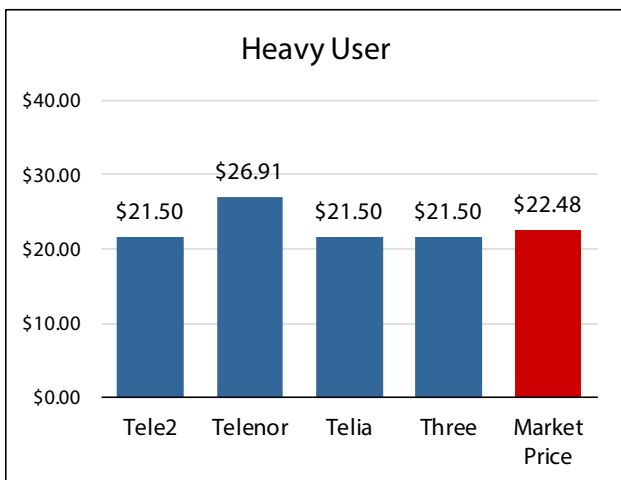
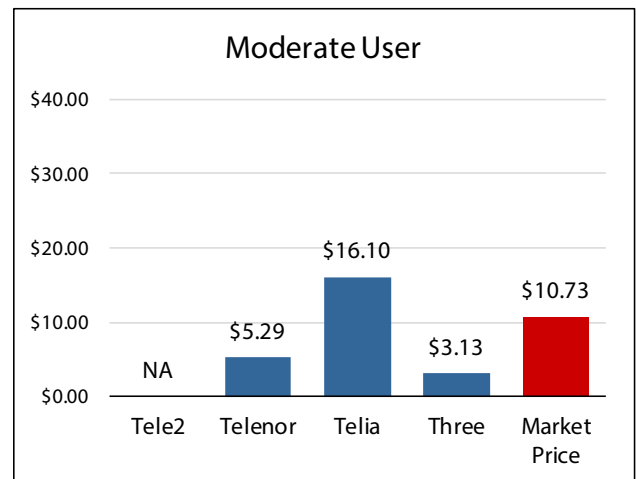
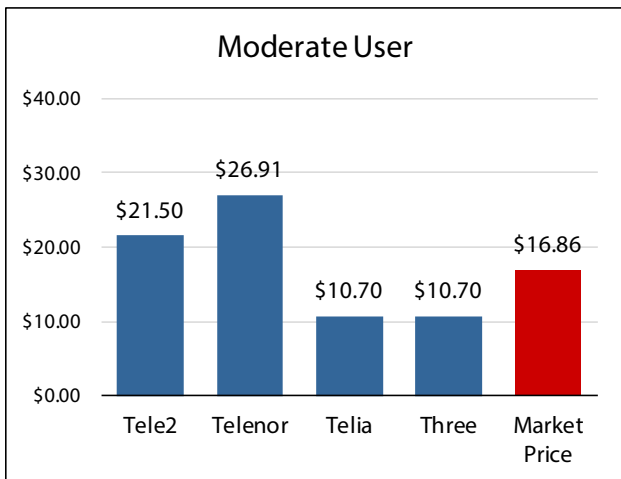
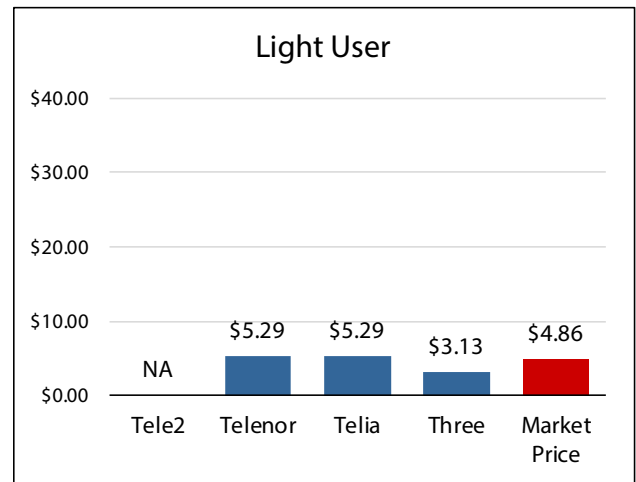
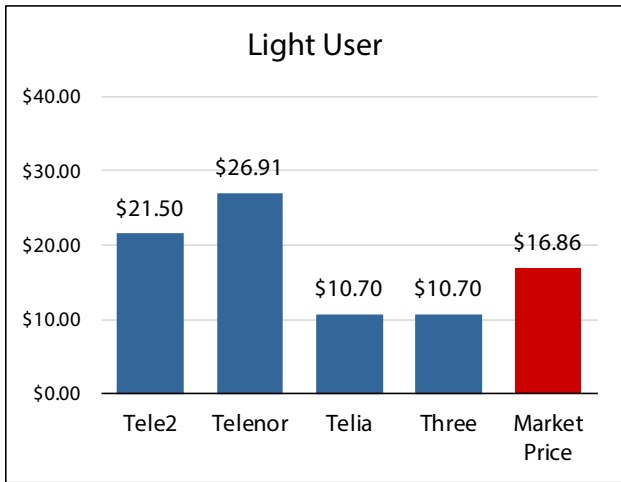


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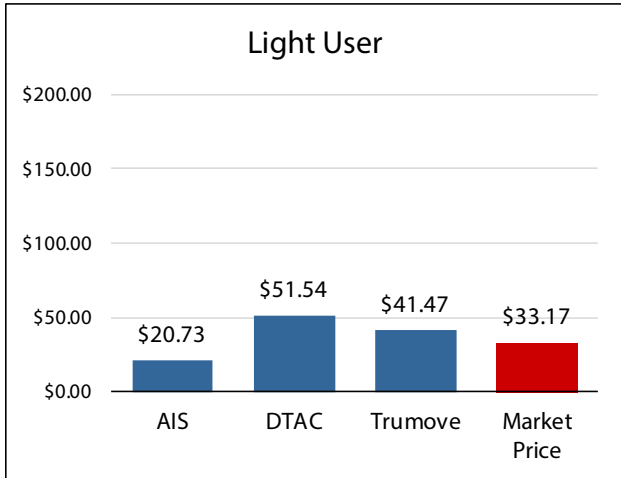
Postpaid Data Only

Prepaid Data Only

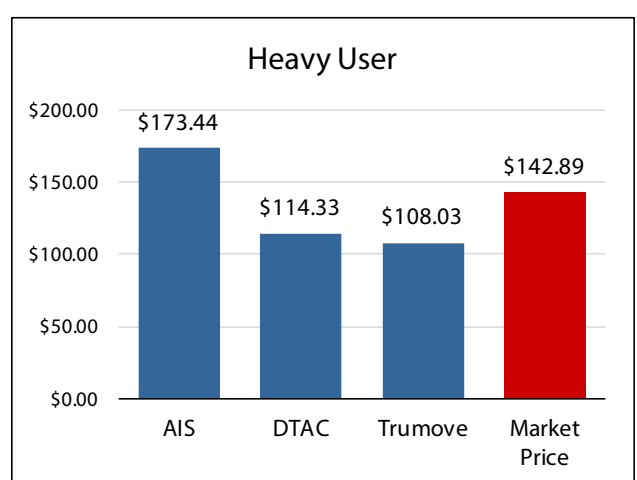
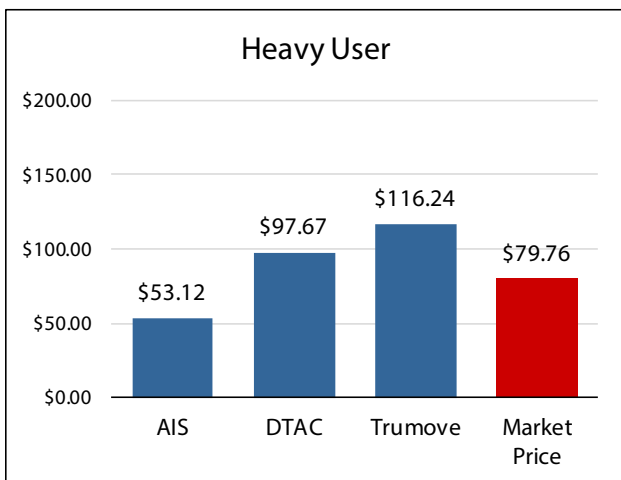
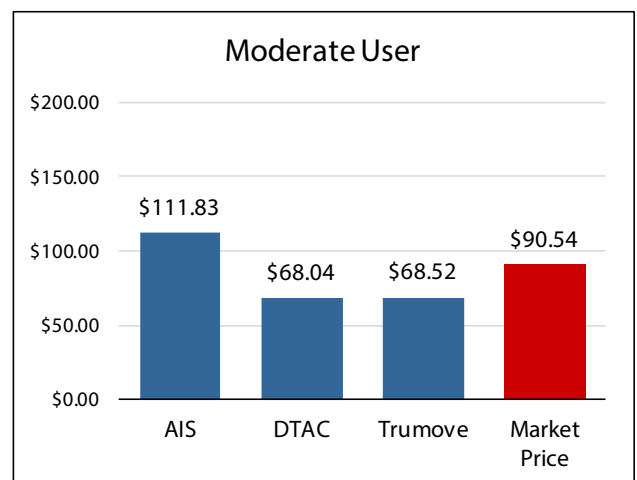
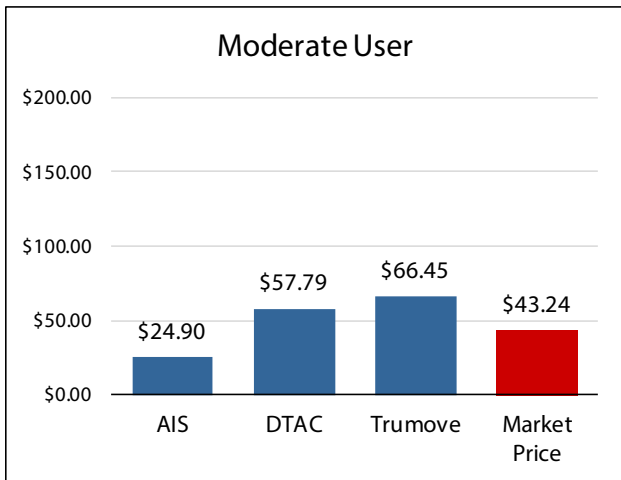
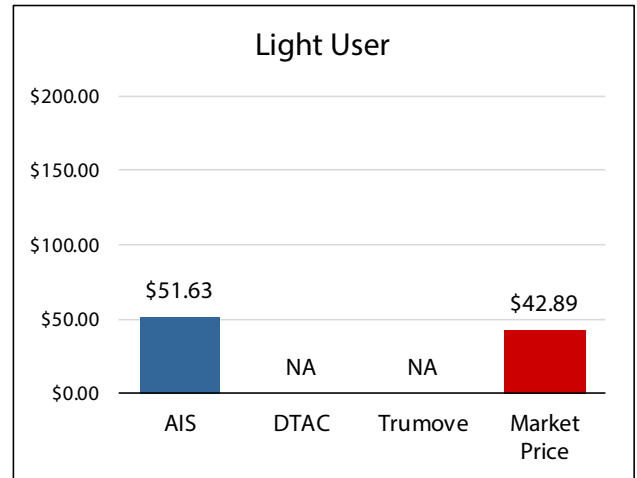


Thailand

Postpaid Voice/SMS/Data

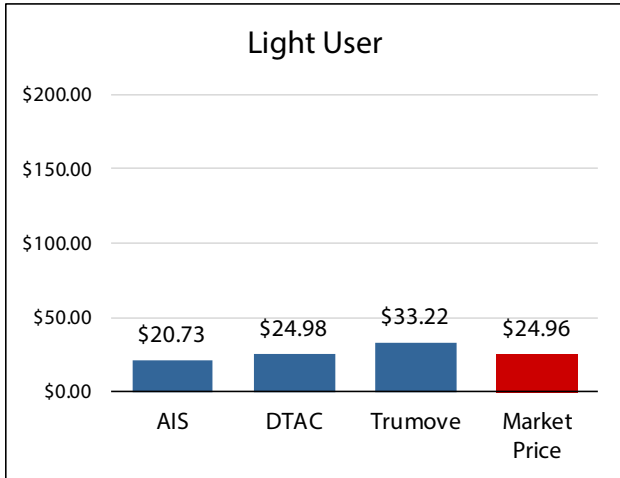


Prepaid Voice/SMS/Data

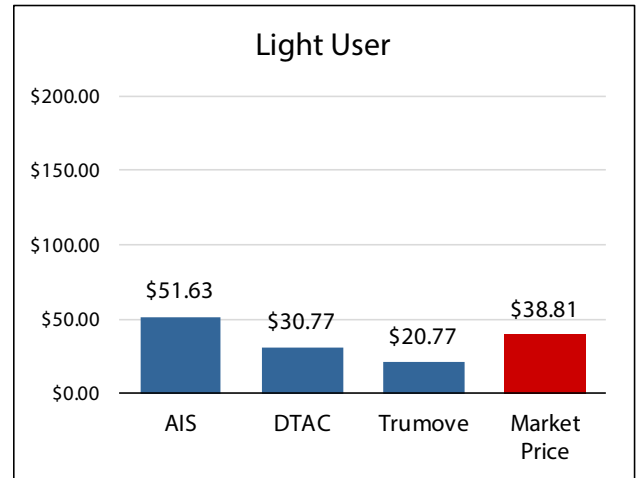


Thailand

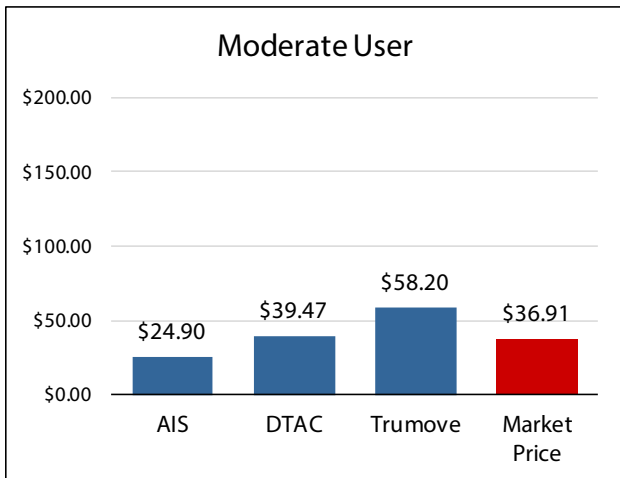
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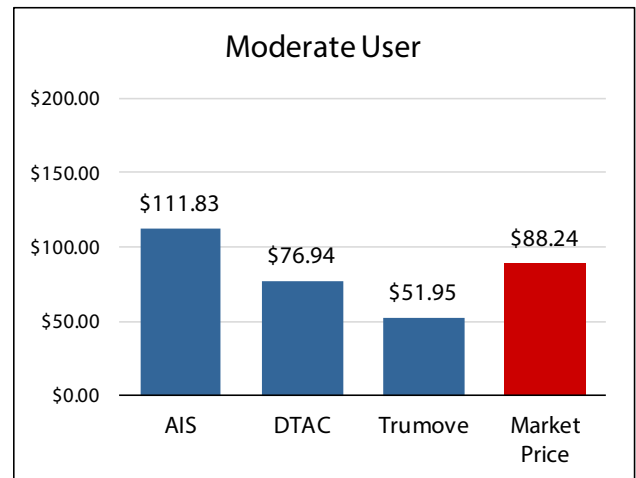
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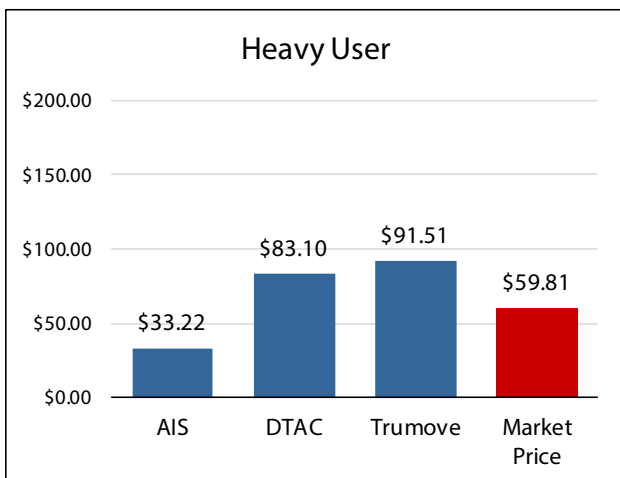
Moderate User



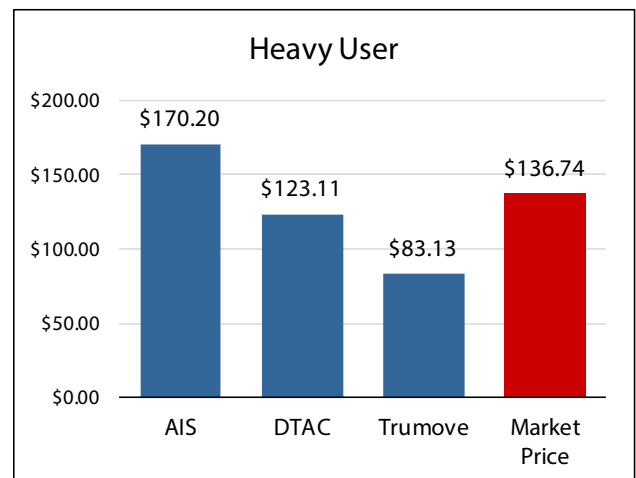
Moderate User



Heavy User

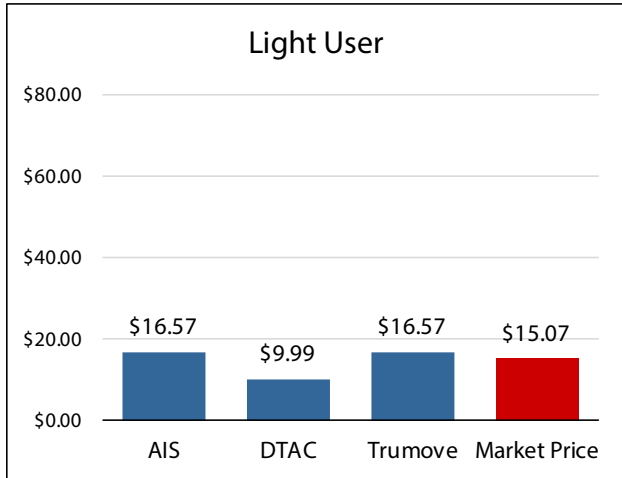


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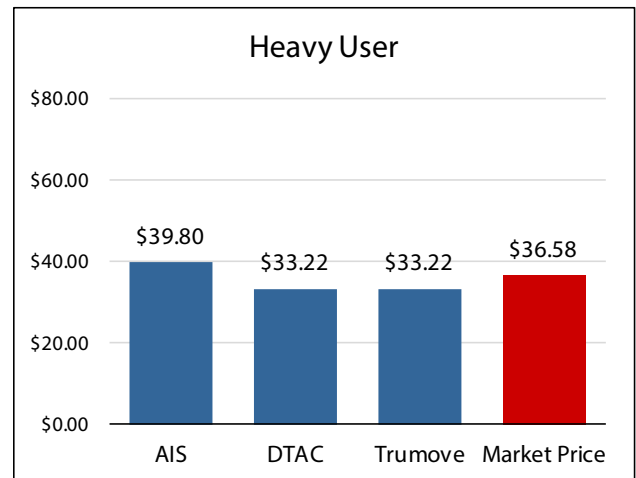
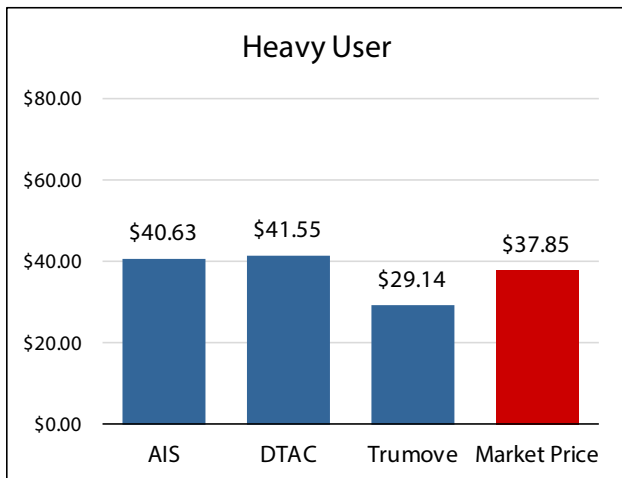
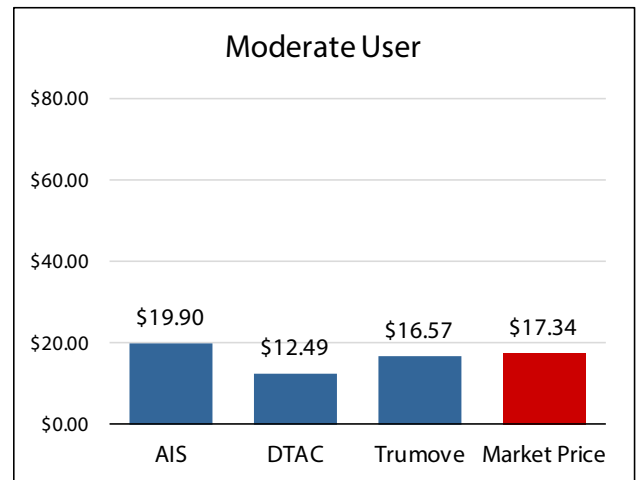
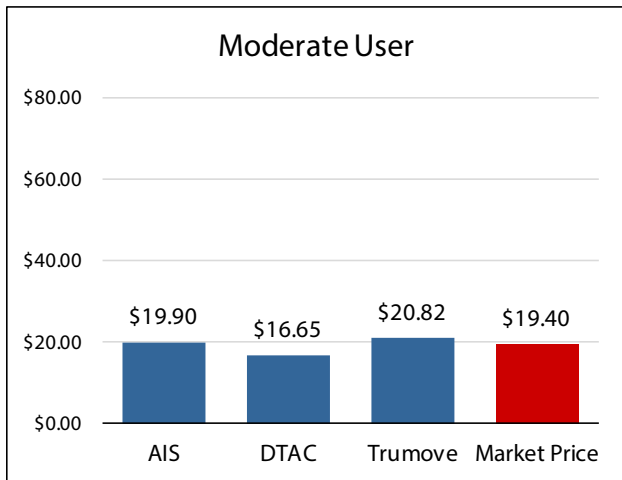
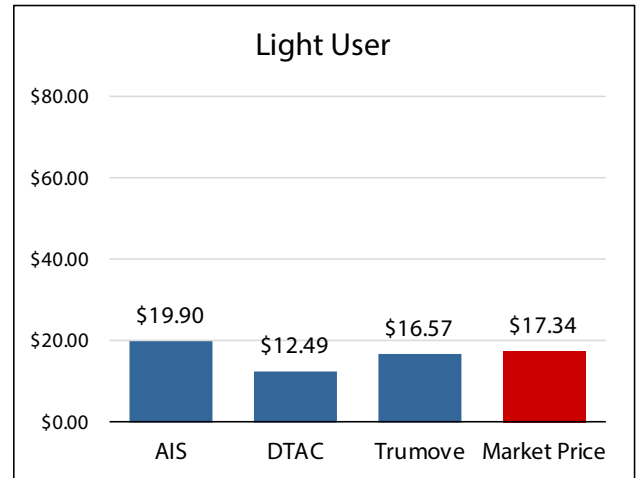


Thailand

Postpaid Data Only

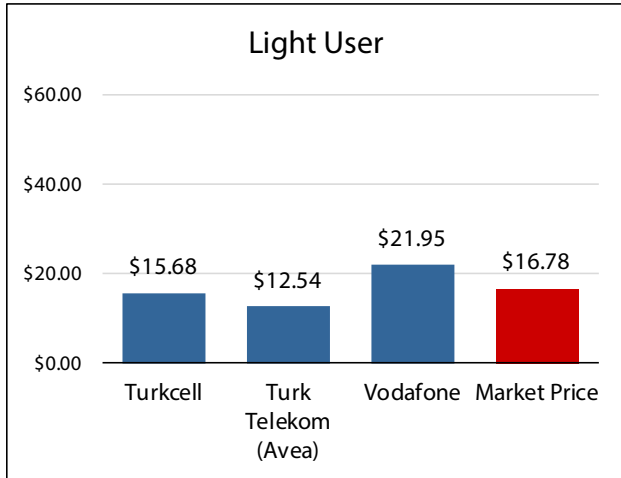


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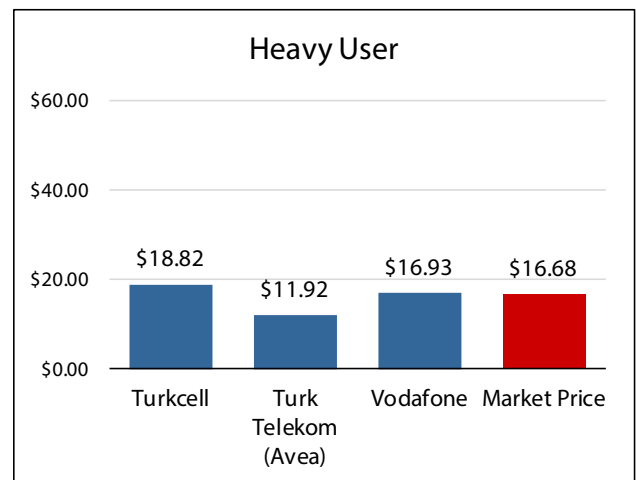
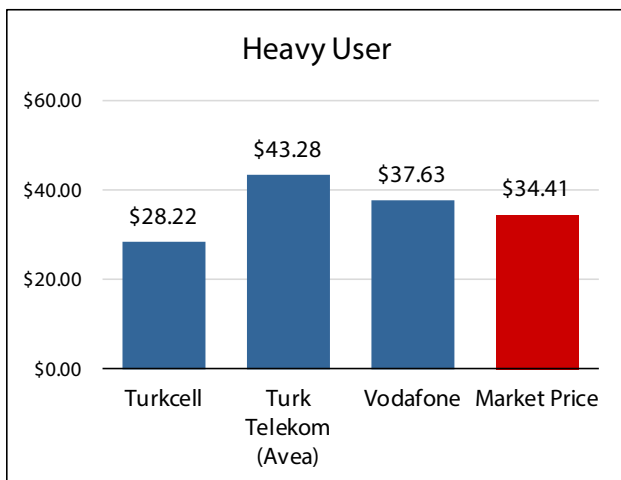
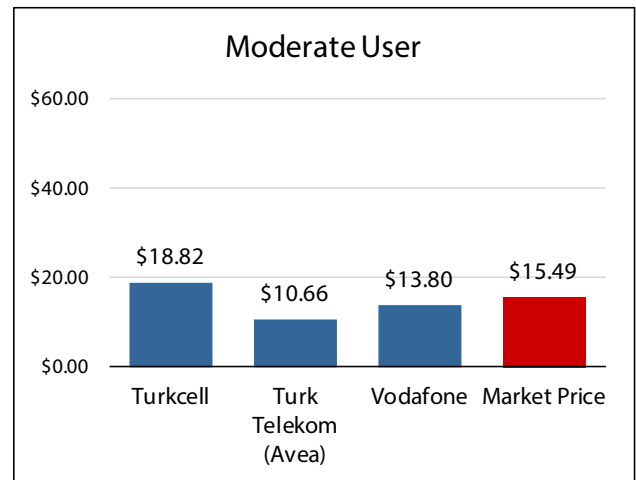
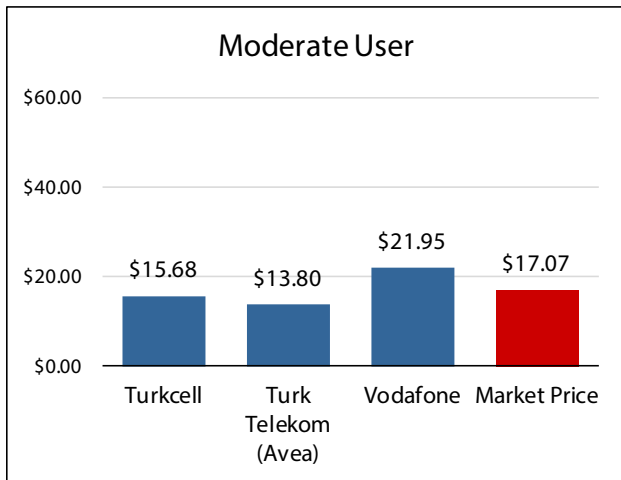
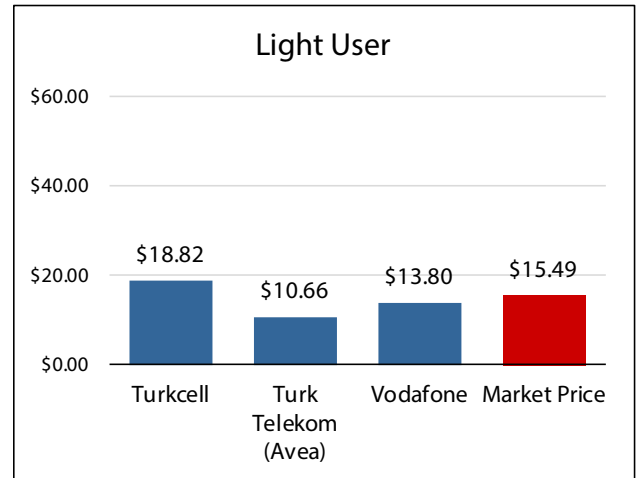


Turkey

Postpaid Voice/SMS/Data

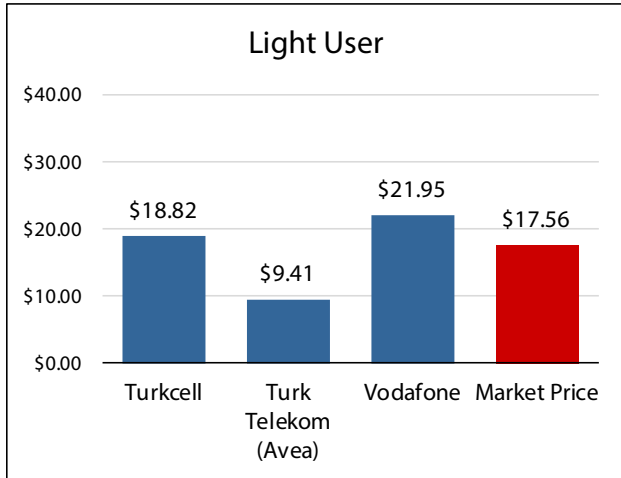


Prepaid Voice/SMS/Data

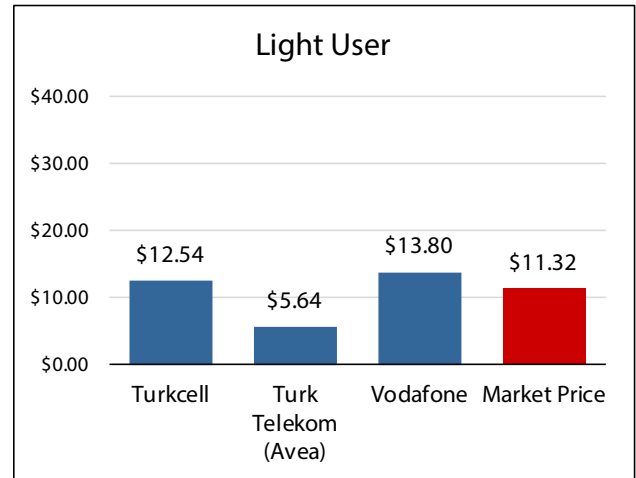


Turkey

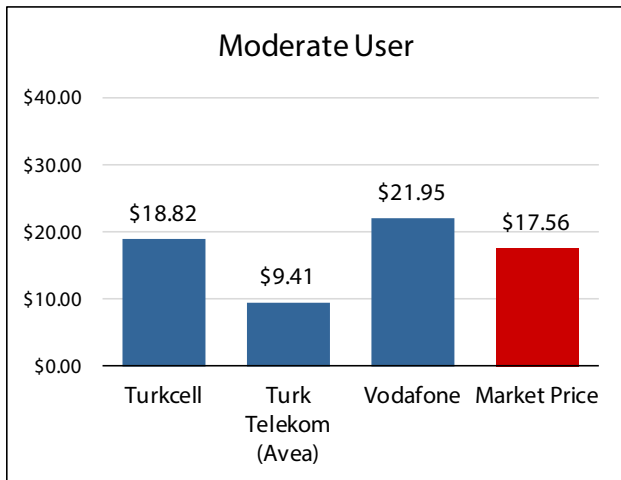
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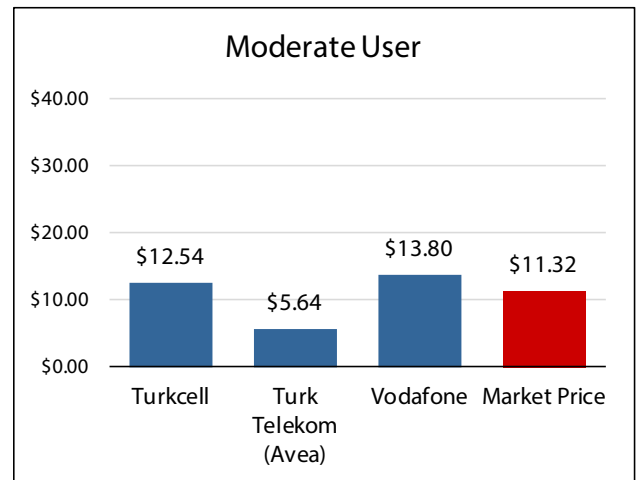
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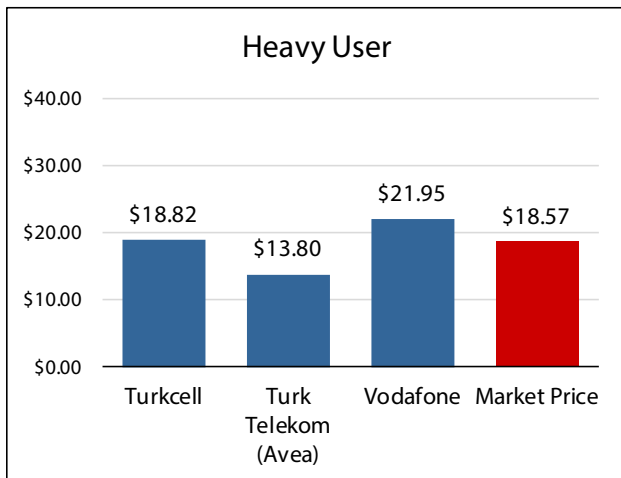
Moderate User



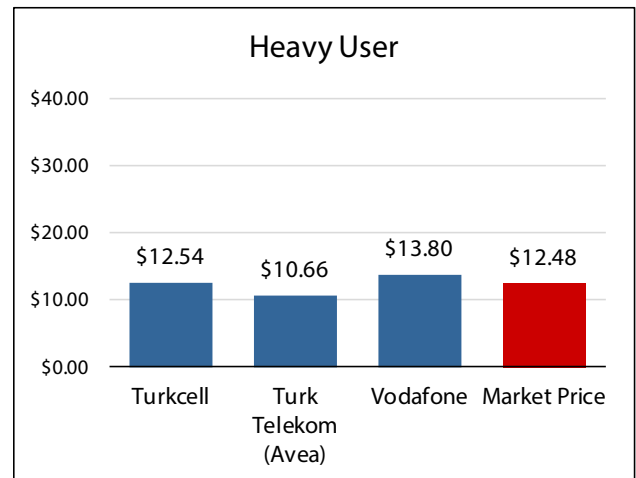
Moderate User



Heavy User

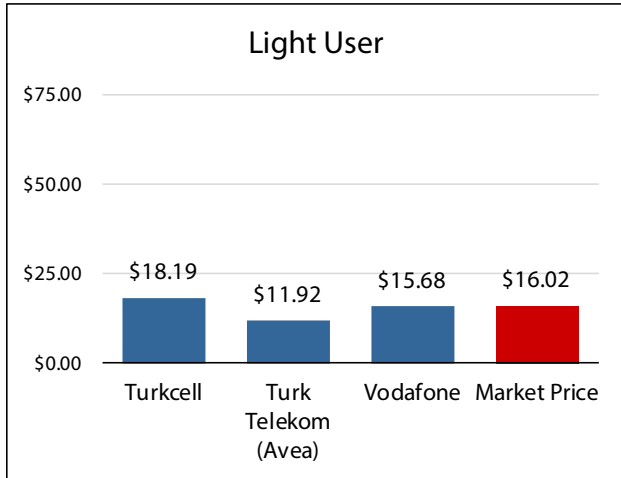


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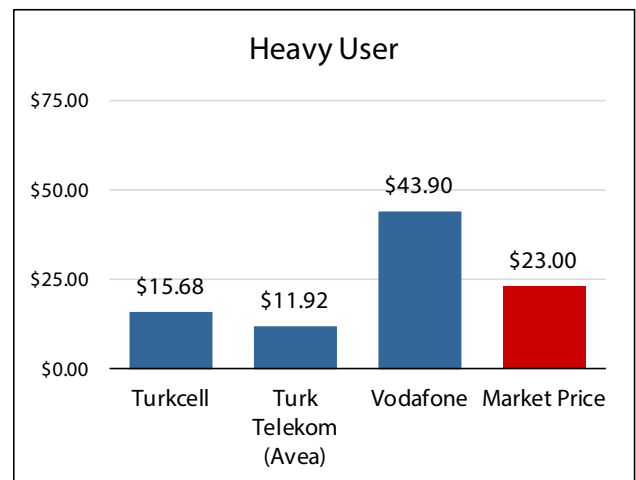
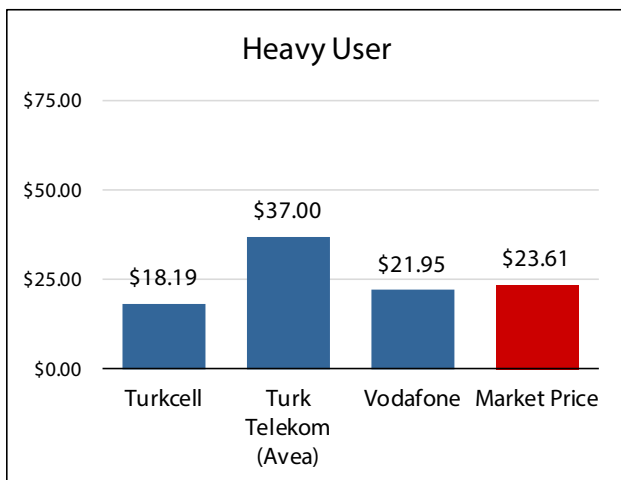
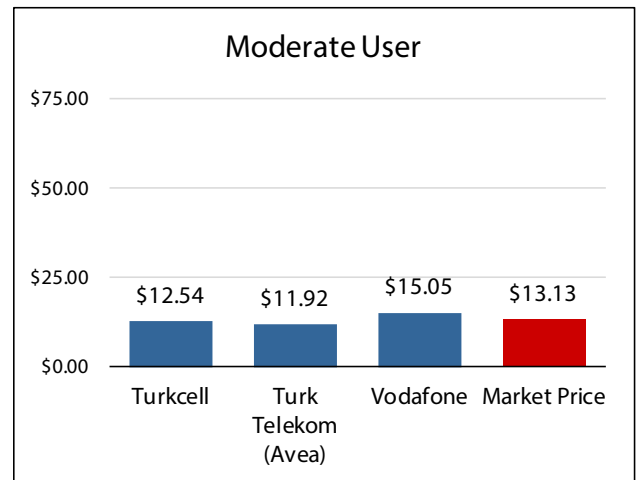
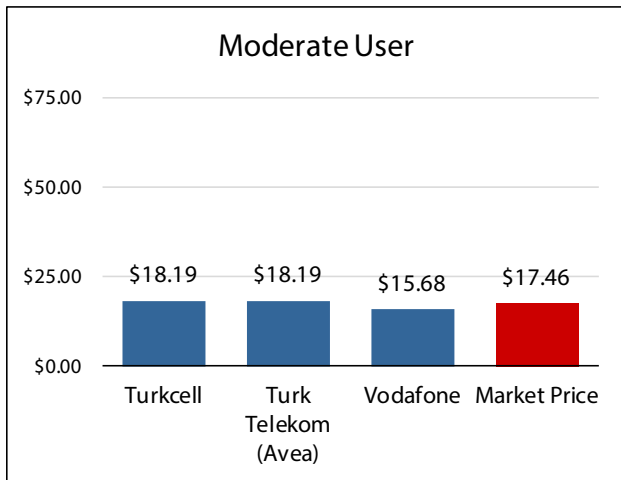
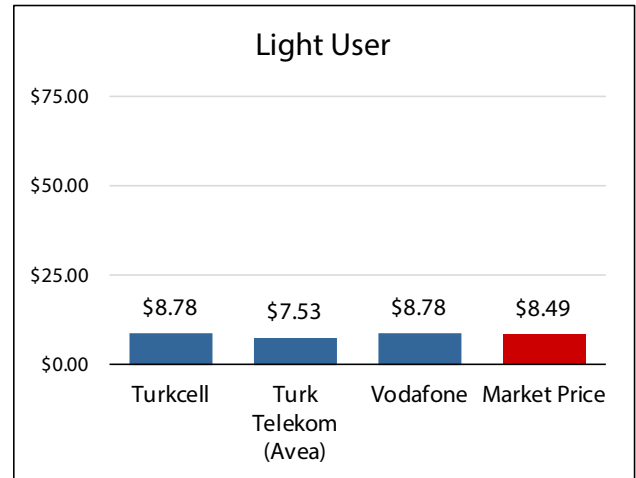


Turkey

Postpaid Data Only

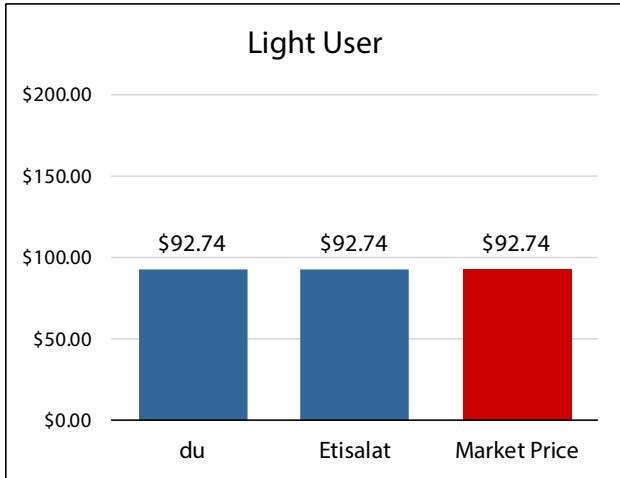


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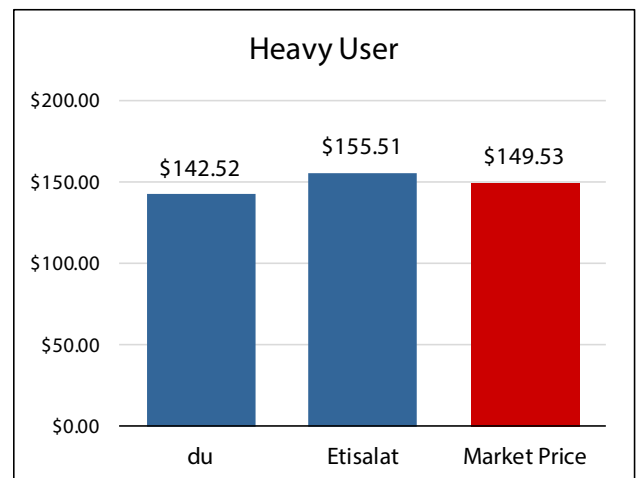
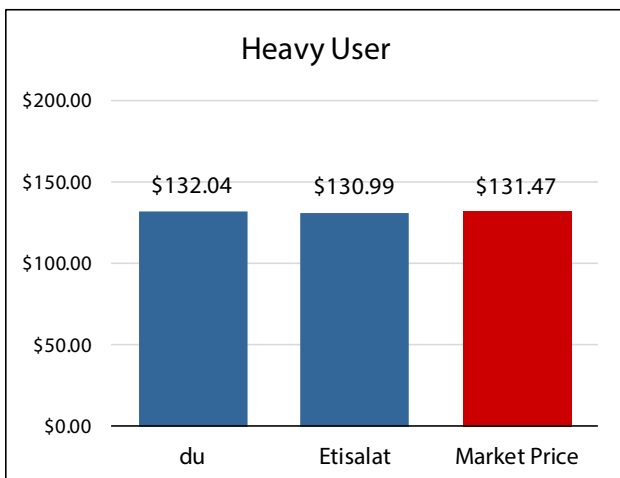
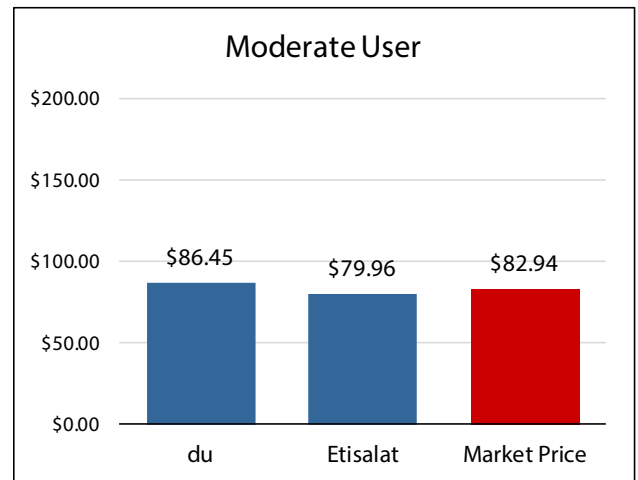
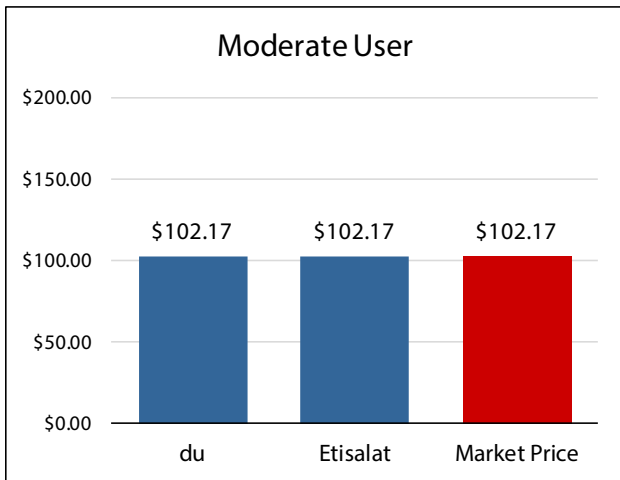
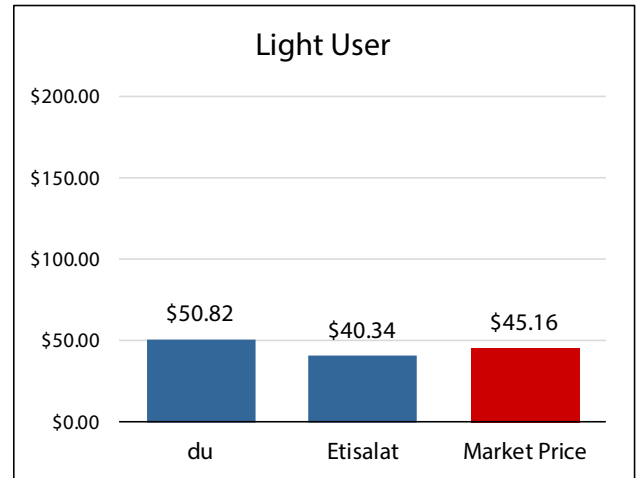


United Arab Emirates

Postpaid Voice/SMS/Data

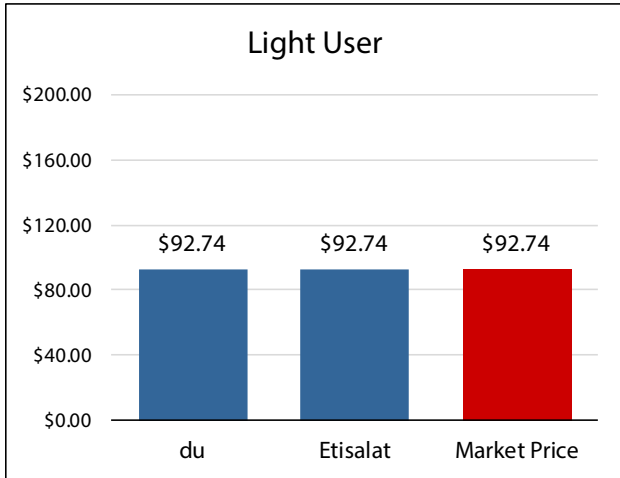


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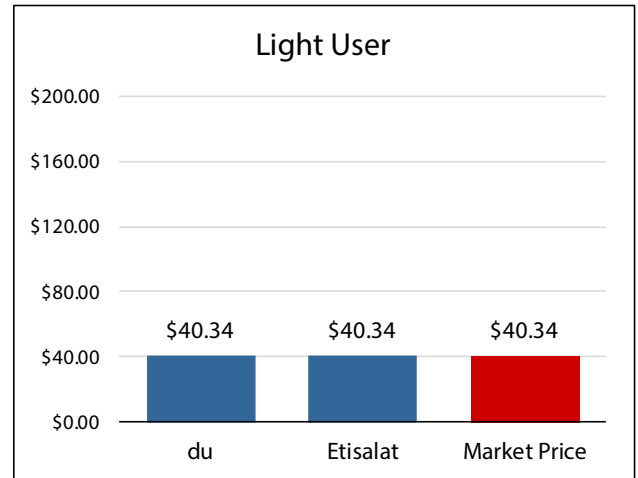


United Arab Emirates

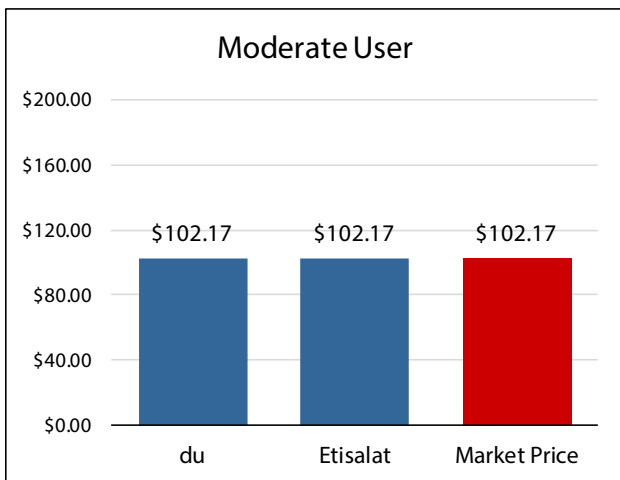
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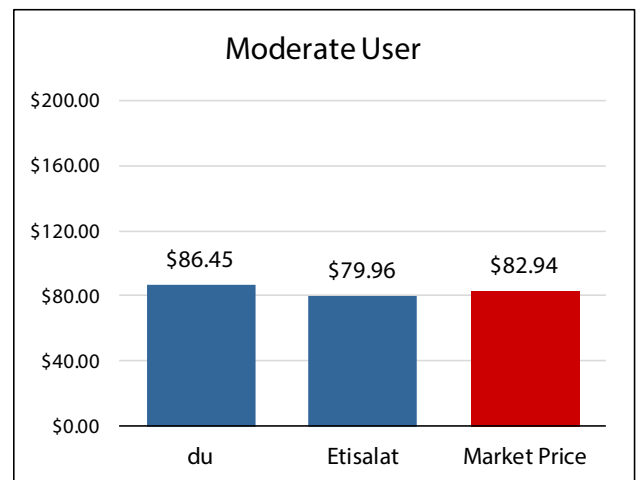
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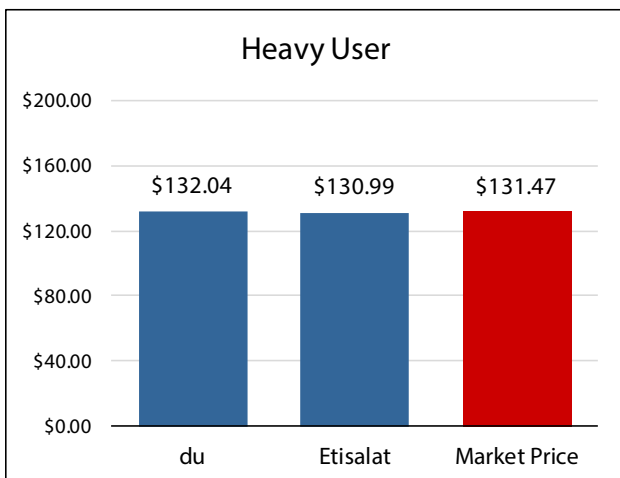
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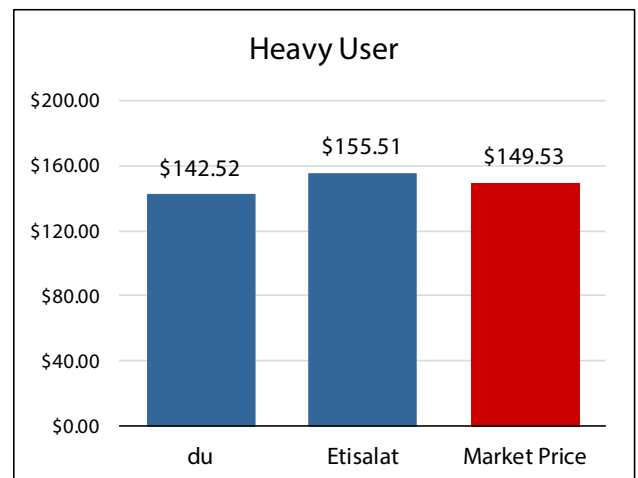
Moderate User



Heavy User

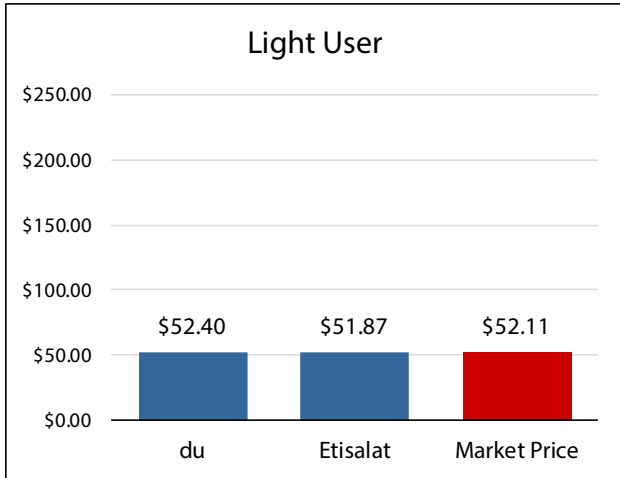


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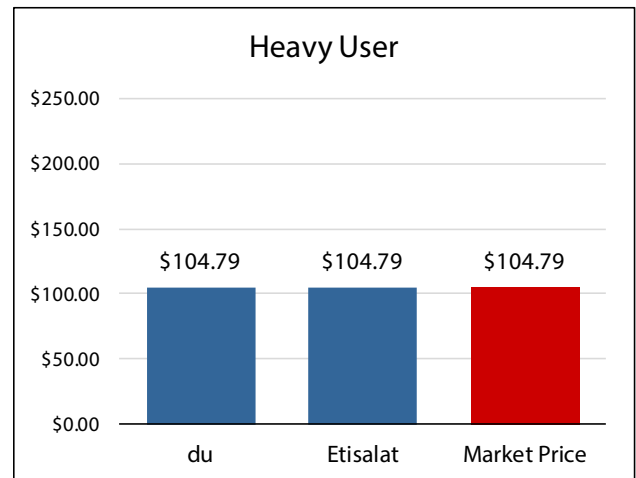
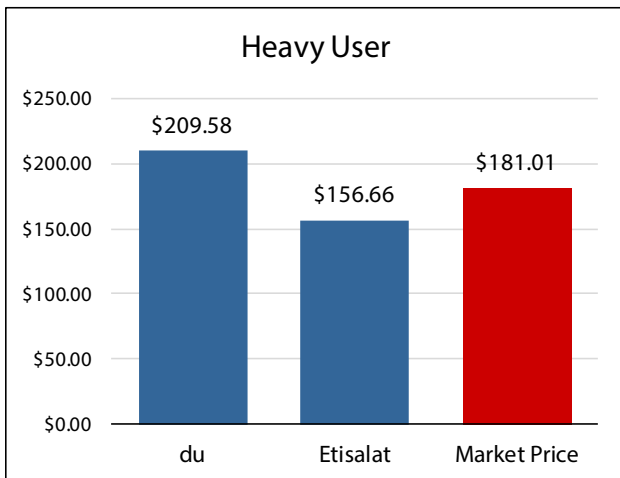
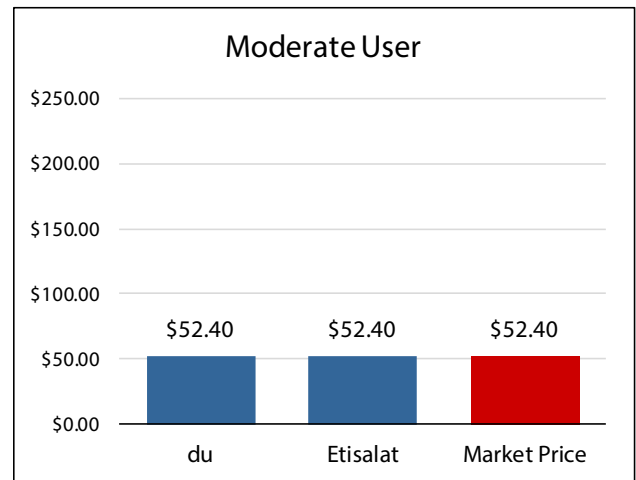
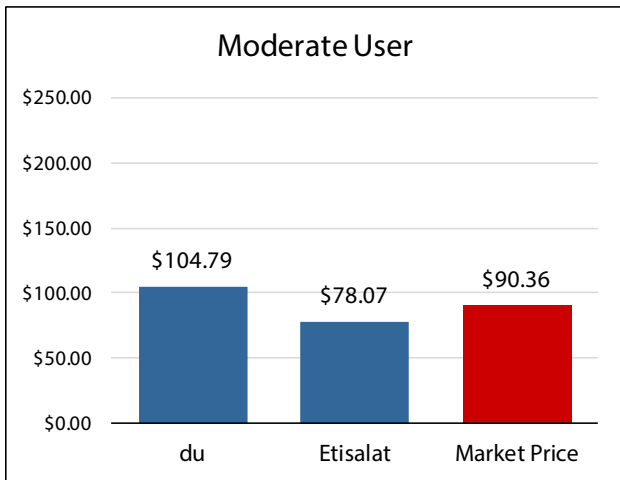
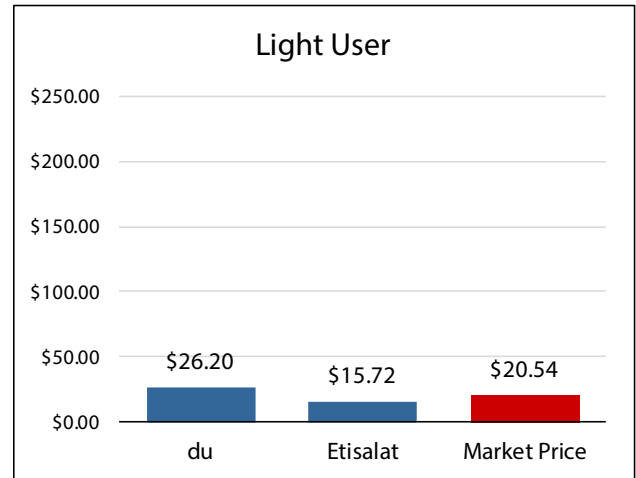


United Arab Emirates

Postpaid Data Only

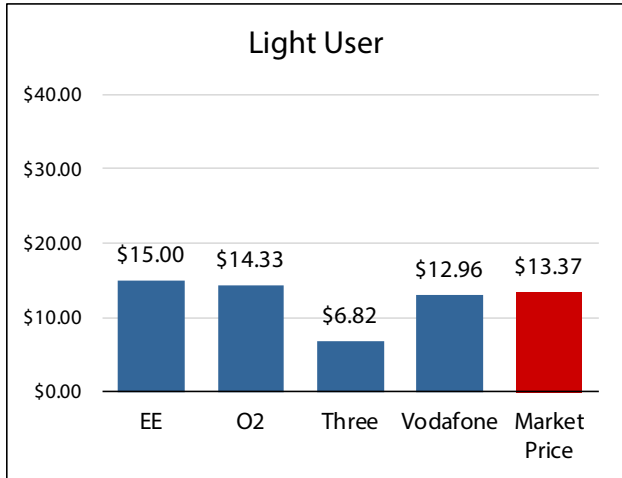


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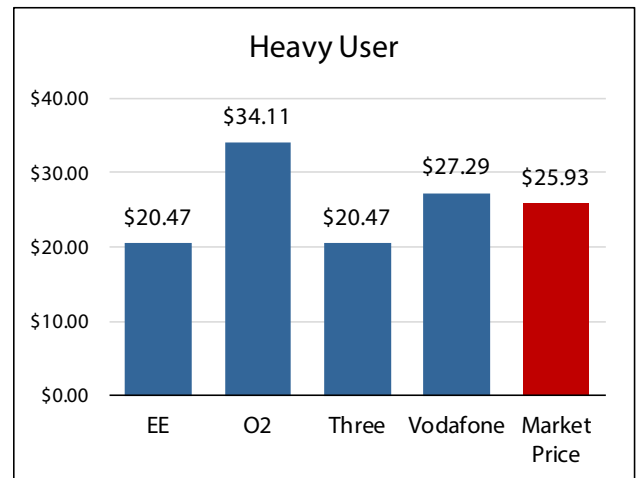
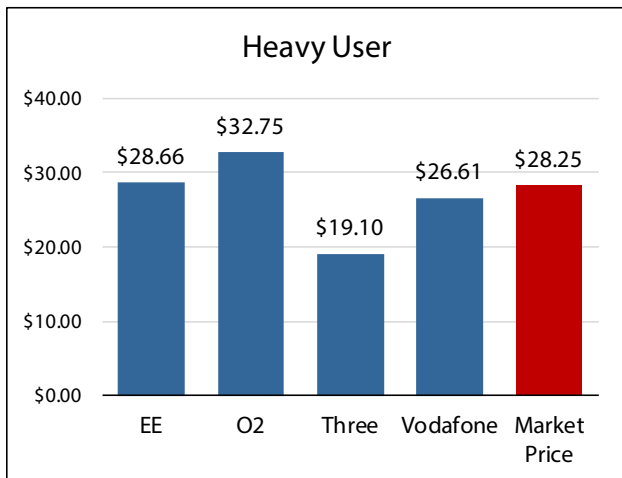
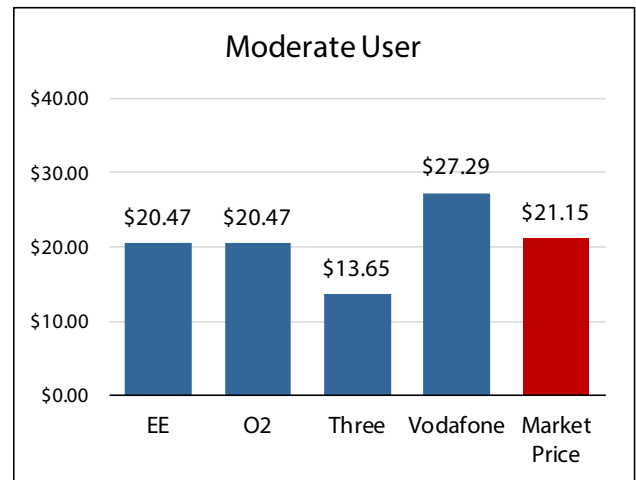
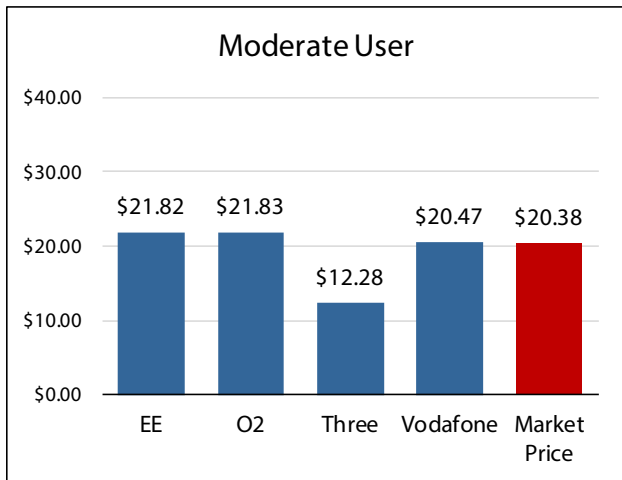
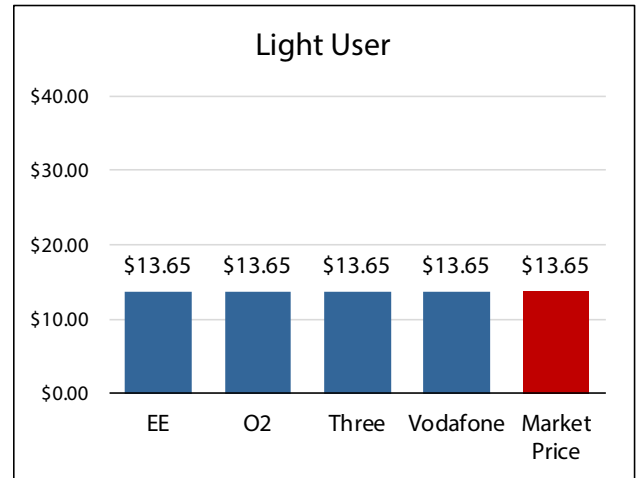


United Kingdom

Postpaid Voice/SMS/Data

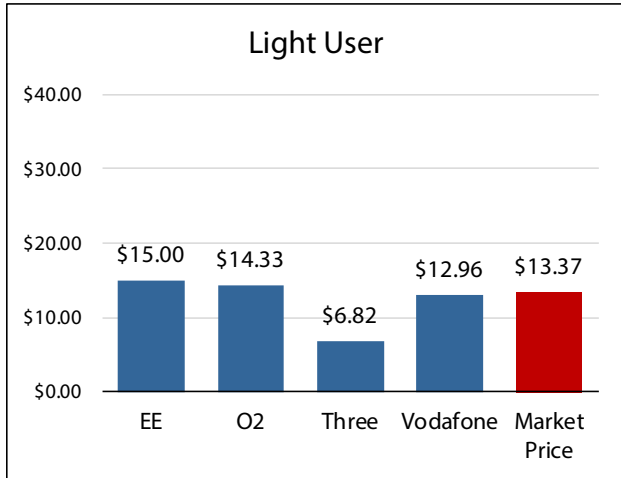


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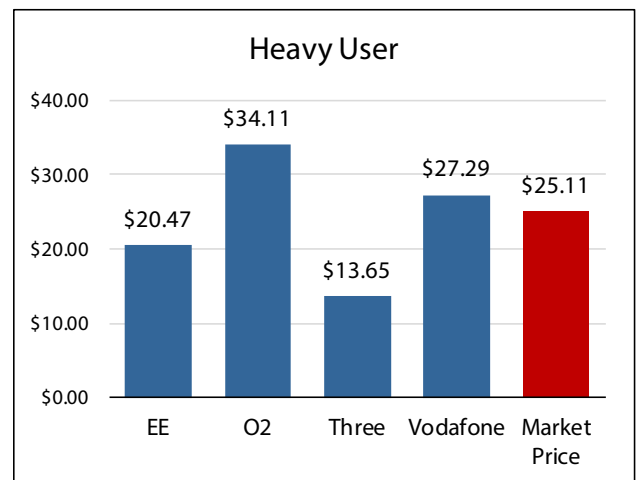
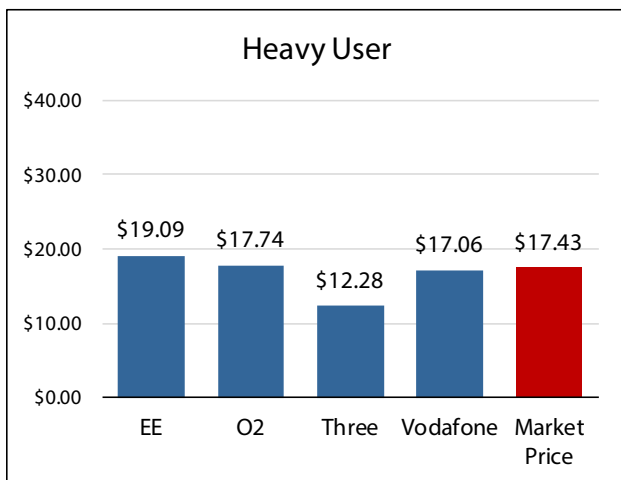
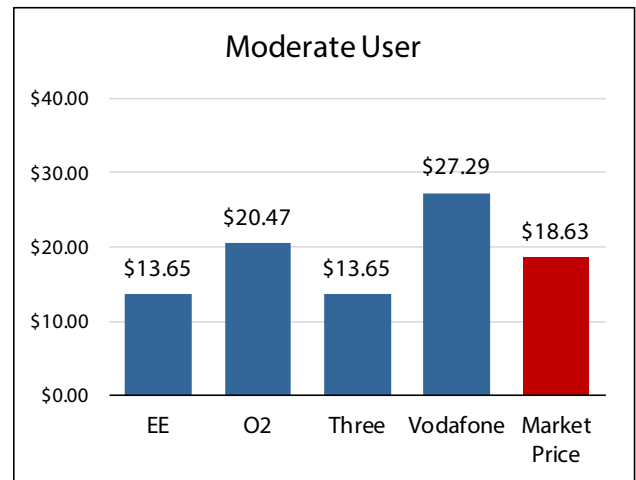
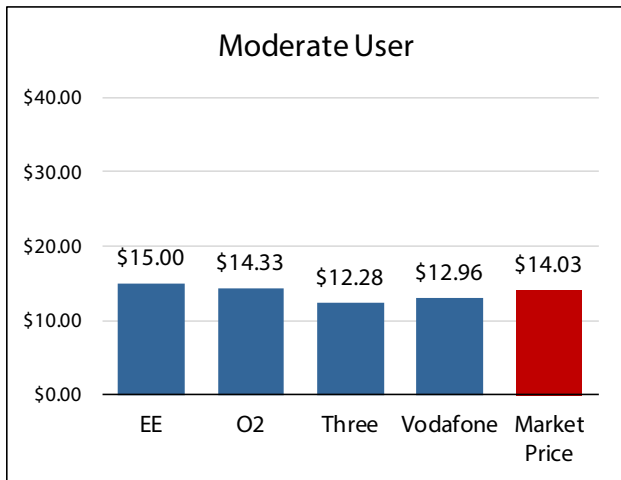
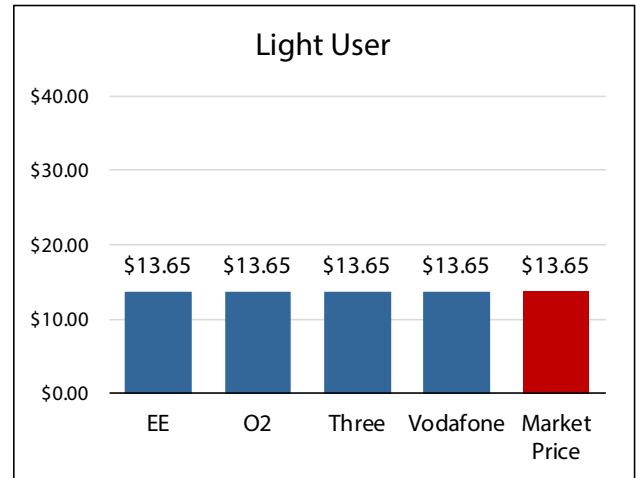


United Kingdom

Postpaid Voice/SMS

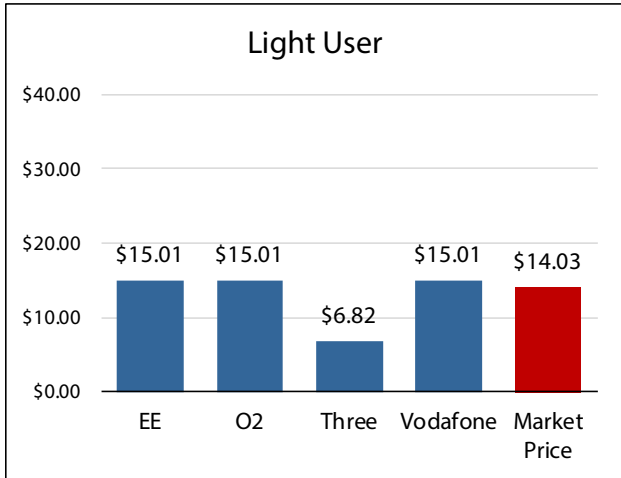


Prepaid Voice/SMS

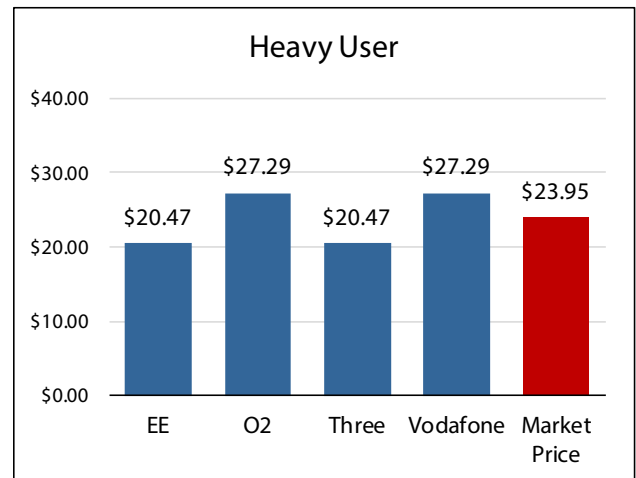
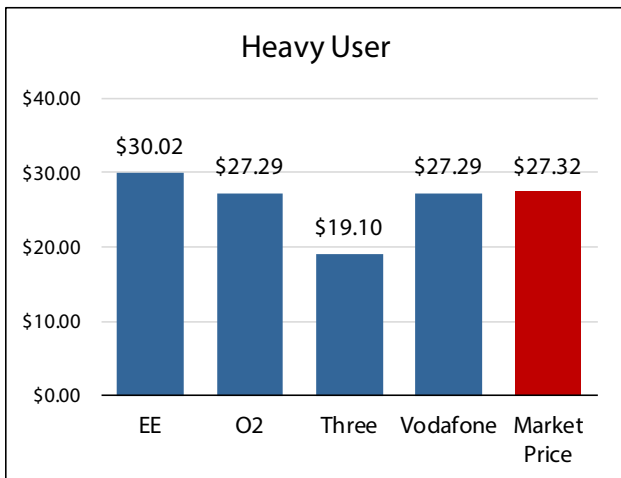
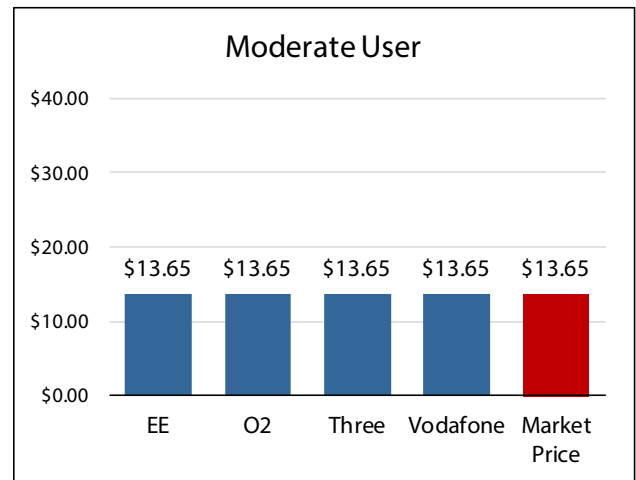
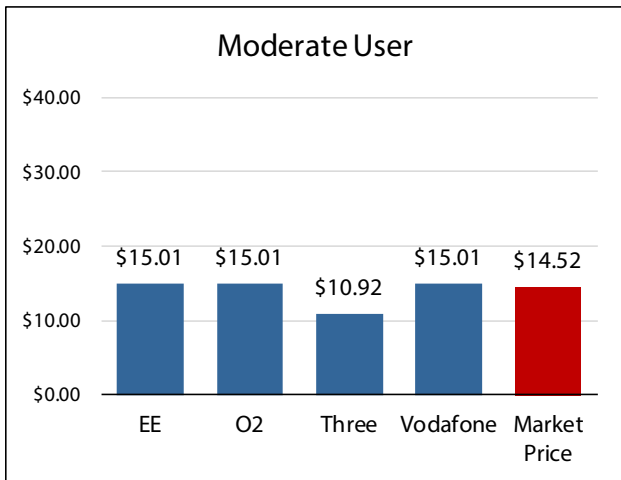
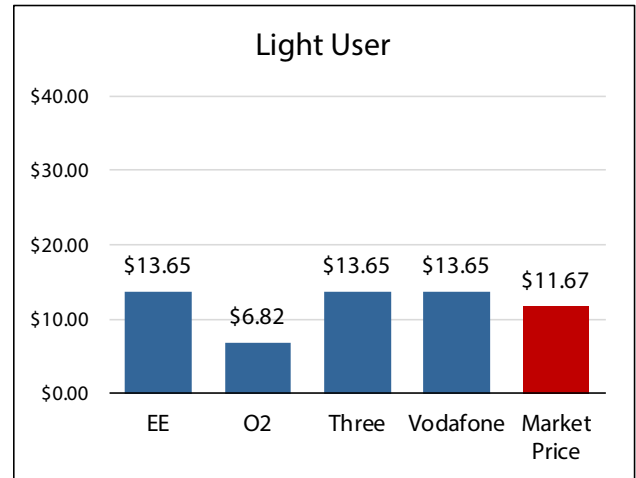


United Kingdom

Postpaid Data Only

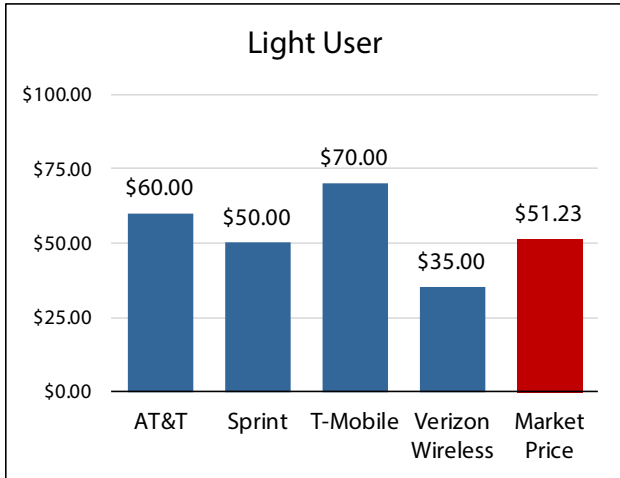


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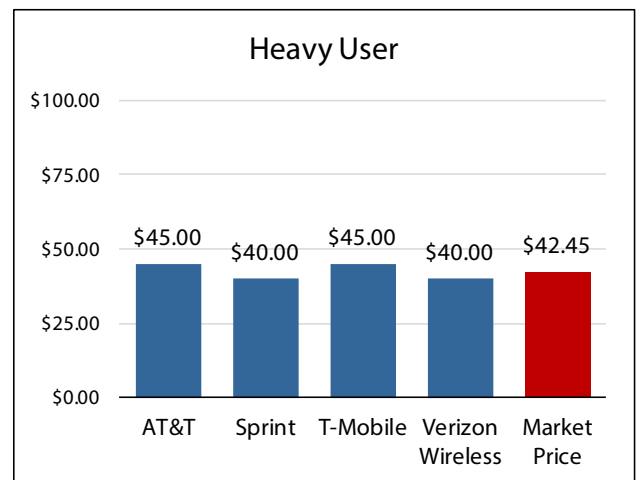
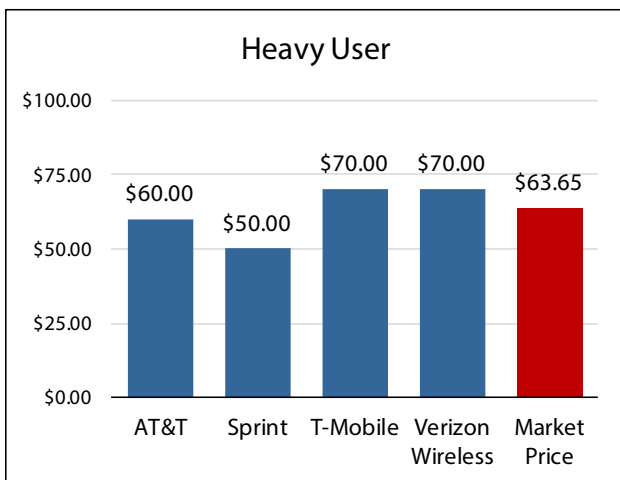
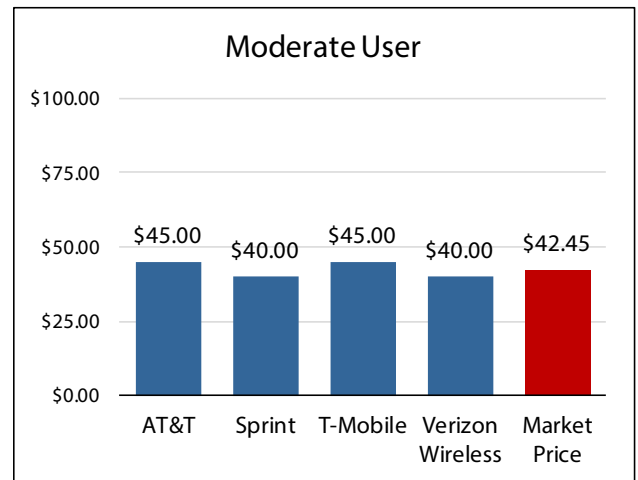
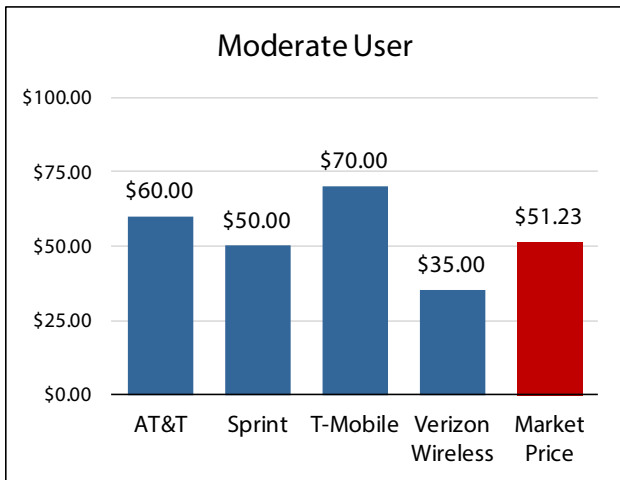
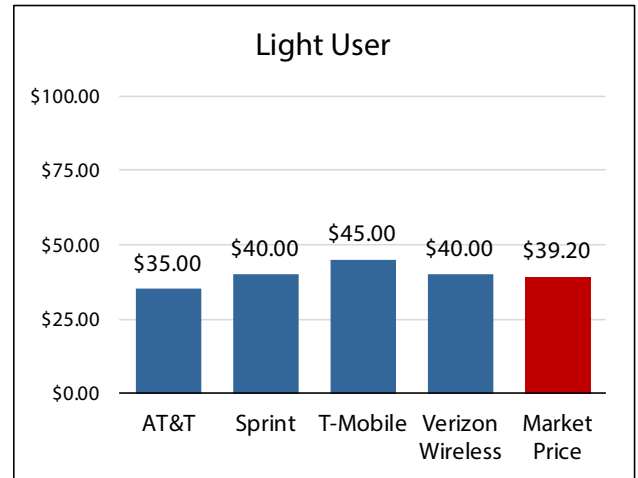


United States

Postpaid Voice/SMS/Data

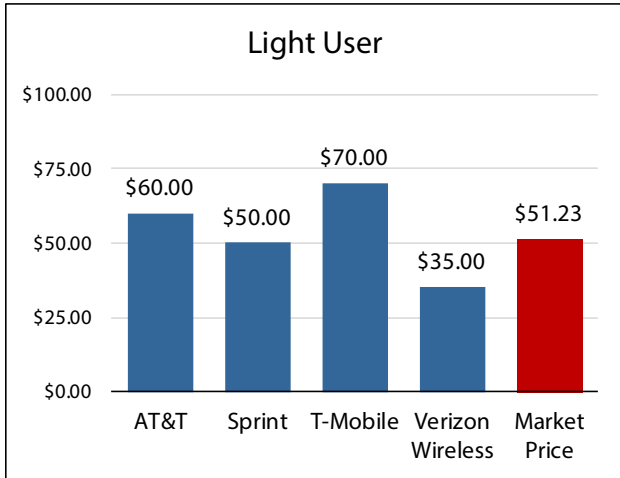


Prepaid Voice/SMS/Data

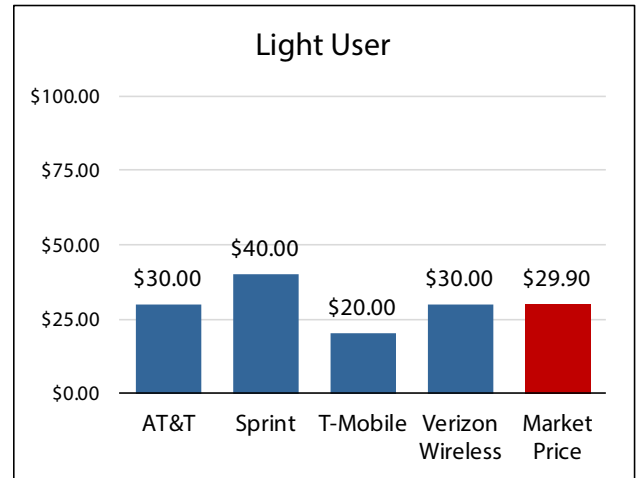


United States

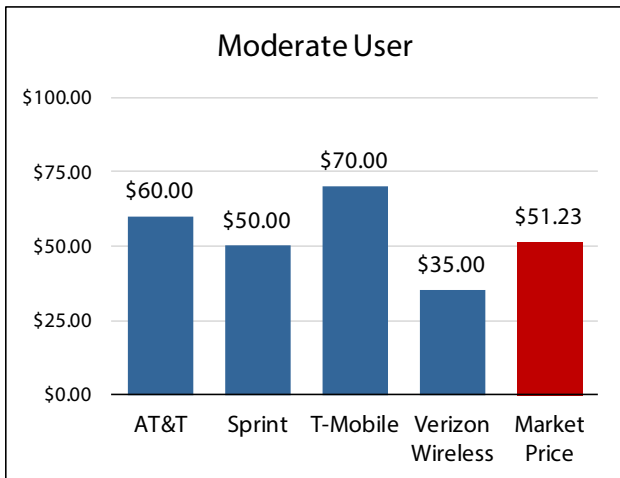
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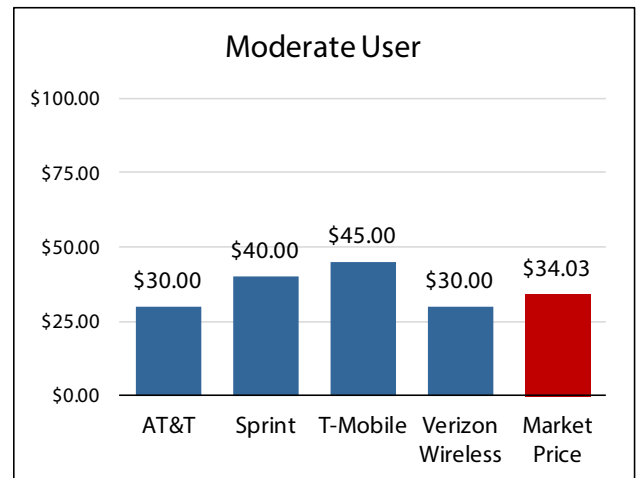
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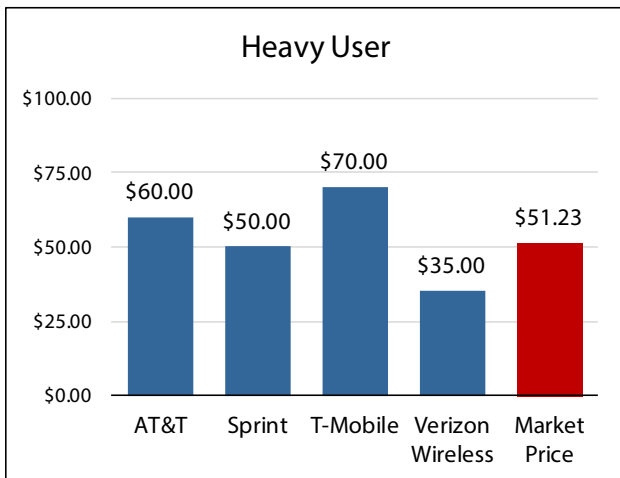
Moderate User



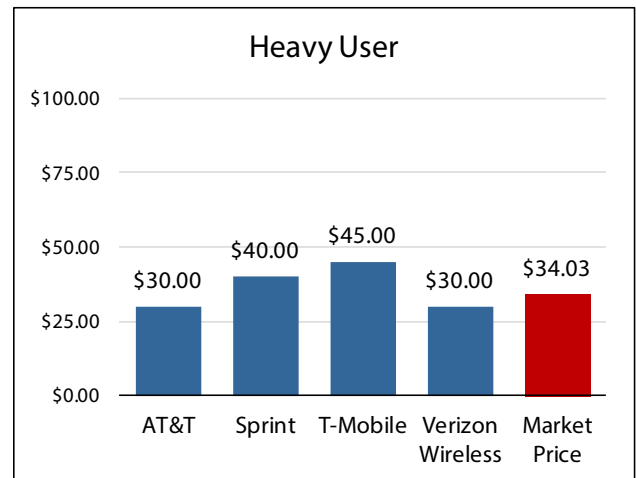
Moderate User



Heavy User

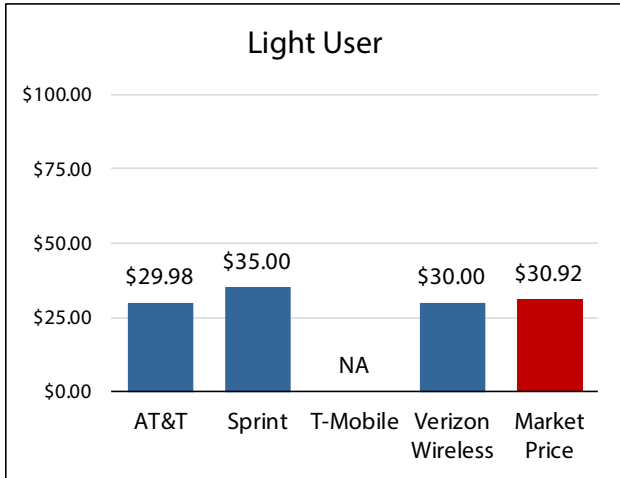


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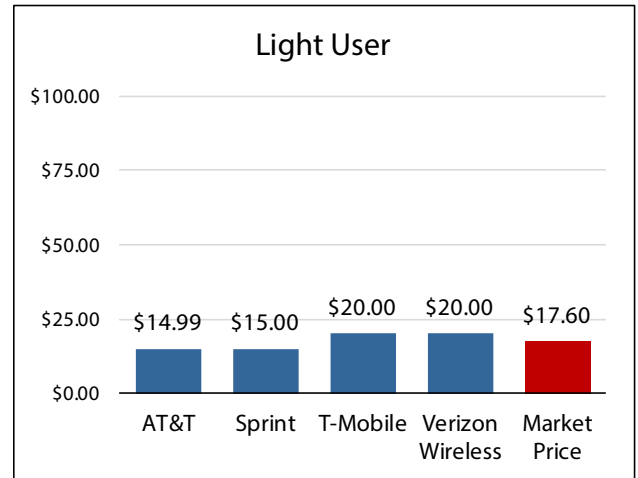


United States

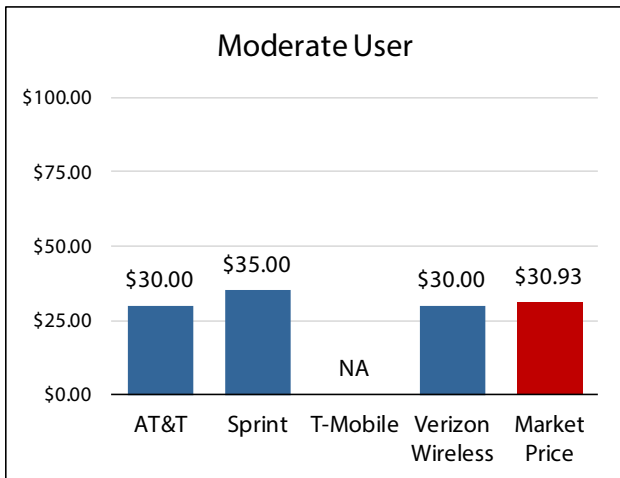
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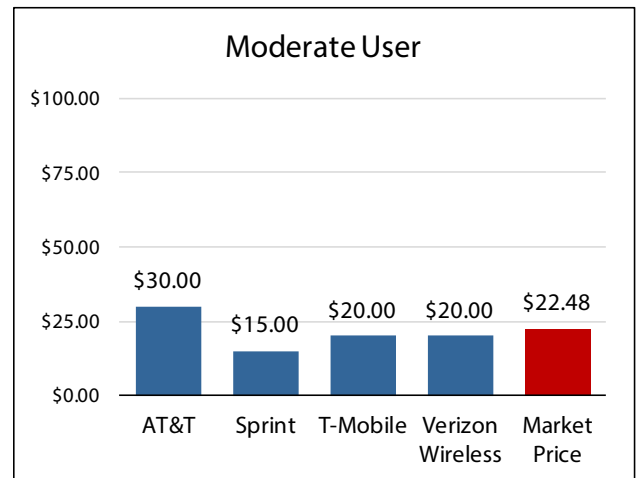
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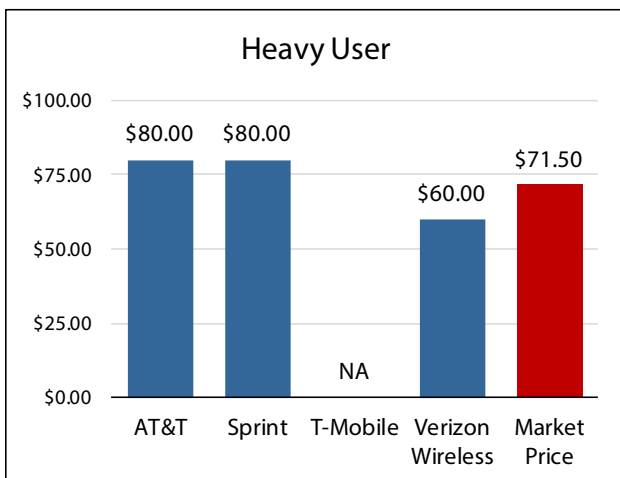
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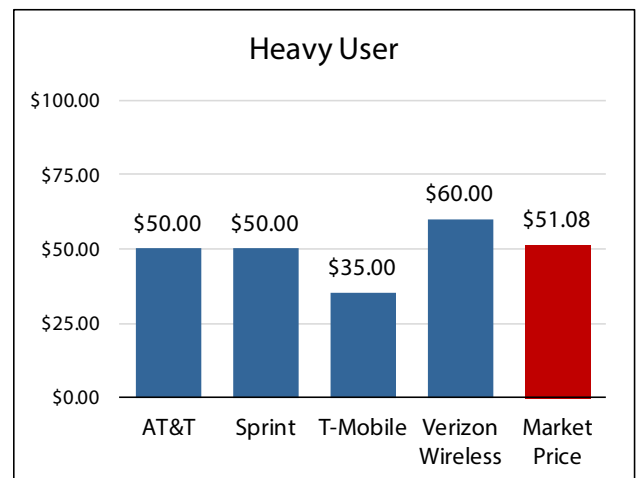
Moderate User



Heavy User



Heavy User



Appendix A

Complete List of Operators Studied

Australia

- Optus
- Telstra
- Vodafone

Bahrain

- Batelco
- Viva
- Zain

Brazil

- Claro
- Oi
- TIM
- Vivo

France

- Bouygues Telecom
- Free
- Orange
- SFR

Germany

- O2
- Telekom
- Vodafone

India

- Airtel
- Idea Cellular
- Reliance Communications
- Vodafone

Kenya

- Airtel
- Telekom
- Safaricom

Kuwait

- Ooredoo
- Viva
- Zain

Malaysia

- Celcom
- Digi
- Maxis

Mexico

- AT&T Mexico
- Movistar
- Telcel

Nigeria

- 9Mobile
- Airtel
- Glo Mobile
- MTN

Oman

- Omantel
- Ooredoo

Pakistan

- Mobilink
- Telenor
- Ufone
- Warid
- Zong

Qatar

- Ooredoo
- Vodafone

Saudi Arabia

- Mobily
- STC
- Zain

Singapore

- M1
- SingTel
- StarHub

South Africa

- Cell C
- MTN
- Telkom
- Vodacom

South Korea

- LG U+
- olleh
- SK Telecom

Spain

- Movistar
- Orange
- Vodafone

Sweden

- Tele2
- Telenor
- Telia
- Three

Thailand

- AIS
- DTAC
- Trumove

Turkey

- Turkcell
- Turk Telecom (Avea)
- Vodafone

United Arab Emirates

- du
- Etisalat

United Kingdom

- EE
- O2
- Three
- Vodafone

United States

- AT&T
- Sprint
- T-Mobile
- Verizon

Appendix B

Purchasing Power Parity Factors

<u>Country</u>	<u>PPP Factor</u>
▪ <i>Australia</i>	1.2165
▪ <i>Bahrain</i>	0.4851
▪ <i>Brazil</i>	0.5548
▪ <i>France</i>	0.8863
▪ <i>Germany</i>	0.8571
▪ <i>India</i>	0.2620
▪ <i>Kenya</i>	0.4457
▪ <i>Kuwait</i>	0.3925
▪ <i>Malaysia</i>	0.3625
▪ <i>Mexico</i>	0.5301
▪ <i>Nigeria</i>	0.4398
▪ <i>Oman</i>	0.3890
▪ <i>Pakistan</i>	0.2863
▪ <i>Qatar</i>	0.5204
▪ <i>Saudi Arabia</i>	0.3826
▪ <i>Singapore</i>	0.6194
▪ <i>South Africa</i>	0.4334
▪ <i>South Korea</i>	0.7857
▪ <i>Spain</i>	0.7396
▪ <i>Sweden</i>	1.0569
▪ <i>Thailand</i>	0.3559
▪ <i>Turkey</i>	0.4561
▪ <i>United Arab Emirates</i>	0.5779
▪ <i>United Kingdom</i>	1.0509
▪ <i>United States</i>	1.0000

All rates calculated by the World Bank.

Rates can be found at <http://data.worldbank.org/indicator/PA.NUS.PPPC.RF>.